



# NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS TASK FORCE ON GAS-ELECTRIC ALIGNMENT FOR RELIABILITY (**GEAR**)

## REPORT & RECOMMENDATIONS



## Overview

Over the past two years, the National Association of Regulatory Utility Commissioners' (NARUC) Gas-Electric Alignment for Reliability (GEAR) Task Force has successfully facilitated collaboration among state utility commissioners and industry leaders to generate policy solutions to alleviate multisector supply and demand challenges for natural gas and electric markets in the American power system.

U.S. electric and gas industries have been transformed by new technologies, replacement of aging infrastructure, environmental regulations and state and federal policy goals. New technologies for renewable electricity generation combined with the significant increase in natural gas production and a corresponding decrease in gas prices have increased dependence on gas for electricity generation. As a result, the electric industry, currently poised to experience significant growth amid rising demand from large-scale users, is more reliant than ever on natural gas to fuel electricity generation. However, natural gas systems were designed primarily to deliver gas for home heating and industrial processes, not to supply fuel for electric generation plants, thus gas infrastructure and markets are not aligned with emerging demands for electric generation. The lack of coordination between these systems poses serious reliability concerns, especially during winter storms when dependence on gas for both home heating and power electric generation is high.

Recognizing this problem, on November 21, 2023, the NARUC Executive Committee approved the creation of the Gas-Electric Alignment for Reliability Task Force. The revised charter of GEAR — extended through November 2025 — is attached in Appendix A. GEAR brought together state regulators and industry representatives to develop recommendations to better align the gas and electric industries.

Georgia Commissioner Tricia Pridemore has served as GEAR Chair. Kansas Commissioner Dwight D. Keen is the current Vice Chair. Current at-large members include Arizona Commissioner Lea Márquez Peterson, Iowa Commissioner Joshua J. Byrnes, Michigan Chair Daniel Scripps, Minnesota Chair Katie Sieben, and Rhode Island Chair Ron Gerwatowski. Previous GEAR Members include New Hampshire Commissioner Carleton B. Simpson, who served as Vice Chair until August 2025 when he left the New Hampshire Public Utilities Commission, and Texas Commissioner Jimmy Glotfelty, a GEAR member until he resigned at the end of 2024. To assist GEAR in its work, NARUC invited key industry stakeholders that could represent the views of a gas utility, an electric utility, a Regional Transmission Organization or Independent System Operator, an intrastate pipeline, an interstate pipeline, a producer, and a gas processor. Current GEAR industry representatives include Michael E. Bryson of PJM Interconnection, Mike Calviou of National Grid, Will Mojica of NiSource Corporate, Chris S. Moser of NRG Energy, Inc., Rob Perkins of Kinder Morgan, Paul Ruppert of BHE GT&S and Benjamin Schoene of ConocoPhillips. Tina Faraca of the Interstate Natural Gas Association was an industry representative observer until May 2025.

Findings from the North American Energy Standards Board Gas-Electric Harmonization Forum, the Reliability Alliance Report developed by NGS, INGAA and EPSA, and the analyses of Storms Uri and Elliott by the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation, served as starting point for GEAR deliberations. This report documents the processes, results, and resolutions of GEAR. While it serves as the concluding deliverable for this NARUC task force, it should remain a useful resource for future alignment of these critical sectors to meet the needs of customers, stakeholders, and the future of American energy.

# **GEAR Task Force Members**

Chair Tricia Pridemore  
Commissioner, Georgia Public Service Commission

Vice Chair Dwight D. Keen  
Commissioner, Kansas Corporation Commission  
(Replaced Carleton B. Simpson, New Hampshire Public Utilities Commission as Vice Chair in August 2024)

Joshua J. Byrnes  
Commissioner, Iowa Utilities Commission  
(Replaced Jimmy Glotfelty, Texas Public Utility Commission as a Member in January 2025)

Ron Gerwatowski  
Chair, Rhode Island Public Utilities Commission

Lea Marquez Peterson  
Commissioner, Arizona Corporation Commission

Daniel Scripps  
Chair, Michigan Public Service Commission

Katie Sieben  
Chair, Minnesota Public Utilities Commission

Michael E. Bryson (Industry)  
Senior VP of Operations, PJM Interconnection, LLC

Mike Calviou (Industry)  
Senior VP, US Policy & Regulation, National Grid

Will Mojica (Industry)  
Senior VP, Gas Operations, NiSource Corporate

Chris S. Moser (Industry)  
Senior Vice President, NRG Energy, Inc.

Rob Perkins (Industry)  
VP of Pipeline Management, Kinder Morgan

Paul Ruppert (Industry)  
President, BHE GT&S  
(Replaced Tina Faraca, Board Chair of the Interstate Natural Gas Association as an Observer in May 2025)

Benjamin Schoene (Industry)  
Director, Commercial NG Regulatory Affairs, ConocoPhillips

# TABLE OF CONTENTS

<b>Overview</b>	<b>i</b>
<b>GEAR’s Task Force Members</b>	<b>ii</b>
<b>The Problem</b>	<b>1</b>
<b>GEAR’s Evaluation Process and Procedure</b>	<b>2</b>
<b>Narrowing the Issues: GEAR Recommendation Review Development Process</b>	<b>3</b>
<b>The Recommendations: Diverse Policy Perspectives, But Common Ground</b>	<b>7</b>
<b>The Recommendations</b>	<b>9</b>
<i>Supporting the Creation of a Natural Gas Readiness Forum</i>	9
<i>Natural Gas Pipeline Infrastructure</i>	11
<i>Gas Storage Opportunities</i>	14
<i>Load Shed</i>	16
<i>Intra-weekend and Intra-day Natural Gas Market Liquidity Recommendation</i>	19
<i>Market Tools for Enhanced Supplier Performance in Extreme Winter Weather</i>	23
<i>Improving Generator Advance Natural Gas Fuel Procurement and Economic Certainty</i>	25
<i>Demand Response for Natural Gas Utilities</i>	27
<i>Incentivizing More Timely and Frequent Utility Interstate Capacity Release</i>	30
<b>GEAR Path Forward</b>	<b>30</b>
<b>Appendix A GEAR CHARTER</b>	<b>31</b>
<b>Appendix B GEAR REVIEW OF SOURCE RECOMMENDATIONS</b>	<b>33</b>

# The Problem

For decades, the gas and power industries grew separately but in close proximity. Over the years, both sectors increased in complexity and reach, but interconnected only infrequently. The electric industry relied primarily on coal, oil, and nuclear fuel to power its electric generators. The gas industry was designed and constructed to deliver gas for home heating and industrial processes. In the last two decades, however, changes in prices, policies, and technology have forced more interconnections between these two industries. As a result, power generation has significantly increased its reliance on natural gas to fuel its plants, and there is no sign of this growing interdependence slowing.

However, the markets that sprang up for electric power have different rhythms than the markets for natural gas. Mismatches for when deliveries start, or when a decision is needed can complicate the interface between the two markets. Most of the time such mismatches are trivial annoyances and have no impact on the lives of all those who take it for granted that lights will come on at the flick of a switch. Unfortunately, there are times, often in the winter, when both systems are running at their ragged edge when mismatches raise concerns.

Gas and electric system interdependence will continue to grow. To support this ongoing transition while maintaining reliability and affordability for customers and encouraging necessary investments in both industries, reforms are needed to address the areas of friction, disconnect and failure. The genesis of the Gas-Electric Alignment for Reliability (GEAR) Task Force was to bring together state regulators and industry representatives to develop solutions to better align the gas and electric industries to maintain and improve the reliability of the gas and electric energy systems on which our nation depends.

NARUC did so in a unique way. The GEAR Task Force was purposefully designed to be small to facilitate frank, nuanced, and sometimes difficult conversations. The Task Force not only included commissioners from around the country but also experienced industry professionals that have spent their careers making gas and power flow every day. Having this type of hands-on experience brought a unique and helpful perspective during complex conversations. Being able to hear and vet different perspectives from all the various industries involved was unquestionably helpful in crafting common understandings of the problems we all face and in examining potential solutions. The industries these Task Force members represented included a gas utility, an electric utility, a Regional Transmission Organization, an intrastate pipeline, an interstate pipeline, a gas producer, and a power generator.

The goal of GEAR was to provide a venue for key regulatory and industry stakeholders to discuss and develop solutions to the reliability problems caused by the misalignment of the gas and electric industries. One issue that surfaced during our many conversations was that, in a very broad sense, achieving the highest level of reliability is like insurance. It must be planned and purchased ahead of time, you hope you never need it, and if it is not used it will invariably look expensive. It is important for regulators and industry experts to help the public understand that those characteristics do not mean the cost to assure reliability are not prudent investments. Public utility commissioners must find the right balance between reliability and cost every time they decide on a rate case or other proceeding. Accepting that greater reliability comes with a cost and does not come for free is part of having a rational dialog on the subject. Choosing the right level of reliability is by no means easy, and the answer is not always clear, even in hindsight, but the effort that goes into the decision-making process is not wasted.

# GEAR's Evaluation Process and Procedure

## *Setting the Stage*

SOURCE MATERIALS FOR GEAR DELIBERATIONS: To level set and educate its members, GEAR's process began with a review and discussion of existing source material on this problem. GEAR's source material consisted of the most recent Gas-Electric Harmonization (GEH) efforts and recommendations, reflecting input and dialogue among a variety of stakeholders — regulators, industry, and system operators. This material represented the most consequential GEH areas for further progress and thus a strong foundation upon which GEAR could build. Source materials included:

- *North American Energy Standards Board (NAESB) GEH Forum Report* (NAESB July 2023).
  - Online at: [https://naesb.org/pdf4/geh\\_final\\_report\\_072823.pdf](https://naesb.org/pdf4/geh_final_report_072823.pdf)
- *Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliott* (FERC/NERC October 2023)
  - Online at: <https://www.ferc.gov/media/winter-storm-elliott-report-inquiry-bulk-power-system-operations-during-december-2022>
- *Natural Gas & Power Industries' Reliability Alliance: Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and Joint Industry Suggested Mitigation Strategies* (EPSA, INGAA, NGSA October 31, 2023)
  - Online at: <https://www.ngsa.org/wp-content/uploads/sites/3/2023/11/Reliability-Alliance-Gas-Electric-Consensus-Paper-Fall-2023-AD23-9-000.pdf>
- *Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress* (MISO, ISONE, PJM, SPP February 21, 2024)
  - Online at: <https://www.pjm.com/-/media/DotCom/library/reports-notice/special-reports/2024/20240221-strategies-for-enhanced-gas-electric-coordination-paper.ashx>

EDUCATIONAL PRESENTATIONS: GEAR's understanding during the early phase was bolstered by presentations from those representing the creation of the source material and other industry perspectives critical for overall system understanding. These educational sessions provided greater depth and breadth of understanding of issues pertinent to GEH and acted as a stimulus to GEAR discussions. They also provided an opportunity for GEAR members to buttress their understanding of how the gas and electric systems operate and have evolved. This information provided critical context for evaluating recommendations. These included:

- FERC/NERC Winter Storm Elliott Report on 1/08/2024 – Heather Polzin
- NAESB GEH Forum Report Presentation 1/08/2024 - Bob Gee, Forum Chair
- Reliability Alliance Paper presentation on 1/22/2024 - Todd Snitchler, EPSA; Amy Andryszak, INGAA; Dena Wiggins, NGSA
- Gas 101 presentation on 1/22/2024 - Sarah Tomalty, BP
- RTO/ISO Strategies for Enhanced Gas & Electric Coordination overview on 5/22/2024 - Mike Bryson, PJM
- SERC 2022/23 Regional Risk Report presentation on 7/17/2024 - Rebecca Poulsen, Assistant General Counsel SERC Reliability Corporation
- NG Supply Critical for Florida's Electric Needs overview on 7/17/2024 - Jacob Williams, General Manager & CEO, FMPA, Chair FRCC
- NPCC Northeast Gas Electric System Study on 7/17/2024 – Charles Dickerson, President and CEO of Northeast Power Coordinating Council, Inc.

In addition to these sessions, GEAR also arranged to participate in a tabletop exercise to illustrate the types of real-world scenarios where GEH problems arise. On February 24, 2024, GEAR participated in a tabletop simulation exercise moderated by Jim Robb, CEO of NERC. The exercise included opening comments, scenario start conditions, the exercise itself, and a debrief and evaluation session.

The scenario Start Conditions and Initial Impacts were described as a cross-continental cold snap beginning February 28th which caused a 20% decline in gas production, low pipeline pressure in the Midwest, and a 20 GW drop in wind and solar generation across the west and Midwest. Severe weather was forecasted to worsen conditions over the next seven days, impacting the bulk power system's stability.

The scenario included force majeure notices issued on three major pipelines in the Southeast and Mid-Atlantic, causing significant natural gas transmission and supply disruptions lasting 18 to 24 hours. The Eastern Interconnection frequency dropped to 59.62 Hz, triggering underfrequency load shedding of 10,000 MW by two transmission operators. Scenario severe weather impacts led to media reports and social media misinformation about risks of blackouts and natural gas distribution problems. FERC and federal lawmakers contacted NERC, while election officials expressed concern about energy supply ahead of the March 5, 2024, Super Tuesday primaries.

The introduction of the scenario was followed by an industry Roundtable and Cross-Industry Response. This included electric ISO/RTOs, generators, transmission and distribution companies, natural gas producers, pipelines, local distribution companies, and gas processors. Midstream and downstream companies faced supply shortages, compressor station power failures, increased pipeline flow orders without force majeure, generator failures, and uncertain demand forecasts, prompting cross-industry coordination. Each of the participants provided insight to how the scenario would impact their operations as well as communications approaches.

The debrief focused on establishing and maintaining situational awareness, communication methods, identifying pitfalls, regulatory authorities and resources, coordination of public messaging at state and national levels, information gaps affecting response time, and lessons learned.

### ***Narrowing the Issues: GEAR Recommendation Review Development Process***

The GEAR Task Force held monthly meetings either online or in person. Recognizing the need to ensure a sound foundation, early discussions consisted of developing an understanding of the source material recommendations and contextualizing them within the evolution of the gas-electric system and previous GEH efforts. This supported an initial item-by-item conversation about each of the source material recommendations and identified those ripe for GEAR discussion and consideration. The general rationale for what GEAR could and would reasonably discuss and consider was the expected beneficial impact, the viability of execution, the level of consensus across stakeholders, and the ability of states to influence implementation. Those items that were not generally viewed as feasible for GEAR to advance were those with uncertain value, insufficient market signals, lack of clear consensus, and multi-jurisdictional policy complexity.

Although the source material provided the basis for recommendation development, GEAR members were free to advance any ideas for consideration at any time. When recommendations were identified for development, Task Force comprised of several members and at least one regulatory representative and one commissioner were established. These groups were tasked with collaborating on the evaluation and development of draft recommendations for consideration by GEAR, which was often an iterative process as various perspectives guided resolution.

*Recommendation Disposition*

The source material comprised 62 recommendations across the gas and electric systems and across operational, contractual, and market design categories. GEAR recommendations covered all or portions of source material recommendations. Certain source material recommendations overlapped completely or partially, thus allowing for the GEAR recommendations to cover much of the source material both directly and indirectly. There were also many source material recommendations being developed in other venues (NERC, FERC, ISOs); therefore, GEAR did not act on those. Below are two tables with general coverage characterizations.

*Source Material Recommendations Given Significant Consideration*

<b>Key GEAR Recommendation Consideration List</b>	<b>Source Material Coverage Count</b>	<b>Status</b>
Natural Gas Readiness Forum (NGRF)	8	Approved
Natural Gas Pipeline Infrastructure	7	Approved
Gas Storage Opportunities	5	Approved
Intraday and Intra-weekend NG Market Liquidity	2	Approved
Load Shed	1	Approved
Supplier Performance	5	Approved
Demand Response	2	Approved
Advance Generator NG Procurement and Economic Certainty	7	Approved
Utility Capacity Release	2	Approved
Fuel Shortage Emergencies	2	Developed - Not Advanced
Power Day Change	3	Developed - Not Advanced
Force Majeure	2	Introduced – Not Advanced
Situational Awareness - Data Sharing	4	Introduced - No Development
Gas Reliability Organization	2	Introduced - Not Advanced

*Source Material Recommendation Coverage Counts:*

<b>Source Material</b>	<b>GEAR Recommended</b>	<b>Other Venues</b>	<b>Not Recommended</b>	<b>Total</b>
NAESB	11	2	7	20
FERC/NERC	6	13	1	20
Reliability Alliance	5	3	0	8
ISO/RTO Blueprint	6	0	8	14
<b>Total</b>	<b>28</b>	<b>18</b>	<b>16</b>	<b>62</b>

Examples:

- Full Coverage: The FERC/NERC recommendation to convene NG entities, grid operators, and LDCs for communication improvements during extreme cold weather to enhance situational awareness is covered by the NGRF recommendation.
- Partial Coverage: The NAESB recommendation for authorities to consider the development and public disclosure of extreme weather weatherization guidelines for production, gathering, and processing and the similar FERC/NERC recommendation are partially covered by the NGRF and Supplier Performance recommendations.
- Indirect Coverage: The NAESB recommendation for strategic storage, as it contemplates a non-market solution, could be informed and influenced by the success of the Gas Storage Opportunities recommendation.
- Other Venue Coverage: Several of the FERC/NERC recommendations regarding generation operational protection measures.
- No Coverage: The RTO/ISO recommendation regarding emergency gas prioritization at the federal level with a FERC developed critical load prioritization within the firm designation.

#### *Select Source Material Recommendations Not Chosen*

What follows are several of the consequential source material recommendations that GEAR chose **not** to advance.

#### **Establishment of a Gas Reliability Organization (GRO):**

Many have called for legislation to form a national Gas Reliability Organization (GRO) akin to a NERC for natural gas. There was a lack of support for GEAR advancing this recommendation, with a majority of members concluding that such an option (on a national, regional or state basis) is unnecessary or not the best means to efficiently enhance gas-electric reliability.

The natural gas system operates under diverse regulatory frameworks and economic models, making standardization complex and potentially disruptive. Unlike electricity, which can experience cascading failures, the natural gas system has inherently different physics and does not face the same type, frequency, and level of failure risk; it is only under rare and specific conditions that the natural gas system may not adequately perform. Sufficient line-of-sight into the challenges of gas-electric interdependence exists and the various regulatory agencies are quite capable of navigating this challenge.

Highly prescriptive weatherization measures are not practical given the diverse geographic areas in which natural gas is produced and transported and the varying operational capabilities and scale of the natural gas system. Particularly for production, that level of standardization is likely to cause more harm than good, such as reducing productive capacity. Natural gas segment communication protocols for operations and scheduling developed with fit-for-purpose regulation and standardization, which allow the system to function without material issues and while improvements can be made, are not the driver of system challenges.

The costs of a complete overhaul of the regulatory environment in the form of a GRO outweigh the benefits of such change, particularly for conditions as rare as extreme weather. The biggest challenge in addressing natural gas and electricity interoperability is not operational; it is economic. There is a need for the value of reliability under extreme weather conditions to be priced into the market so the optimal array infrastructure and services can be developed and implemented. This is not something a GRO can

provide, but improvements in the structures that guide infrastructure development and electricity market performance can.

### **Changes to NAESB Base Contract Force Majeure Provisions:**

GEAR recognizes that winter storms Uri and Elliott produced extreme conditions that caused unprecedented impacts across the entire energy system, including the exercise of force majeure by natural gas suppliers. GEAR discussions were informed by recommendations from the 2022/23 NAESB Forum and the 2024 Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress paper. GEAR, through consideration of various viewpoints, found it neither viable nor productive to advance a force majeure recommendation.

Force majeure is a key concept in many contracts, including the NAESB Base Contract, which serves as the standard for natural gas transactions. The contract was created with broad industry engagement as a standardized framework that captures various obligations, risks, and remedies. Its widespread adoption indicates the value that the contract provides for transactional efficiency while allowing for any of its provisions to be freely negotiated between the two parties.

The exercise of force majeure is a serious decision and essential for use in the extreme circumstances contemplated by the contract. The operational realities of gas production are no different than the realities of any mechanical system exposed to the physical environment. There is performance risk that is assessed and managed based on a wide range of variables and what is prudent under the given conditions. This includes risks associated with the gathering and processing functions, which are outside of the producer's control and shifting this balance carries the risk of the unintended consequence of less supply availability.

GEAR recognizes the primary driver for changes to the force majeure provisions is aimed at expanded winterization of the production system. While GEAR did not advance a specific force majeure recommendation, there are two GEAR recommendations that facilitate a better understanding of force majeure and provide greater opportunities to mitigate its use. The Natural Gas Readiness Forum has facilitated dialogue to better understand operational sensitivities and how each part of the system can interact more effectively and improve performance. Also, the Supplier Performance recommendation illuminates opportunities for achieving enhanced performance provisions through negotiating reasonable terms consistent with competitive market principles.

### **Gas Day:**

GEAR also examined whether we should recommend changing either the gas or electric day timing so that they match. While it is obvious that the current bifurcated system is not how anyone would design the combined system from scratch, we are unaware of any systemwide outage that has occurred due to scheduling issues or mismatches. The fact that a lack of actual physical molecules caused issues during Uri and Elliott drove much of our thinking. The Task Force focused on maximizing the chances of having physical molecules of gas available when they are needed.

## ***The Recommendations: Diverse Policy Perspectives, But Common Ground***

The topic of energy, including the role of natural gas generation, has given rise to significant legislative and executive initiatives intended to address numerous energy policy objectives across the country. These state-driven policy initiatives can have significant impacts on how electric generation and gas systems are operated, regulated, and maintained. The relationship between natural gas infrastructure and the reliable operation of electric systems, however, presents highly complex operational issues that are not always well understood by elected officials who seek to amend the state laws that regulate these industries. It may not always be readily apparent how an amendment to state laws can have an impact on the relationship between gas infrastructure and the operation of the electric system that relies upon natural gas generation to maintain reliable service.

Public utility commissions across the country not only regulate the rates of the utilities over which they have jurisdiction, but they also address a myriad of issues that relate to the safe, affordable, and reliable delivery of energy over the electric and gas systems. In carrying out their regulatory duties, state commissions and their experienced staff have substantial expertise in understanding and evaluating the multitude of issues that impact those systems. For these reasons, the GEAR Task Force urges state policymakers to consult with state utility regulators and their relevant staff when undertaking material and significant changes that can affect the reliability or affordability of electricity.

In the context of state policy, the recommendations made by the GEAR Task Force were a result of significant information-sharing and discussion among GEAR members with diverse points of view on the future of natural gas and expansion of natural gas infrastructure, driven by very different state energy policy objectives in various regions of the country. Despite the diversity of opinions, however, all GEAR Taskforce members nevertheless shared common ground on the need for harmonization between the electric and natural gas sectors to ensure reliable and affordable electricity service. In that context, it is important to point out that there was uniform agreement that natural gas generation will remain as an important resource upon which the nation will rely for many years to come. Thus, the need for harmonization is crucial, regardless of one's long-term perspective about future energy policy in various regions of the country.

It is this agreement and common ground that leads the GEAR Taskforce to strongly support the following recommendations intended to facilitate the alignment of the natural gas and electric generation sectors to ensure the safe, efficient, and reliable operation of the electric system.

### **Summary Overview of Recommendations**

#### **SUPPORTING THE CREATION OF A NATURAL GAS READINESS FORUM**

GEAR supports the creation of a voluntary ongoing Natural Gas Readiness Forum dedicated to the enhancement of U.S. natural gas value chain reliability via the promotion of communication, peer-to-peer connections, situational awareness, and education among its participants and stakeholders to anticipate and respond to calamitous events and other issues.

#### **NATURAL GAS PIPELINE INFRASTRUCTURE**

With the widespread recognition that the United States needs additional natural gas pipeline infrastructure to reliably meet the United States' growing and changing demand for energy, NARUC, with the expertise and influence of its member states, should support federal permitting reform that would address infrastructure hurdles in a meaningful way such that new infrastructure may be in place in a timely manner to meet growing and changing natural gas and electricity demand.

## **GAS STORAGE OPPORTUNITIES**

GEAR recognizes the critical role of storage in supporting energy system reliability and recommends that states and organized power markets evaluate a wide array of solutions that affect the investment in, development of, and use of storage of all types, including associated infrastructure, to support the electricity grid and end use customer reliability under high energy demand conditions.

## **LOAD SHED**

GEAR encourages state regulators to be aware of utilities' load shed practices given the high consequence of these decisions and should reach out to their ISO/RTO, regulated utilities, and any other relevant electricity consuming groups and review information from NERC to better understand load shed practices, when load shed practices were last updated, and evaluate if changes are needed for the current electricity consumption landscape.

## **INTRA-WEEKEND AND INTRA-DAY NATURAL GAS MARKET LIQUIDITY RECOMMENDATION**

Historically, the natural gas markets have worked well, however improvements to ensure greater liquidity and transparency on winter weekends, when there is limited trading, can help to ensure that reliability is enhanced at a reasonable cost to customers, fully recognizing that these decisions will involve tradeoffs and risk-shifting.

## **MARKET TOOLS FOR ENHANCED SUPPLIER PERFORMANCE IN EXTREME WINTER WEATHER**

GEAR recommends that states, in lieu of direct winterization regulations for natural gas production, provide for consideration of the need and feasibility of a market-driven process that allows cost recovery for utilities and generators that pay a premium for a verified winterized or enhanced performance (e.g., storage and other assets) product for the purpose of increasing reliability through supply loss mitigation.

## **IMPROVING GENERATOR ADVANCE NATURAL GAS FUEL PROCUREMENT AND ECONOMIC CERTAINTY**

GEAR encourages state regulators and policy-makers to support stakeholder actions for market-based solutions to incent and advance natural gas fuel procurement and provide economic certainty, consistent with recommendations to improve natural gas unit scheduling and dispatch.

## **DEMAND RESPONSE FOR NATURAL GAS UTILITIES**

To ensure system reliability for those states with limited and/or no natural gas demand response programs, state regulators those jurisdictions may consider building out robust demand response programs to reduce or shift their energy usage during periods of high demand or system stress, such as severe weather events.

## **INCENTIVIZING MORE TIMELY AND FREQUENT UTILITY INTERSTATE CAPACITY RELEASE**

States should consider supporting or adopting measures that facilitate more timely and frequent use of interstate capacity release or asset management arrangements (AMAs) by its utilities so the marketplace may benefit from a more efficient allocation of firm interstate transportation and storage capacity.

# The Recommendations

NOVEMBER 2024

## GEAR RECOMMENDATION: SUPPORTING THE CREATION OF A NATURAL GAS READINESS FORUM

**BACKGROUND:** The National Association of Regulatory Utility Commissioners created the Gas-Electric Alignment for Reliability, “GEAR”, Working Group on November 21, 2023. Current GEAR members include Georgia Commissioner and GEAR Chair Tricia Pridemore, Kansas Commissioner and GEAR Vice Chair Dwight Keen, Rhode Island PUC Chair Ronald T. Gerwatowski, Texas Commissioner Jimmy Glotfelty, Arizona Commissioner Lea Marquez Peterson, Michigan PSC Chairman Daniel C. Scripps, and Minnesota PUC Chair Katie Sieben. NARUC also invited key industry sector representatives to participate in the working group, including Michael E. Bryson, Senior Vice -President of Operations, PJM; Mike Calviou, Senior Vice President, US Policy & Regulation, National Grid; Tina Faraca, Executive Vice President/President US Natural Gas Pipelines, TC Energy; Chris S. Moser, Executive Vice President, NRG; Rob Perkins, Vice President of Pipeline Management, Kinder Morgan; and Benjamin Schoene, Director, Commercial Natural Gas Regulatory Affairs, ConocoPhillips. The GEAR Working Group has sought to create solutions that benefit consumers and stakeholders in an energy marketplace that is growing increasingly more reliant on natural gas.

The GEAR working group participants recognize that increased peer-to-peer connections, communication, situational awareness, and education, across the entirety of the U.S. natural gas value chain, from producers to critical end users, bound by laws and regulations governing such communications and participation, would generate solutions to critical issues facing consumers and stakeholders.

As calamitous events impact growing numbers of consumers and stakeholders, such as severe weather and similar events, GEAR recognizes there is a need for the creation of an industry-led forum that will promote peer-to-peer connections, increase communication and situational awareness, and provide educational opportunities for stakeholders impacted by such events.

**RECOMMENDATION:** The GEAR Working Group supports the creation of a voluntary Natural Gas Readiness Forum, “Forum” or “NGRF” dedicated to the enhancement of U.S. natural gas value chain reliability via the promotion of communication, peer-to-peer connections, situational awareness, and education amongst its participants and stakeholder. The GEAR Working Group recommends the NGRF:

- Invite a wide range of stakeholders to voluntarily participate, including, but not limited to, natural gas distribution operators, natural gas midstream operators (gathering, processing, transportation, storage), natural gas producers, state regulatory utility commissioners, Regional Transmission Operators, and Federal Energy Regulatory Commission representatives, as well as other entities identified by the Forum, including, e.g., other relevant state and federal agencies, natural gas consumers, electric power generators, and electric utilities;
- Foster an environment, subject to anti-trust laws, that encourages discussion of operational readiness across the entirety of the U.S. natural gas value chain and critical end users as it applies to severe weather events, operational impact events, or any other incidents that materially adversely affect Forum participants, and serves to benefit all its participants;
- Conduct an annual readiness summit at the beginning of the winter season that includes at a minimum, the representatives from the gas value chain, e.g., natural gas transportation, storage, and distribution

operators, natural gas producers, state regulatory utility commissioners, Regional Transmission Operators, and Federal Energy Regulatory Commission representatives;

- Convene voluntary meetings outside of this annual summit to consider, e.g., educational opportunities, U.S. regional-focused discussions, and events that adversely affect the operations of Forum participants and the duties and actions of applicable stakeholders.
- Participants at this meeting should include, at a minimum, natural gas transportation, storage, and distribution operators, state regulatory utility commissioners, regional transmission operators, and Federal Energy Regulatory Commission representatives.
- Strictly limit its scope to communication, peer-to-peer connections, situational awareness, and education related to the reliability of the U.S. natural gas value chain;
- Initially convene prior to the conclusion of 2024.

The GEAR Working Group also recommends the American Gas Association have the responsibility for administering the Forum, in collaboration with other natural gas value chain trade associations, to develop a process and scope that maximizes participation consistent with antitrust laws.

FEBRUARY 2025

## GEAR RECOMMENDATION: NATURAL GAS PIPELINE INFRASTRUCTURE

**BACKGROUND:** Problem Statement: There is widespread recognition that the United States needs additional natural gas pipeline infrastructure to reliably meet the United States' growing and changing demand for energy:

- Over 189 million Americans and 5.6 million businesses rely on natural gas for residential heating and electricity. Last year, natural gas utilities added over 609,000 new residential and over 20,000 new business natural gas customers. Today, natural gas meets more than one-third of the United States' energy needs.
- The North American Electric Reliability Corporation explained that “natural gas is the reliability fuel that keeps the lights on, and natural gas policy must reflect this reality”<sup>1</sup> and that “additional pipeline infrastructure is needed to reliably serve electric load.”<sup>2</sup> Recognition of expected new natural gas generation usage patterns prompted widespread industry support for the Fall 2024 U.S. Department of Energy (DOE) pilot to assess whether there is sufficient pipeline capacity in place to support expected increased generator ramping needs.
- Regional Transmission Operators (RTOs) and Independent System Operators (ISOs) that collectively serve 144 million people in all or parts of 36 states and the District of Columbia found it “essential to emphasize that, in certain RTO/ISO regions, it remains critically important to expand the existing natural gas infrastructure because, for those regions, infrastructure expansion is integral to an overarching, comprehensive plan at improving gas-electric coordination and bolstering the natural gas pipeline infrastructure so critical to this nation’s energy security needs.”<sup>3</sup>
- PJM Interconnection and the Midcontinent Independent System Operators—RTOs/ISOs that oversee all or part of 24 states—likewise concluded that “a robust gas pipeline infrastructure will be critical to helping support that industry transition in an efficient and reliable manner.”<sup>4</sup>
- Natural gas storage is a widely used and critical tool for managing demand fluctuations, particularly the difference between seasonal consumption patterns, and to a lesser extent fuel gas supply fluctuations. Underground storage (where geographically available) and LNG storage are well-suited to facilitate Gas Electric Harmonization (GEH) when coupled with the appropriate associated infrastructure. Natural gas storage allows operators to rapidly respond to demand and fuel natural gas supply changes during an extreme weather event, particularly when located closer to end-use.
- There are substantial obstacles to expanding the interstate natural gas pipeline system to meet the recognized need for more infrastructure and will become more challenging due to growing electricity demand largely needing to be met with natural gas.

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<sup>1</sup> NERC, *2021 Long-Term Reliability Assessment* at 5 (Dec. 2021).

<sup>2</sup> NERC, *2022 Long-Term Reliability Assessment* at 18 (Dec. 2022).

<sup>3</sup> MISO, ISO-NE, PJM, SPP, *Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress* at 5 n.1, <https://tinyurl.com/mhuvu3w8>.

<sup>4</sup> *Limited Reply Comments of PJM Interconnection, LLC and the Midcontinent Independent System Operator, Inc.* at 2, Certification of New Interstate Natural Gas Facilities, FERC Docket No. PL18-1 (May 25, 2022).

First, the Federal Energy Regulatory Commission (FERC)—the federal regulator responsible for authorizing the siting and construction of interstate natural gas pipelines — has long recognized that contracts or precedent agreements for pipeline (or storage) capacity constitute significant evidence of demand for a proposed pipeline (or storage) project. FERC-jurisdictional RTO and ISO wholesale electric markets need to continue to develop market-based solutions that value and support increased generator acquisition of firm gas products (firm transportation, firm supply, storage, non-uniform rate of flow rate schedules, etc.) which can support the development of additional pipeline and storage capacity.

Second, the federal permitting process has become unnecessarily long, unduly burdensome, and subject to extraordinary litigation risk. Development of natural gas infrastructure is time and capital intensive, and these factors frustrate industry’s ability to plan, finance, and construct critical infrastructure to meet very certain supply and demand signals. Constrained infrastructure also leads to higher natural gas and electricity prices in addition to reduced reliability.

**RECOMMENDATION:** NARUC should support federal permitting reform that would address infrastructure hurdles in a meaningful way such that new infrastructure can be in place in a timely manner to meet growing and changing natural gas and electricity demand.

RTOs and ISOs establish the wholesale electric markets, which must be approved by FERC. Although states do not directly regulate wholesale electric markets, state regulatory utility commissions do regulate both electric and gas utilities within those states and possess substantial expertise in both electric and natural gas markets, which lends significant weight to the States’ position on the functioning of those markets. States, through NARUC, could consider using their expertise and influence to support expeditious development of solutions to improve natural gas generation unit scheduling and dispatch, much of which will rely on natural gas infrastructure expansion, such as:

- Periodically conduct a comprehensive review of its natural gas generation fleet’s contracting practices to determine what level of pipeline and storage service and natural gas commodity service each generator holds and whether there is a correlation between the level of pipeline/storage services and natural gas commodity service and generator performance;
- Support the build out and hardening of natural gas infrastructure to support the growing demand for both large generation, CHP units and smaller individual residential and commercial generation;
- Identify the factors that prevent its natural gas generation fleet from holding firm transportation or storage rights on natural gas pipelines or firm supply arrangements with gas producers or gas marketers;
- Continue to improve scheduling procedures that provide natural gas-fired generators sufficient notice to procure natural gas and schedule pipeline capacity in advance of NAESB’s Timely Cycle; and
- Encourage RTO/ISOs to adopt and/or propose to FERC to require electric market reforms needed to further value reliability through support for firm pipeline transportation and/or storage services and/or firm supply arrangements that align with generator performance obligations, thereby supporting pipeline expansions, as needed.
- Recognize the long-term investment barriers for many generators and examine ways that RTO/ISOs can take steps to help support new gas infrastructure needed for gas generators in their region — whether from allowing cost recovery for those that sign long-term contracts that support new builds or market

mechanisms that incent that investment. Alternatively, RTO/ISOs could consider ways to invest and/or financially underpin infrastructure with a framework to deploy its use and recover costs.

- Encourage states to support expeditious consideration of these market-based solutions to improve natural gas generation unit scheduling and dispatch.
- Support continued funding of DOE, NERC, etc. efforts to study other regions beyond the PJM region pilot study of whether there is sufficient natural gas infrastructure for new generator usage patterns that include increased swings required to balance intermittent resources.

Much of the natural gas pipeline system lacks sufficient available capacity to meet significant new demand from natural gas utilities and generators, especially on a firm basis, and the federal permitting process is an obstacle to expanding the system. NARUC should also support legislation to reduce the length, uncertainty, burden, and litigation risk of the federal infrastructure permitting process to facilitate the timely completion of critical infrastructure projects.

GEAR's charter, the suite of reports and papers containing recommendations for GEAR's consideration, and the nature of the Gas-Electric-Harmonization (GEH) discussions over the last many years clearly highlight natural gas infrastructure as a critical component of improving the delivery of natural gas to the electricity system to improve electric reliability, which is why this GEAR recommendation is squarely focused on natural gas infrastructure. GEAR certainly recognizes the need for electric infrastructure for electric reliability broadly, beyond the specific scope of GEH, and generally supports efforts addressing that need in other venues.

**STATEMENT:** *As a regulator from a state in the New England region that has policy objectives that aim to reduce dependency upon natural gas for our energy needs, I cannot support several of the foundational conclusions in the Problem Statement that assert a need for expansion of gas infrastructure without recognizing regional policy differences. For that reason, I respectfully decline to endorse the statement as written.*

Ron Gerwatowski Chairman of the Rhode Island Public Utilities Commission

## MARCH 2025

### GEAR RECOMMENDATION: GAS STORAGE OPPORTUNITIES

**BACKGROUND:** Storage has long played an essential operational and reliability role in acting as an effective tool for bridging differences in supply and demand across many different time periods and will remain essential in managing our energy system for decades to come. It is also effective in mitigating the effects of price spikes, which supports greater affordability. Storage development is underpinned through long-term financial commitments which can present a challenge for generators that lack scale and regular opportunities to operate. Although there are significant costs and operational limitations to the deployment of new storage facilities, it remains the best method to mitigate situations where there are spikes in demand and/or disruptions to fuel gas supply. Therefore, it is critical for all stakeholders to evaluate and implement sufficient storage options of all types.

Storage can mean many different things to many different people. The use of the word herein is meant to be construed as broadly as possible. Among the qualifying uses of the term are, of course, underground natural gas storage, but it should also incorporate other forms of back up alternatives including alternate fuel/diesel/oil tanks at a power plant, LNG or CNG to the extent it is usable by a generator in lieu of natural gas transported via pipelines, batteries, compression storage, and other methods for storing electricity, thermal energy storage, and any other technology that allows the grid to stay reliable when the natural gas demand is high.

This context considers storage as a solution to effectively manage short-term supply and demand issues, namely unexpected surges in demand. Storage is also a great derisking asset that offers multiple operational and economic benefits to natural gas storage holders and gas and electric system operators, even during normal operations.

**RECOMMENDATION:** GEAR recognizes the critical role of storage in supporting energy system reliability and recommends that states and organized power markets evaluate a wide array of solutions that affect the investment in, development of, and use of storage of all types, including associated infrastructure, to support the electricity grid and end use customer reliability under high energy demand conditions.

Regulators and RTOs/ISOs, namely those with resource adequacy and/or siting authority, should apply a strategic approach to expand opportunities for increased or new storage investment consistent with empowering end-users to exert greater control over supply needs. The following questions are intended to help assess the current state of and guide planning for future storage options, as well as help assess and compare current and projected energy demand/supply portfolio, specifically in relation to storage. State commissions may consider:

1. How much storage does your state/region have? What type is it? Where is it vis-à-vis market centers? What existing storage (and related gas transportation capacity) is available? Take an inventory of existing storage (both inter and intrastate), including the mapping of current storage capacity and deployment. This can help guide planning for future storage options.
2. What storage does your state/region need? The next step of this analysis would be to understand the capacity, deliverability, location and connectivity of storage required to meet reliability requirements. This would be scenario-based in response to possible percentage reductions in gas and power under stresses to the system. Looking at regions that suffered outages and applying those reductions as appropriate to identify gaps.

3. What new or expanded storage facilities are available at what cost? Publish a request for proposals (RFP), request for information (RFI), or request for solutions (RFS) (depending on the jurisdiction) to get a supply curve and construction timeframe for consideration. These requests should be technology agnostic to allow for the maximum number of potential projects and thereby the maximum amount of competition and information. Bidders may propose contracting for underground storage services, new tanks at their plants for back up fuel, etc. The more participation the better, as the commissions and/or other appropriate authorities can then analyze and evaluate across technologies based on cost, size, speed to market, and any other relevant attributes. This approach is not intended to replace or frustrate existing storage development and contracting practices but rather serve as a supplement to ensure that opportunities are appropriately assessed and maximized.
4. What does it take to execute? Timing (e.g., urgency and development), permitting (e.g., construction constraints), and cost/investment recovery (e.g., RTO products/ancillary services) are all critical considerations that may require additional regulatory support.

This analysis would need to account for possible differences in regulated jurisdictions, where regulators consider prudence or other features of storage as part of integrated resource planning, and other jurisdictions where it might require consideration outside of business-as-usual market frameworks that incentivize generators to invest in gas storage options (LNG, dual fuel, underground, etc.) as part of their overall supply portfolio.

Most new storage requires development and long-term commitments, up to a decade or more. Similar to the above actions taken by state commissions. Organized power markets should examine the role of storage in meeting reliability requirements and how changes to market rules can support generator's underwriting new or additional storage and firm contracting. This contracting can be either direct with storage providers or indirect through no-notice or non-ratable pipeline services or through marketers that hold storage. New ancillary services, changes in capacity accreditation or other solutions could be considered as ways to solve the problem of paying for the reliability needed, even in years when it is not called upon.

## FEBRUARY 2025

### GEAR RECOMMENDATION: LOAD SHED

#### BACKGROUND:

**Impetus:** NERC/FERC Inquiry into Bulk-Power System Operations During December 2022 Winter Storm Elliot

Recommendation 4(c) Address the need to require natural gas infrastructure entities to identify natural gas infrastructure loads that 1) should be designated as critical for priority treatment during load shed.

Operators should be trained and familiar with manual load shedding plans prior to winter and review procedures in advance of severe winter weather.

**Definition of Load Shed:** Load shed is a remote, manual emergency response by utilities. Utilities shed load by turning off large quantities of power at a circuit level, e.g. 5-150 MW firm. In this way, load shed acts as a “blunt tool” that serves to prevent longer outages. Utilities will have plans for an amount of load that can be shed in a short timescale (e.g., 10 mins). The total amount that is covered by load shed plans can vary between utilities, though in some regions it is standardized (e.g., NPCC has a directive that all utilities are able to shed 50 percent of their load within 10 min).

Most load shed events are for smaller than the maximum available, in which case the utility will aim to rotate the load shed between different customers (e.g., hourly) to mitigate the impact on customers.

In addition, utilities have automatic load shedding under-frequency and/or under-voltage which is the ultimate last resort to save the system from full collapse. Shedding load (manual or automatic) is a last resort and happens very infrequently.

**Calling Load Shed Events:** The need for a load shed event is based on a regional perspective. The RTO/ISO would call a load shed event after exhausting all other voluntary load management programs, canceling non-firm transactions, and using back-up resources. Separate from load available to be “shed,” electric utilities monitor voltage and frequency per NERC standards.<sup>5</sup>

To prepare for emergency situations, including potential load shed events, utilities undertake planning exercises with RTO/ISOs and NERC. Specifically, NERC’s Emergency Operations Procedure EOP-011-4 explains the planning documents that must be prepared by Transmission Operators, concerning mitigation of operating emergencies, and by Balancing Authorities, concerning mitigation of Capacity Emergencies and Energy Emergencies.<sup>6</sup> Both sets of plans must be reviewed by the Reliability Coordinator and must consider designated critical natural gas infrastructure loads.<sup>7</sup> For Transmission Operators, this means identifying and prioritizing loads that are essential

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<sup>5</sup> North American Electric Reliability Corporation (NERC). Regional Transmission Organizations (RTO) and Independent System Operators (ISO) exist to administer the transmission grid, including non-discriminatory access to transmission and are overseen by FERC, per [RTOs and ISOs | Federal Energy Regulatory Commission](#)

<sup>6</sup> Transmission Operator is “the entity responsible for the reliability of its “local” transmission system, and that operates or directs the operations of the transmission Facilities.” Balancing Authorities are “the responsible entity that integrates resource plans ahead of time, maintains Demand and resource balance within a Balancing Authority Area, and supports Interconnection frequency in real time.” Per NERC [Glossary of Terms.pdf](#). Balancing Authorities may also direct utilities to shed load.

<sup>7</sup> Reliability Coordinators are the highest level of authority for the bulk electric system including in emergency situations and include entities like Midcontinent Independent System Operator (MISO) and PJM Interconnection.

to the reliability of the Bulk Electric System (BES). Balancing Authorities must include provisions for excluding critical natural gas infrastructure loads as interruptible load, curtailable load, and demand response during extreme cold weather periods.

Beyond planning, EOP-011-4 also explains requirements for notification of impacted (e.g., neighboring) entities upon receipt of an emergency notification. For example, transmission operators must notify distribution providers<sup>8</sup> and transmission owners that are required to assist with the mitigation of operating emergencies through actions like load shed. Further, distribution providers and transmission owners must manage their own load shed plans.<sup>9</sup>

To this extent, many decisions and reviews happen at levels of government broader than the State and thus, the role of State Commissions in load shed planning and execution is limited.

**Frequency:** Illustrating the relative infrequency of load shed events, focus on the MISO region shows that since 2009, two Step 5 Emergencies have been called: one for Hurricane Laura in 2020 for which MISO ordered 500 MW load shed. Another 700 MW of load was shed in the South for Winter Storm Uri in 2021.<sup>10</sup> As such, the use of the load shed tool is infrequent. Additionally, and most recently, MISO called a load shed event on May 25, 2025. Officials are still working to understand the cause of the event.

**Critical Services:** When it comes to shedding load, utilities control the duration of outages and which entities lose power. To this extent, critical services may be able to receive priority designation. For example, gas compressors used for generation may be able to be identified and excluded from load shed events. Utilities in both ISO-NE and NYISO have updated their plans in the last few years to ensure that gas compressors are excluded from load shed plans. It is not clear whether all utilities across the US have done similar exercises. Moreover, utilities may require critical services providers have backup generation.

**RECOMMENDATION:** Though load shed events are relatively infrequent and planning is currently undertaken external to State Commission proceedings, State Commissioners should be aware of utilities' load shed practices given the high consequence of these decisions. Commissioners should gather a variety of information, including data that highlight differences across regulated entities within a state and the degree to which gas and electric utilities can coordinate to maintain service to critical customers, including electricity generators and the electricity consuming infrastructure vital to supporting those generators.

*As such, it is recommended that state commissions should reach out to their ISO/RTO, regulated utilities, and any other relevant electricity consuming groups and review information from NERC to better understand load shed practices, when load shed practices were last updated, and evaluate if changes are needed for the current electricity consumption landscape. The following prompts are recommended for state commissions to use to engage with utilities they regulate, with RTO/ISOs, and with all relevant stakeholders impacted by load shed decisions.*

1. Who calls an energy emergency in which load needs to be shed? Is such a call internal or is a directive given from elsewhere?

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<sup>8</sup> Distribution provider “provides and operates the “wires” between the transmission system and the end-use customer. For those end-use customers who are served at transmission voltages, the Transmission Owner also serves as the Distribution Provider” per NERC glossary of terms.

<sup>9</sup> [EOP-011-4](#) and available at NERC website at [US Reliability Standards](#)

<sup>10</sup> During this event, the MISO Bulletin read: “Realizing the grid’s stability was in danger and being unable to move the needed energy to meet demand, at 7:40 p.m. MISO declared a Maximum Generation Event Step 5 and called for a 700 MW pro-rata emergency load reduction across MISO South Local Balancing Authorities.”

2. What is the frequency of load shed events in the past 10 or 20 years?
3. What actions can be taken before load is shed, and what actions can be taken to restore load?
4. How often are load shed plans re-evaluated for changing system conditions? Have plans considered the differences in load profiles between summer (normally the peak) and winter (where gas-electricity issues are most likely to occur)
5. How are loads prioritized to determine whose load would NOT be shed? What about gas infrastructure- any special considerations for keeping power to gas infrastructure?
6. Can load be cut at all from critical infrastructure / services? Are other protections offered to or required for critical infrastructure / services?
7. How would the utility react to an RTO/ISO call to shed load?
8. Are procedures in place to notify relevant state and local officials and the public?
9. Do sufficient procedures exist to include all relevant stakeholders?
10. Have load shed plans been reviewed from an equity perspective?

**MAY 2025**

**GEAR RECOMMENDATION: INTRA-WEEKEND AND INTRA-DAY NATURAL GAS MARKET LIQUIDITY  
RECOMMENDATION**

**BACKGROUND:** The GEAR Task Force engaged in robust discussion with stakeholders on issues surrounding the transparency and liquidity of the secondary markets for natural gas commodity, and pipeline and storage capacity as well as reliability issues resulting from the limited availability of supply and capacity during weekends and particularly holiday weekends during the winter months.<sup>11</sup> At the outset, it should be underscored that all parties, including producers, pipelines and end use customers (including power generators) are doing their best to serve customer needs during this period and complying with existing regulatory requirements. The limited availability of supply and capacity is primarily driven by advance contracting and thus exacerbated by a number of factors including higher demand in both next-day and real-time markets, declines in supply when extreme weather hampers operations, limited unsubscribed pipeline capacity, and lower market liquidity, which can make it challenging for gas customers to undertake price discovery in real-time or for the market to efficiently and transparently reallocate capacity and commodity among market participants based on real time price signals. The GEAR Task Force discussions have focused on exploring potential improvements to the operation of these markets during these winter weekend periods while recognizing that overall and on most days, the natural gas markets are effectively operating to meet customer needs.

Prior to the proliferation of gas-fired generation over the last two decades, gas commodity and pipeline capacity were traditionally procured by local distribution companies (LDCs) and industrial customers largely through long term firm contracts. In the case of LDCs, the costs of those contracts were recovered from retail customers through state gas purchase adjustment clause proceedings. However, with the increasing retirement of coal fired power generators as a critical energy resource, electric grid operators have become increasingly dependent on gas-fired power plants to meet the demands of electric consumers. This development has had many benefits as natural gas is overall a cleaner fuel and the discovery and development of hydraulic fracturing has unlocked abundant volumes of natural gas in several major shale formations across the U.S. Moreover, the flexibility of gas plants to ramp up and down to meet changing loads throughout the day complements base load resources, such as nuclear, which typically operate at full output.

Gas-fired power plants operating in markets served by RTOs and ISOs are not guaranteed to be dispatched on a given day. Rather, they compete with other electric generating resources to meet the hour-by-hour demands of the system and are only dispatched if they are the most efficient least cost resource to meet that hour's demand for electricity. By the same token, in vertically integrated electric markets there are non-affiliated natural gas plants that provide an alternative for the utility to meet its customer's demands if a given affiliated plant is either unavailable or is uneconomic in that hour. In short, under both structures (RTO/ISO and non-RTO/ISO markets), the dispatch of a given gas-fired unit can vary day to day making it difficult for the unit owner to commit to buying a quantity of natural gas commodity over longer than a 24-hour period without facing financial risk, which can be significant under extreme weather conditions. This can lead to generators, particularly those on the margin, to pursue intra-day or intra-weekend purchases in these lower liquid timeframes whereas customers with more certain demand profiles and better risk management options primarily secure fuel supply in advance and in the next day cash market, which comprises over 90% of the supply. Given this market dynamic, it is

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<sup>11</sup> The secondary natural gas market is essentially comprised of several distinct components: commodity, transportation capacity and storage. In advance of these weekend periods during the winter, and at other times, marketers in many cases will offer and provide buyers with a delivered gas service which combines these components into an overall weekend package.

absolutely important that the reliability these units provide is properly valued so these units can engage more successfully in the intra-day and weekend natural gas markets.

The interstate natural gas pipeline industry follows specific rules outlined in their tariffs to ensure that transportation capacity is made available on a nondiscriminatory basis through public postings on their respective electronic bulletin boards. Although this has worked well for the release of 'primary capacity' (i.e., capacity that is made available because it has not been subscribed by users of the pipeline), a secondary market has developed wherein owners of primary capacity can release that capacity. Such capacity can be released by any transportation holder, notably by LDCs when not needed to meet customer gas requirements during lower demand periods or by industrials when load varies throughout a given day or week. Despite the ability to post bids and offers for capacity on interstate pipeline bulletin boards, the secondary market for capacity does not have the same level of transparency which, although generally working well as a purely bilateral market on most days, can lead to challenges in price discovery, liquidity, and transaction execution, particularly during winter weekend periods.

In a similar vein, the competitive markets for natural gas as a commodity are largely unregulated. Even so, these markets function effectively for the vast majority of days during the year when supply is readily available and pricing in both the next day and intra-day markets is fairly transparent. However, on critical days during the year in which natural gas is being consumed to meet heating, manufacturing and power demands, the visibility into how much supply is available, the availability of pipeline capacity for transport, and at what price becomes increasingly challenging and problematic for certain users, namely the marginal gas-fired-generation, given the lower level of liquidity despite that there are prices and postings on the ICE Exchange and bi-lateral opportunities. This lower liquidity and more challenging price discovery tends to be exacerbated over winter weekends when the marginal gas-fired-generators operating in wholesale electric markets do not have the same ability as local gas distribution companies, non-marginal and/or large gas-fired-generators, and industrial customers to procure supply on Friday for the balance of weekend days. Electric generation facilities in RTOs are largely committed on a day-ahead basis rather than for an entire weekend and during extreme weather events there tends to be a larger call on real-time dispatch.<sup>12</sup> It is recognized that opportunity exists for power market changes that allow generators to better prepare to mitigate real-time market exposure and better compete in that market.

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<sup>12</sup> Given the extreme variability in demand hour to hour and the speed of light nature of electricity which, for the most part, cannot be stored, this day ahead commitment ensures a more efficient market that produces least cost results for consumers than would exist in a multi-day commitment of generating units, but under extreme weather conditions can come at the expense of reliability as experienced by the 28 percent of real time outages (71percent equipment related) that were fuel related and up to 89 percent of those fuel based outages were for units without a day-ahead commitment in PJM, during Winter Storm Elliott (<https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/20230717-winter-storm-elliott-event-analysis-and-recommendation-report.pdf>).

## Observations:

- One factor that contributes to pricing volatility is the increasing tightening of the system whereby there is less slack in the system during periods of high demand.
- Intra-weekend and intra-day liquidity issues particularly arise for units needed for limited hours at the margins to meet peak winter conditions or significant weather forecasts or system changes particularly during weekend periods.
- The natural gas markets operate effectively for the majority of days during the year. There is the potential for a greater volume of market products to be offered subject to the physical portfolio capabilities of a given supplier and market signals from buyers.
- Gas pipeline transportation and storage capacity appears to be nearly fully subscribed across most of the U.S. with very few new additions being approved and built in most regions.
- The market tends to transact secondary capacity and commodity on a bilateral basis with most procurement occurring on Fridays for a weekend period. Although bilateral trading can be effective, there is limited price transparency available on winter weekend periods if gas needs to be procured due, for example, to a spike in electric demand requiring the dispatch of additional generating units. During high winter demand periods, and particularly during weekends, the visibility into how much commodity is available at discrete locations next day and intra-day and how much transportation and storage is available on the secondary market is difficult given the level of liquidity. Additional steps to increase the flow of information concerning fuel gas supply that can impact availability to ultimate customers are worthy of further exploration in addition to consideration of other measures to improve generator participation in the natural gas markets.

**RECOMMENDATION:** The GEAR members recognize that within the confines of the existing natural gas infrastructure and commodity market, a number of stakeholders have noted that on winter weekends (and particularly holiday weekends) the intra-day markets for natural gas commodity are thinly traded. As a result, price discovery can be challenging and prices are not as necessarily transparent as desired for those entities who, because of changing load conditions, need to purchase commodity or secondary transportation to meet their just-in-time requirements to serve customers in the real-time market. Additionally, GEAR recognizes that business rules are generally consistent amongst all interstate pipelines, but can vary significantly from non-interstate pipelines. For that reason, many references in this document with respect to pipelines are applicable to interstate pipelines only.

Overall, the natural gas markets have worked well and pipelines have met their tariff requirements and producers have met their contractual commitments. However, improvements to ensure greater liquidity and transparency on winter weekends, when there is limited trading can help to ensure that reliability is enhanced at a reasonable cost to customers. Fully recognizing that these decisions will involve tradeoffs and risk-shifting, there is no 'silver bullet' on this complex issue because the vast majority of the market transacts ahead of when natural gas starts to flow. Instead, it requires additional dialogue to ensure that the needs of both electric and gas industries are met during these winter weekend (and holiday weekend) periods. Accordingly, GEAR recommends that NARUC endorse additional dialogue focused on:

- Whether additional incentives are needed to ensure that the markets for capacity release activity and commodity sales are as transparent and efficient as possible to help improve reliability of both the electric and gas systems during more stressed periods and over weekend periods during the winter months;
- Whether additional steps should be considered beyond what is seen on ICE and interstate pipeline bulletin boards to increase the price transparency around the secondary markets for capacity and the commodity;
- Whether steps should be considered to ensure that the procurement practices of LDCs and gas-fired electric generation, and the markets upon which these two entities rely, work holistically in a manner that recognizes the reliability needs of both industries, including that generators are positioned with more robust portfolios in place in anticipation of extreme weather events that provide for additional procurement options, such as storage or supply calls, to meet unexpected needs. Generators should have a reasonable opportunity to recoup such costs;
- Whether the use of multi-party contracts as outlined in FERC Order 809 has been sufficiently explored and if not, evaluate the possibilities;
- Whether timely disclosure of RTO/ISO Gas Generator Out-of-Market Commitments, in the aggregate, ideally ahead of the NAESB Timely cycle where possible, would help transparency and liquidity challenges by immediately alerting the market that an RTO/ISO has taken an out-of-market action; and
- *The Natural Gas & Power Industries' Reliability Alliance: Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and Joint Industry Suggested Mitigation Strategies* 1.C. recommendations<sup>13</sup> covering standardized single-day ICE postings, daily weekend index development, individual generators expanding supplier options, and greater and faster posting of excess firm capacity.

Furthermore, GEAR recommends that NARUC conduct additional stakeholder outreach and forums involving the relevant NARUC committees to further explore options in this area. At this time, the GEAR members are not suggesting further specific regulation of what, during normal operating days, works effectively as a bilateral contracting market. In addition, the GEAR members note that additional pipeline transportation and storage infrastructure is needed to ensure that the gas system can continue to meet the varying and unique demands of all users of the system.

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<sup>13</sup> *Natural Gas & Power Industries' Reliability Alliance: Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and Joint Industry Suggested Mitigation Strategies*, (October 31, 2023) at page 4, <https://ingaa.org/wp-content/uploads/2023/11/Reliability-Alliance-Gas-Electric-Consensus-Paper-Fall-2023-AD23-9-000.pdf>.

**AUGUST 2025**

**GEAR RECOMMENDATION: MARKET TOOLS FOR ENHANCED SUPPLIER PERFORMANCE IN EXTREME WINTER WEATHER**

**BACKGROUND:** GEAR recognizes that a variety of factors guide upstream performance and weatherization decisions. GEAR also recognizes that direct regulation of a given producing area to achieve increased reliability through winterization standards is economically inefficient and difficult to apply in an equitable manner given varying existing practices that already prudently account for market and operational conditions. There are numerous factors related to prudent winterization decisions (Safety, Environment, Situation Applicability, Economics). Producers and suppliers operate in a vibrant and competitive marketplace that dictates efficient capital allocation, and it appears that despite the critical need of fuel supply for reliability, prevailing natural gas prices do not fully support the level of reliability required by the electric system during extreme conditions. GEAR believes that market forces are the best way to increase investment in upstream infrastructure and acquisition of service assets to achieve more reliable performance in extreme weather, rather than regulatory mandates, which could bring unintended consequences that diminish supply availability.

GEAR also recognizes that NG system performance improvements have increased in recent years, and producers have done more to communicate and highlight the various actions being implemented. In addition to this progress, GEAR believes that this option can be additive to this progress and could be a viable and valuable option to the marketplace for continued performance improvement. GEAR further recognizes that execution entails complexity and risk associated with conditions that are outside of producer and supplier control, which may constrain how effectively the market can make use of this recommendation but is confident market stakeholders can determine if and how to navigate this challenge.

**RECOMMENDATION:** GEAR recommends that states, in lieu of direct winterization regulations for natural gas production, provide for consideration of the need and feasibility of a market-driven process that allows cost recovery for utilities and generators that pay a premium for a verified winterized or enhanced performance (e.g., storage and other assets) product for the purpose of increasing reliability through supply loss mitigation. Existing state prudence review processes can ensure that the individual sale/purchase contracts contain mutually balanced terms to ensure that higher levels of service and reliability are achieved and that consumers are benefiting and deriving fair value. States should not prevent its regulated utilities and generators that purchase wholesale natural gas, from approaching suppliers about the array of solutions and associated prices to evaluate whether this market can exist and flourish. Such consideration should be consistent with enhanced transportation evaluations such as no-notice and non-uniform services.

**Recommendation Specifics:** GEAR contemplates two basic concepts: Winterization Premium and Enhanced Performance

- Winterization Premium: Greater winterization of natural gas producing facilities improves deliverability during extreme weather conditions and thus increases reliability, as well as mitigates the exercise of force majeure. Producers who can verify winterization to a certain or various thresholds can market their gas as such and secure a premium from buyers desiring a higher level of deliverability.
- Enhanced Performance: This is simply a contractual performance guarantee. This structure allows for flexibility in execution and provides the opportunity to avoid risks associated with parts of the system outside the direct control of producers and suppliers, as performance could be achieved through various methods, such as winterization and/or storage and transportation assets, and/or a commitment to deliver from alternate locations.

- Key Execution Risks and Implications
  - Gathering and processing are critical components of the upstream NG system and given these entities do not transact with dry NG consumers and are situated between producers and buyers, this presents a challenge to the overall deliverability risk outside the direct control of producers and consumers.
  - Difficult for non-producer suppliers to offer winterization commitments due to lack of control over producing facilities.
  - Receptiveness of the market to a new product that holds a higher priority over typical next-day contracts and the negotiation of relevant terms and conditions.
  - Government subsidized financial support for regulated entities (e.g. fuel clause pass throughs, etc.) could create a competitive advantage over non-regulated entities lacking such financial support.
  - Implementation of verification standards whether bi-laterally or industry-wide.
  - This can mitigate exercise of force majeure, which as a matter of standard industry practice consistent with base contractual language, is passed through the transactional chain.

## AUGUST 2025

### GEAR RECOMMENDATION: IMPROVING GENERATOR ADVANCE NATURAL GAS FUEL PROCUREMENT AND ECONOMIC CERTAINTY

**BACKGROUND:** This recommendation to encourage state regulators' and policymakers' support and stakeholder actions for market-based solutions to incent advance natural gas fuel procurement and provide economic certainty, is based on a solution from the Reliability Alliance paper, which addresses "advance natural gas procurement and scheduling without certainty or compensation." The solution will improve power market price signals and market outcomes that allow generators to better compete in the next-day natural gas cash market and/or otherwise improve generator fuel supply availability and economic certainty. Dispatch uncertainty is inherent in power systems as forecasted and real-time conditions converge, which contributes to economic and procurement risk for generators; this risk often impacts energy consumers. It should be noted that while conservative operations, out of market mechanisms and out-of-merit dispatches can help to mitigate this dynamic and may remain a useful tool during certain critical conditions, there are opportunities to explore more efficient options that improve reliability and economic outcomes for consumers.

- GEAR recognizes a preference for market-based solutions and supports the Reliability Alliance paper recommendation #1A and 1B\*,<sup>14</sup> which outlines several improvements for the organized power markets and strongly encourages their implementation. Non-market-based solutions may need to be considered if market-based solutions are inadequate.
- GEAR further recognizes that organized power markets, to varying degrees across the different regions, have and are continuing to have discussions with stakeholders about ways to improve generator dispatch and availability and competitiveness, specifically in the natural gas market. Given the experiences of winter storms Uri and Elliott, more coordination is needed.
- A key element is balancing electric system reliability risks and generator economic risks, and efforts should be made to not unduly compromise the integrity and efficiencies of the organized power markets while recognizing that purchasing natural gas before an extreme event is a critical component of reliability, and often the most economically prudent option.
- Competitive market solutions are preferred. GEAR suggests that the best approach is to encourage grid and power market operators to make use of their existing robust stakeholder structures to seriously consider an array of proposed ideas that balance the interests of all organized market stakeholders. When successful, such efforts mitigate the need for state- or RTO-mandated actions or non-market approaches that could result in out-of-market costs for consumers.
- GEAR encourages states to monitor the development through existing processes, collaborate with ongoing and future gas-electric improvement efforts, and support expeditious consideration of appropriate market-based solutions that improve the operational and economic efficiency of the natural gas and electric markets.

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<sup>14</sup> <https://www.ngsa.org/wp-content/uploads/sites/3/2023/11/Reliability-Alliance-Gas-Electric-Consensus-Paper-Fall-2023-AD23-9-000.pdf>

\* Does not include Reliability Alliance 1.B.ii, recommending the shifting of the power day.

- GEAR encourages stakeholders to continue to evaluate and pursue such efforts, as more can be reasonably done to improve generator fuel supply security.
- GEAR's scope is natural gas and electric industry alignment but recognizes stakeholders will need to consider implications for other generation types.
- GEAR recognizes that execution challenges exist and will require the consideration of tradeoffs but ultimately believes that market-based solutions are preferable to the status quo and the upside of any such solutions.
- Whereas market-based solutions may focus on situations only a few times a year, organized power market constructs could include changes to any of:
  - Ancillary or reserve markets
  - Energy markets
  - Gas balancing market products
  - Capacity markets or resource adequacy constructs
- The array of options for evaluation and consideration include, but are not limited to:
  - Incorporating additional cost recovery and performance obligation elements into energy, reserve, and capacity market design.
  - Processes that increase frequency and level of advanced notice and/or certainty of gas generator commitments and/or possibility of being dispatched in the day-ahead and/or real-time market, including multi-day commitments, especially during critical periods.
  - Allowing updates to operating parameters in real-time.
  - Dispatch awards/decisions aligned with NAESB cycles, particularly the Timely cycle, and/or specific pipeline nomination scheduling opportunities outside of the NAESB cycles.
  - Market mechanisms that support advance and/or long-term procurement of commodity and services (e.g. call options, storage) that improve fuel security and dispatch certainty.
  - Fuel cost compensation mechanisms that fairly balance dispatch risk and fuel price risk, between consumers and generators, that naturally arise as forecasted system conditions become actual system conditions.
  - Communication procedures that demonstrate generator readiness to operate.
  - Encourage generators to broaden supply access options by increasing the number of pre-qualified suppliers.
  - Enhancements to generator accreditation.

**RECOMMENDATION:** GEAR encourages state regulators and policy-makers support and stakeholder actions for market-based solutions to incent advance natural gas fuel procurement and provide economic certainty. This is consistent with recommendations 1A and 1B\* from the Natural Gas & Power Industries' Reliability Alliance: Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and Joint Industry Suggested Mitigation Strategies paper by EPSA, NGSA, and INGAA1, to improve natural gas unit scheduling and dispatch. Organized power market operators and their stakeholders (i.e., ISOs and RTOs) should examine potential market-based solutions that improve electric system reliability in advance of and during extreme weather. These solutions will foster greater natural gas and electricity market transaction alignment and flexibility, which will mitigate current operational and economic inefficiencies from calls on natural gas generators and fuel supply that occur after next-day trading of natural gas, and support fuel security.

## AUGUST 2025

### GEAR RECOMMENDATION: DEMAND RESPONSE FOR NATURAL GAS UTILITIES

**BACKGROUND:** Demand response programs are tools that encourage customers to reduce or shift their energy usage during periods of high demand or system stress, such as severe weather events. Utilities working hand-in-hand with marketers and consumers can help manage peak day usage during cold weather or constrained supply conditions.

More traditional natural gas demand response programs include interruptible service agreements, where large commercial or industrial customers receive lower rates in exchange for agreeing to curtail usage when called upon, and voluntary curtailment programs, which offer financial incentives for load reductions during designated events. Some utilities, such as Con Edison and National Grid, have also implemented gas demand response programs that target winter peak demand to maintain system pressure and avoid emergency shut-offs, and also to limit building new gas infrastructure by reducing peak demand. Additionally, utilities like New Jersey Natural Gas have introduced hybrid-heating programs that function as both energy efficiency and demand response measures.

***Demand Response Communication Practices for Natural Gas Utilities:*** Effective communication is critical to the success of demand response programs. A well-balanced communication strategy ensures customers stay informed, engaged, and confident in the value of their participation. Communicating and marketing to customers the benefits of demand response programs, such as the community and financial benefits, are likely to spur customer adoption. Utilities must be judicious in their use of customer communication, particularly as it applies to curtailment requests, as to avoid customer fatigue, which can lead to decreased participation and reduced program reliability. When customers, especially large commercial and industrial users, are frequently asked to curtail usage, they may experience operational disruptions and become less inclined to remain in the program.

Demand response programs are more visible in the electric utility sector, but natural gas utilities continue to innovate, develop, and communicate their demand response programs. For example, Con Edison's Gas Demand Response Program in New York uses clear pre-event notifications and reminders to keep customers informed of potential curtailments. Utilities like National Grid New York have utilized outreach campaigns, webinars, and direct account manager engagement to strengthen communication with customers. These approaches foster trust, ensure timely responses, and contribute to overall system reliability.

Several states, including California, Texas, and New York, integrate demand response into their state-sponsored emergency response frameworks. These programs, coordinated through state energy offices or public utility commissions, enable utilities to activate demand response during declared energy emergencies. Consumers receive timely notifications to reduce usage, helping to stabilize local energy systems. This coordination helps protect vulnerable populations and critical infrastructure by preserving service continuity during extreme events.

One such instance of effective communication in an emergency situation occurred in 2019 when abnormal weather caused reduced regional power plant output and historically high natural gas demand, at the same time as an unexpected failure of critical natural gas infrastructure. The impact of these overlapping emergencies led Michigan utilities to request conservation measures and the State Emergency Operations Center to make a

broad public appeal to all residents to conserve natural gas. The statewide appeal included a text message alert from the Michigan State Police.<sup>15</sup>

**Light Technology and Easily Deployable Tools:** Light technology solutions, such as smart thermostats, offer natural gas utilities an accessible way to deploy residential demand response programs with minimal disruption. These devices allow for automated control of space heating during high-demand periods, helping utilities manage peak usage without requiring constant customer involvement. Smart thermostat programs, widely used in the electric sector, are increasingly being explored by gas utilities to engage residential customers in load management strategies.

Programs leveraging smart thermostats often include financial incentives for enrollment and participation. Utilities can remotely adjust settings during peak periods, with customers retaining override options to maintain comfort. This approach provides a balance between system benefits and customer satisfaction, making it an effective and scalable demand response solution.

Deploying light tech expands visibility and participation, especially when coupled with intuitive customer platforms and user-friendly enrollment. These tools increase program accessibility and support broader adoption of demand-side strategies, especially in residential sectors that have traditionally been harder to reach in gas demand response efforts. Commissions can further support visibility and participation by evaluating light tech programs through thoughtful ratemaking treatment based on customer benefits realized through light tech.

**Advanced Technology:** Advanced Metering Infrastructure (AMI) is a smart grid technology that enables two-way communication between utilities and customers through digital meters, allowing for near real-time monitoring and control of energy usage. AMI emerged in the early 2000s as part of a broader shift toward modernization, initially focused on accurate billing and remote meter reading. Over time, AMI evolved to support data analytics, demand response, and greater consumer engagement in energy management.

For natural gas utilities, AMI plays a growing role in enhancing demand response by enabling more precise identification of peak usage patterns, targeted customer notifications, and improved verification of load reductions. AMI systems facilitate more responsive and reliable DR programs by providing utilities with actionable data before, during, and after curtailment events.

The integration of AMI with light technologies, such as smart thermostats, strengthens program performance by combining automated control with real-time usage insights. This pairing enables utilities to send control signals and verify reductions, while customers receive timely feedback on their contribution and savings. The combination of AMI and light technologies enhances customer experience through detailed usage data, personalized energy insights, and opportunities for proactive energy management.

AMI also serves a significant role in consumer safety. This advanced technology may be used by utilities in coordination with emergency management agencies to effectively respond to emergency situations. For instance, during severe weather or catastrophic events, AMI can be leveraged by utilities to remotely shut off the flow of gas to protect consumers.

AMI, with the support of commissions, stands to significantly benefit consumers as a standard, rate-based service. The safety, community, and energy system benefits that are possible through these innovative

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<sup>15</sup> Michigan Public Service Commission. (2019, July 1). *Michigan's Statewide Energy Assessment: Fact Sheet*. [https://www.michigan.gov/-/media/Project/Websites/mpsc/workgroups/sea/SEA\\_Fact\\_Sheet.pdf?](https://www.michigan.gov/-/media/Project/Websites/mpsc/workgroups/sea/SEA_Fact_Sheet.pdf?)

technologies will transform standard customer service holistically. With commission support via utility and consumer data reporting, AMI can grow as a standard, beneficial service for consumers nationwide. In addition, there is scope for utilities and marketers to work with their commercial and industrial customers by interfacing directly with their Energy Management Systems/Building Management Systems (BMS).

**RECOMMENDATION: Demand Response For Natural Gas Utilities:** To ensure system reliability, for those states with limited and/or no natural gas demand response programs, commissions in those jurisdictions may consider the following in building out robust demand response programs:

1. Well-constructed, wide-ranging communication strategies that address general gas demand concerns through commercial, industrial and residential customers.
2. Implement processes that support a risk-based approach to communication, avoiding the overuse of communication channels and incorporating widely accessed consumer channels to strengthen messaging.
3. Implement state-led incentives for demand response programs. Examples of incentives include, but are not limited to:
  - a. Financial incentives, such as rebates, payments, or reduced rates, to encourage participation in demand response programs.
  - b. Voluntarily reducing or shifting usage in response to price signals or reliability alerts.
  - c. Appropriate ratemaking treatment of light technology and advanced metering relevant ratemaking practices respective to the applicable jurisdiction.
4. Implement technologies and planning tools to support reduced usage during extreme weather events. This may include, but is not limited to:
  - a. Incorporating demand response programs into state emergency response programs.
  - b. Design and deploy programs that are widely visible and accessible to consumers, such as light technology.
  - c. Leverage AMI technologies, coupled with light technologies, to drive more real-time data and further strengthen demand response measures, or in the case of commercial and industrial customers, BMS technologies.

SEPTEMBER 2025

## GEAR RECOMMENDATION: INCENTIVIZING MORE TIMELY AND FREQUENT UTILITY INTERSTATE CAPACITY RELEASE

**BACKGROUND:** This recommendation is based off NAESB Forum Recommendation 5<sup>16</sup>, which recognizes that as the natural gas system becomes ever tighter, there is greater reliability and economic value in increasing interstate transportation and storage capacity availability to the marketplace and optimizing efficient allocation of interstate transportation and storage capacity. The primary value is for those days with high consumption because it enables two things: 1) the opportunity for firm capacity allocation to be obtained by those that desire it most, which likely correlates to where the reliability need is greatest and 2) higher certainty of flow because any use of under-utilized firm transportation means less reliance on interruptible transportation.

The secondary value is unlocking this efficiency for all days of the year because it helps maximize signals to the market for where additional development of the interstate transportation and storage system is needed, complementary to the GEAR Natural Gas Infrastructure Recommendation. Any economic optimization benefits realized by utilities can be shared with consumers, such as rate reductions or accelerated LDC system improvements. Utilities have a significant presence and states should support rules that allow those entities to participate in the interstate market more fully without compromising their reliability obligation to customers. There is value in consistent application across states and given the various ways in which states coordinate, particularly related to the electricity system, leveraging existing joint structures may be the best way to facilitate execution of this recommendation.

**RECOMMENDATION:** GEAR recommends that states, either individually or jointly through various existing regional structures, consider supporting or adopting measures, to the extent not already in place, that facilitate more timely and frequent use of interstate capacity release or asset management arrangements (AMAs) by its utilities so the marketplace may benefit from a more efficient allocation of firm interstate transportation and storage capacity.

## GEAR Path Forward

The GEAR Task Force expects the alignment of the gas and electric systems to remain an ongoing challenge for NARUC, its members, and industry in the years and decades to come. These recommendations should serve as a backdrop and ongoing point of discussion to assist regulatory agencies and their partners in serving the needs of the natural gas system, the electric grid, and utility customers. The Natural Gas Readiness Forums remain a venue to further the work of GEAR into the future. The leadership of NARUC, through coordinated efforts of the NARUC Committee on Gas and NARUC Committee on Electricity, can continue to prioritize cross-sector discussions and actions to promote reliability across the county. NARUC, GEAR members and observers, and other participants in this process look forward to continuing the dialogue, facilitating future coordination, and lending their expertise to other gas-electric processes and reports, including the NPC study. At a time of profound growth and change in the electric and natural gas sectors, customers will continue to depend on effective coordination to meet American energy needs.

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<sup>16</sup> [NAESB GEH Forum Final Report](#)

## APPENDIX A

### REVISED GEAR CHARTER

#### MEMORANDUM On the Creation of the Gas- Electric Alignment for Reliability (GEAR)

On November 21, 2023, the NARUC Executive Committee approved a motion to permit NARUC President Julie Fedorchak, pursuant to Title I, Section 19 of the Policies and Procedures of the National Association of Regulatory Utility Commissioners, [1] to establish the Gas-Electric Alignment for Reliability (GEAR) working group and approved the Written Mission Statement/Charter outlined below for GEAR. On November 10, 2024, The NARUC Executive Committee approved a motion to extend the charter of the GEAR until the end of November 2025.

**Charter/Mission Statement:** The Gas-Electric Alignment for Reliability (GEAR) charter goes to November 2025. GEAR is a working group that will bring together state regulators and industry representatives to develop solutions to better align the gas and electric industries to maintain and improve the reliability of the gas and electric energy systems on which our nation depends for power. GEAR intends to gather regulator and industry stakeholder feedback and recommend solutions to better harmonize communication protocols, operations and planning of the gas and electric systems and markets. Findings from the North American Energy Standards Board Gas-Electric Harmonization Forum, the Reliability Alliance Report developed by NGSAA, INGAA and EPSA, and the analyses of Storms Uri and Elliott by the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation, will serve as a starting point for the working group.

**Background:** Over the last two decades, the U.S. electric and gas industries have undergone significant transformation driven by new technologies, replacement of aging infrastructure, environmental regulations and state and federal policy goals. New technologies for renewable electricity generation combined with the significant increase in natural gas production and correlated decrease in gas prices have transformed the electric industry and increased dependence on gas for electricity generation. As a result, the electric industry is more reliant than ever on the gas industry to fuel electricity generation. However, since the gas industry was largely designed and constructed to deliver gas for home heating and industrial processes, gas infrastructure and markets are misaligned from electric markets. The lack of coordination between these two systems poses serious reliability concerns, as demonstrated during winter storms where dependence on gas in both systems is high. In February 2021, Winter Storm Uri caused numerous outages, derates or failures to start at electric generating plants scattered across the region. The Texas grid operator (Electric Reliability Council of Texas or ERCOT) ordered a total of 20,000 MW of rolling blackouts to prevent grid collapse; this represents the largest manually controlled load shedding event in U.S. history. More than 4.5 million people in Texas lost power – some for as long as four days. Not quite two years later, during Winter Storm Elliott, unprecedented electric generation outages coincided with winter peak electricity and gas demands. As a result, several Balancing Authorities in the Eastern U.S. declared Energy Emergencies to maintain electric grid reliability, ordering firm load shed exceeding 5,000 MW during the extreme cold weather event. Future trends and technologies indicate that gas and electric system interdependence will continue to grow. To support this transition while maintaining reliability and affordability for customers, and encouraging investments and growth in both industries, reforms are needed to address the areas of friction, disconnect and failure.

**Members:** The working group will have six (6) members appointed by the NARUC President, who will designate a chair and vice chair. President Fedorchak has appointed Georgia Commissioner Tricia Pridemore as the Chair, Kansas Commissioner Dwight Keen as Vice Chair, and, as at-large members, Michigan Chair Daniel C. Scripps,

Arizona Commissioner Lea Márquez Peterson, Texas Commissioner Jimmy Glotfelty, Minnesota Chair Katie Sieben, and Rhode Island Chair Ronald T. Gerwatowski. To assist GEAR in its work, the NARUC President will work with key industry stakeholders to identify a GEAR participant who can effectively represent the broader needs of each sector and work collaboratively on solutions. Stakeholders will include representatives from (1) a gas utility, (2) an electric utility, (3) a Regional Transmission Organization or Independent System Operator, (4) an intrastate pipeline, (5) an interstate pipeline, (6) a producer, and (7) a gas processor. GEAR leadership, working with the NARUC President, can seek representatives from other industry sectors as needed based on the problems and solutions being discussed. Current stakeholder representatives include Michael Bryson (PJM Interconnection), Mike Calviou (National Grid), Tina Faraca (TC Energy), Chris Moser (NRG Energy, Inc.), Rob Perkins (Kinder Morgan) and Benjamin Schoene (ConocoPhillips).

**GEAR Goals and Responsibilities:** The goal of GEAR is to provide a venue for key regulatory and industry stakeholders to discuss and develop solutions to the reliability problems caused by the misalignment of the gas and electric industries that have resulted in significant public and financial harm and ongoing risk to citizens and businesses in recent years. GEAR members will seek solutions that balance the interests of regulatory and industry stakeholders while maintaining and enhancing the reliability and affordability of our nation's energy systems. GEAR will focus on near-term problems, largely related to real time operational challenges, and longer-term challenges related to expanding the infrastructure needed to support demand of both gas and electric utilities.

GEAR will present a status report at the November 2024 NARUC Annual Meeting and a final report of recommendations at the February 2025 NARUC Winter Policy Summit. GEAR will have monthly meetings both virtually and in-person at NARUC meetings and as needed at the discretion of the Chair. Expenses for NARUC members who are pre-authorized by the Executive Director will be reimbursed. Any activities in policy development and any resulting advocacy shall be overseen by NARUC's Executive Committee. The GEAR Chair will provide regular reports to the Executive Committee on GEAR progress and activities. GEAR's focus is anticipated to cross the jurisdiction of several NARUC Committees and cannot easily be addressed by any single existing standing Committee. To assist in generating a report with recommendations, GEAR may coordinate with NARUC and industry affiliated organizations and/or representatives.

**Gear Duration:** Until November 2025.

**Staffing:** Staff for GEAR will be designated by NARUC Executive Director. The current NARUC Staffer supporting the GEAR is Brad Ramsay, NARUC's General Counsel.

## APPENDIX B

### OVERVIEW OF GEAR EXAMINATION OF SOURCE MATERIAL RECOMMENDATIONS

#### NAESB GEH FORUM RECOMMENDATIONS

#	Recommendation (essential elements captured, not full recommendation)	GEAR Discussed	GEAR Developed	GEAR Recommendation
1	Revise NAESB standards to improve interstate informational posting data for use by the BES.	Yes	No	No - Pipelines Addressing
2	Expand Argonne NGInsight tool to improve situational awareness and communication between NG pipelines and the BES.	Yes	No	No
3	Expand Argonne NGInsight tool to improve situational awareness and communication between Upstream and BES operators.	Yes	No	No
4	NAESB contract force majeure language changes, primarily to encourage more producer winterization.	Yes	No	Indirectly - NGRF, Supplier Performance
5	FERC should direct the NG and electric industries to find ways to encourage more frequent use of capacity release or asset management arrangements (AMAs) and more timely release of unutilized interstate pipeline capacity.	Yes	TBD	Yes – Utility Capacity Release
6	FERC should consider policy modifications that better facilitate advanced agreements between end users and remove capacity release barriers.	No	No	No
7	Authorities in states with competitive energy markets should engage producers, marketers and intrastate pipelines to ensure that such parties' operations are fully functioning on a	Yes	Yes	Yes - NGRF

	24/7 basis ahead of and during extreme weather.			
8	FERC should direct <b>electric market</b> improvements to better align Power and NG Days and for the procurement of day-ahead NG, when market most liquid.	Yes	Yes	No
9	FERC should direct ISOs and RTOs to implement multi-day unit commitment processes for high demand periods.	Yes	Yes	Yes - Advance Procurement
10	Authorities should encourage LDCs to develop power and gas demand response programs for high demand periods.	Yes	Yes	Yes - Demand Response
11	Authorities should encourage LDC PSAs for voluntary conservation for high demand periods.	Yes	Yes	Indirectly - Demand Response
12	FERC should encourage the expansion of joint and cross-market long-term infrastructure planning focused on fuel adequacy.	No	No	No
13	Authorities should evaluate if market mechanisms ensure adequate supply, transportation, and storage access in competitive power markets. If not, determine if non-market solutions are warranted.	Yes	Yes	Yes - Advance Procurement
14	Authorities should consider actions to create a secondary market for intrastate transport, offer a minimum level of firm service, and/or support bilateral agreements between end users.	No	No	No
15	Authorities should consider establishing informational posting rules for intrastate pipelines similar to interstate rules to enhance transparency.	Yes	No	No
16	Authorities should consider the development and public disclosure of extreme weather weatherization guidelines for production, gathering, and processing.	Yes	Yes	Yes - NGRF Yes - Supplier Performance

17	RTOs and ISOs should evaluate whether resource adequacy and accreditation requirements should be reformed.	No	No	No - AD25-7 Addressing
18	FERC/NARUC study whether market-incentivized investments in strategic NG storage facilities are sufficient to address NG supply shortfalls and if the level of investment is sufficient to preserve such facilities, during extreme cold weather.	No	Indirectly - DOE, NERC, etc.	Indirectly - Infrastructure, Storage
19	FERC/NARUC evaluate the need for infrastructure incentives to address NG shortfalls and BES performance during extreme weather.	No	Indirectly - DOE, NERC, etc.	Indirectly - Infrastructure, Storage
20	DOE/FERC lead industry study on infrastructure adequacy for changing NG usage patterns.	No	Indirectly - DOE, NERC, etc.	Indirectly - Infrastructure, Storage

### FERC/NERC Elliott Recommendations

#	Recommendation (essential elements captured, not full recommendation)	GEAR Discussed	GEAR Develop	GEAR Recommendation
1a	Develop and implement remaining Generator cold weather performance NERC Reliability Standards	No	No	No - NERC Addressing
1b	Monitoring by NERC/Regional Entities of compliance of generator cold weather Reliability Standards to determine if gaps exist.	No	No	No - NERC Addressing
1c	Generators should assess freeze protection measure vulnerability. NERC/Regional Entities should perform targeted verifications.	No	No	No - NERC Addressing
1d	Generators should perform engineering reviews of operational failures above their documented operating temperature limits.	No	No	No - NERC Addressing

1e	Generators should consider conducting operational/functional testing of their “active” freeze protection systems.	No	No	No - NERC Addressing
1f	Generators should communicate low temperature limits, and changes to those limits, to their BA and RC on a real-time basis.	No	No	No - NERC Addressing
1g	Generators complete winter prep, including preparedness plans & freeze protection measures, before earliest first freeze date.	No	No	No - NERC Addressing
2	NERC should initiate review of cold weather unplanned generation outages from Mechanical/Electrical Issues for root causes.	No	No	No - NERC Addressing
3	A NERC/Regional Entity team collaborating with FERC should study availability and readiness of black start units for cold weather.	No	No	No - NERC Addressing
4	Congress and/or appropriate authorities need to establish reliability rules for NG infrastructure to support the grid and LDCs.	No	No	No
4a	Reliability rules should address, among other topics, need for NG infrastructure reliability rules requiring cold weather preparedness plans, freeze protection measures, and operating measures in advance of & during extreme cold weather.	Yes	No	Indirectly - NGRF, Supplier Performance
4b	Reliability rules should address, among other topics, need for regional NG communication coordinators (like grid RCs) with situational awareness to share timely operational communications throughout the NG chain and potential issues to/from grid reliability entities.	Yes	No	Indirectly - NGRF
4c	Reliability rules should address, among other topics, need to require NG infrastructure entities to identify NG infrastructure loads that should be designated as critical for	Yes	Yes	Yes - Load Shed

	priority treatment during load shed and provide criteria to identify such critical loads.			
5	NAESB should convene NG entities, grid operators, and LDCs for communication improvements during extreme cold weather to enhance situational awareness.	Yes	Yes - not NAESB	Yes - NGRF
6	The Commission should consider ordering jurisdictional NG entities to provide one-time reports describing their roles in assessing and responding to NG supply and transportation vulnerabilities in extreme cold weather.	No	No	No - AD24-17 Request
7	An independent research group (e.g. National Laboratories), should study whether additional NG infrastructure, including interstate pipelines and storage, is needed to support electric grid reliability & LDC needs and should include buildout cost information.	No	Indirectly - DOE, NERC, etc.	Indirectly - Infrastructure, Storage
8	BAs should assess if new processes or changes to existing are needed to address anticipated capacity shortages or transmission reliability during extreme cold weather; e.g., multi-day risk assessments or advance multi-day commitments.	Yes	Yes	Indirectly - Advance Procurement
9	BAs should improve short-term load forecasts for extreme cold weather by implementing the lessons-learned and sharing new effective practices with peer BAs.	No	No	No - RTOs/ISOs Addressing
10	Resource planners & entities that serve load should sponsor joint-regional reliability assessments of grid conditions that could occur during extreme cold weather.	No	No	No - NERC Addressing
11	Eastern Interconnection should study Dec. 23/24 dynamic stability & system inertia impact on potential for underfrequency load shed.	No	No	No - EIPC Addressing

## Reliability Alliance Recommendation

#	Recommendation (essential elements captured, not full recommendation)	GEAR Discussed	GEAR Develop	GEAR Recommend
1A	Improve pricing in power markets, especially the real-time market.	Yes	Yes	Yes - Advance Procurement
1B	Improve certainty in power markets to encourage advance gas purchases.	Yes	Yes	Yes - Advance Procurement
1C	Consider ways to facilitate gas purchases during intra-day periods, weekends, and holidays.	Yes	Yes	Yes - Liquidity
2A	Real-time dispatch requirements conflict with NAESB timeframes for gas flow or ratable takes that are enforced during critical periods. Allow updates to operator parameters in real-time.	Yes	No	No - RTOs/ISOs Addressing Indirectly - Advance Procurement
2B	Real-time dispatch requirements conflict with NAESB timeframes for gas flow or ratable takes that are enforced during critical periods. Consider enhanced pipeline notices and services to address power system needs.	Yes	No	No – Pipelines and RTOs/ISOs Addressing
3	Organized power markets do not support the long-term commitments needed to expand gas infrastructure.	Yes	No	No - RTOs/ISOs Addressing Indirectly - Advance Procurement
4A	Infrastructure permitting delays. Removing hurdles to permitting and FERC certificate policy recissions.	Yes	Yes	Yes - Infrastructure FERC also Addressing
4B	Infrastructure permitting delays. Encourage RTOs/ISOs and NERC to advocate for infrastructure, particularly storage, that supports reliability and flexibility.	Yes	Yes	Yes - Infrastructure NERC Also Addressing

**Strategies for Enhanced Gas-Electric Coordination: A Blueprint for National Progress**

<b>#</b>	<b>Recommendation (essential elements captured, not full recommendation)</b>	<b>GEAR Discussed</b>	<b>GEAR Develop</b>	<b>GEAR Recommendation</b>
1	Increased Transparency in Secondary Markets - Varying level of regulatory scrutiny of commodity and service contracts depending on the contract execution venue (centralized market vs. private bi-lateral).	No	No	No
2	Enhancing Weekend and Holiday Gas Commodity Trading Supply and Liquidity - Consideration by regulators to eliminate the option to transact a weekend package of gas.	Yes	Yes	Yes - Liquidity
3	Enhancing Weekend Supply Liquidity of LDC Holdings in Gas Commodity Markets - Work through NARUC to rationalize gas capacity holdings by LDCs.	Yes	TBD	Yes - LDC Capacity Release
4	Enhancing Scheduling Flexibility - Incenting development of packages of firm transportation and storage designed for variable consumption profiles.	No	No	No
5	Developing Additional Reserve Products in RTO Markets	Yes	Yes	Yes - Advance Procurement
6	Reforming Force Majeure Provisions in the Standard NAESB Contract	Yes	No	Indirectly - NGRF, Supplier Performance
7	Addressing Potential Gas-Electric CoDependency Vulnerabilities - Developing redundant power supplies to critical gas facilities.	No	No	No
8	Alignment of the GasElectric Day - Undertake an updated examination of the present gas-day structure and nomination cycles as we go into an era where more immediate demands will be placed on the pipelines.	Yes	Yes	No
9	Refining the Human Needs Definition	No	No	No

10	Reexamining Emergency Gas Prioritization at the Federal Level - FERC develop a critical load prioritization within the firm designation.	No	No	No
11	Availability of Emergency Authority To Address Fuel Supply or Transportation Shortfalls - Enhancing the Defense Production Act and/or other new Congressional actions for use in fuel emergencies.	Yes	Yes	No
12	Wellhead Gas Producer Weatherization - States should consider greater reliability regulation of wellheads.	Yes	No	Indirectly - Supplier Performance
13	Targeted Permitting Reforms - Reforms that support both electric and gas infrastructure in the context of their interdependence.	No	No	Indirectly - Infrastructure, Storage
14	Examining Criteria for Expansion of Critical Infrastructure - Reforming the criteria for the need determination in pipeline siting proceedings and ensuring cost recovery for expansions of pipeline infrastructure is a multifaceted issue that requires ongoing dialogue.	No	No	No