

April 3, 2025

Mr. John Haarlow, Chair
NERC Member Representatives Committee

Dear John:

I invite the Member Representatives Committee (MRC) to provide input on a matter of particular interest to the NERC Board of Trustees (Board) in preparation for its May 8, 2025, meeting in Washington, DC. Specifically, input related to gas-electric interdependency. In addition, input is requested on any items on the preliminary agendas for the May Board, Board Committees, Technical Session, and MRC meetings. The preliminary agenda topics will be reviewed during the April 10, 2025, MRC Informational Session and are included in the posted [agenda package](#) (see Item 2). To keep the communications flowing, also included is a follow-up on NERC's action plan on ensuring reliable large loads integration.

Prioritizing Gas-Electric Interdependency Risks and Mitigation Efforts

Gas-electric coordination continues to be a key risk area during the energy transition as the role of natural gas fired generation becomes increasingly essential to provide the energy to meet load, grid essential reliability services, and the flexibility to integrate large amounts of variable energy resources such as wind and solar. The need for higher levels of coordination to address the interconnection risks between the two energy subsectors have been highlighted in multiple "cold weather event" investigations by NERC and FERC, notably 2021's Winter Storm Uri and 2023's Winter Storm Elliott reports.

In February 2024, NERC's Quarterly Technical Session featured a panel on gas-electric coordination where energy providers and NERC discussed issues seen during recent cold weather events, risks related to gas-electric coordination, and collaborative approaches needed to mitigate risks. As discussed during that technical session, several industry efforts are underway with recommendations related to improving gas-electric coordination. These efforts include the North American Energy Standards Board's (NAESB) forum on gas-electric harmonization, which recommended the formation of a Gas Reliability Organization among other proposals; a whitepaper developed by the Natural Gas Association of America (NGAA), Interstate Natural Gas Association of America (INGAA), and Electric Power Supply Association (EPSA) proposing several ways for better coordination between the gas and electric sectors; a whitepaper developed by MISO, PJM, SPP and ISO New England with several strategies for enhanced gas-electric coordination; and efforts by the National Association of Regulatory Utility Commissioners (NARUC) through its Gas-Electric Alignment for Reliability (GEAR) Task Force that has begun to implement initiatives to improve coordination efforts between the industries.

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For its part, NERC continues to collaborate extensively with industry and policymakers. NERC has enhanced its Reliability Standards to better prepare generators for winter extremes, implement training, and establish communication protocols between generators and grid operators. Current standards projects encompass extreme weather planning and energy assurance requirements. NERC's reliability assessments, including the [2024 Long Term Reliability Assessment](#) and [2024-2025 Winter Reliability Assessment](#) both published in late 2024, continued to highlight the risks associated with the increasing dependence on natural gas systems and promote gas-electric system coordination. In January 2025, the Northeast Power Coordinating Council (NPCC) published a [study](#) underscoring how natural gas dependency in New England and New York poses a high risk for electric reliability during extreme winter weather under certain circumstances. This study was informed by contributions from a diverse steering committee comprised of electric and gas systems operators, the Northeast Gas Association, NPCC, and NERC. The February 2025 [Reliability Leadership Summit](#) also highlighted the need for continued focus on gas-electric coordination.

In March 2025, NERC released the [Reliability Insights: The Interconnected Gas and Electric Systems](#) summarizing the implications of the increased level of connectivity between the electric and gas systems. In the document, NERC identified four key reliability risks: (1) natural gas supply and transportation risks; (2) electric and gas market harmonization; (3) resource adequacy and capacity to support large variability in load and resources; and (4) vulnerabilities in generator winterization. NERC also highlighted opportunities for mitigation related to enhanced winterization requirements; operational preparedness; improved communication protocols; market reforms; cross-market coordination; capacity and energy planning for ramps; and regulatory reform.

At the May 7, 2025, Technical Session, NERC and industry representatives will discuss gas and electric system interdependencies, focusing on prioritization of risks and discussing key projects aligned with mitigating high priority risks. To facilitate the discussion, NERC has developed the attached Work Plan (Attachment A) that summarizes NERC's ongoing key initiatives and how they mitigate the risks identified in the Reliability Insights published earlier this year.

As we prepare for the discussion during the Technical Session and continue efforts to improve gas-electric coordination, the Board requests MRC feedback on the following:

- 1. Does the "Reliability Insights" capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?**
- 2. Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?**
- 3. Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?**
- 4. What should be NERC's priorities in terms of initiatives?**

Follow-Up on NERC Action Plan for Ensuring Reliable Large Loads Integration

In our continued effort for transparency and improving feedback loops with the MRC, I would like to provide an update on NERC's action plan for ensuring reliable large loads integration. As discussed in the [January 9,](#)

[2025, input letter](#), increasing amounts of large commercial and industrial loads are connecting rapidly to the bulk power system and it is critical for us to better understand large loads and the potential reliability impacts of the increasing integration and demand. During the February 12, 2025, Technical Session, a panel of industry representatives discussed the integration of large loads and their behavior on the bulk power system during system events and occurrences. The Board greatly appreciated the thoughtful responses to the input letter from the MRC and insightful discussions during the Technical Session. It is clear that the integration of large loads is an important issue to better understand and address. Below is a summary of key themes we heard:

- **Large Loads Task Force:** There was strong support for the work of the [Large Loads Task Force](#) as a critical foundational element for understanding the associated risks of integrating large loads, with some suggesting to accelerate the work of the task force. Include experts with first-hand experience and knowledge of current large load operating characteristics and risks. Ensure the task force should be an open forum, and outcomes should also allow for stakeholder input.
- **Reliability Standards and Registration Analysis:** Identify gaps in existing Reliability Standards for the interconnection of large loads and consider developing Reliability Standards and pursuing large load registration requirements as necessary.
- **Scenario Analyses:** Develop modeling tools, guidelines, and scenario analyses to include characteristics of incorporating large loads. Consider accelerating the work of the Load Modeling Working Group, responsible for addressing current issues related to available dynamic load models, developing load model data sets and guidelines for load modeling practices, and providing guidance on future developments of dynamic load modeling capability across North America.
- **Mitigation Considerations:** Consider the following when identifying mitigation measures: clear interconnection requirements, working closely with integrated markets, emergency procedures for large loads, consistent methods or procedures for co-locating large loads with generation resources, and prioritization of loads that have the potential to cause grid disturbances.
- **Collaboration:** Increase collaboration between the electric and large load industries to identify and address reliability gaps. NERC should also work closely with the states and ISO/RTOs given their role in the integration of large loads and coordinate with other industry efforts (e.g., ESIG, ERCOT, EPRI).
- **Regular Updates:** Given the risks associated with this issue, provide regular updates to industry on the Large Load Task Force's progress.

On February 13, 2025, the Board approved a [resolution](#) (pages 12-13) directing NERC management to develop an action plan outlining the steps NERC will take to further identify and mitigate risks associated with the integration of large loads; and provide that action plan to the Board at its May 2025 meeting. NERC is considering MRC input as it develops its action plan and will incorporate many of these recommendations, including leveraging the work of the Large Loads Task Force, ensuring coordination with other industry efforts, and conducting more incident analyses that would be shared with industry, among other items. Additionally, we expect the Reliability Issues Steering Committee to capture this risk in the *2025 ERO Reliability Risk Priorities Report* which will be presented to the Board in August 2025.

This topic is a key priority for the Board and will continue to be included for discussion and updates as appropriate at future Board meetings. We look forward to your input on NERC's action plan at the May 2025 meetings.

Additional Topics

The Board also requests suggestions from the MRC regarding any topics you feel are important to the industry, particularly around increased understanding of NERC efforts around the topic. Our goal is to ensure topics most important to the industry are discussed and addressed, whether through input letters, open meetings, or other forums.

Written comments in response to the input requested above, the preliminary agenda topics, and on other matters that you wish to bring to the Board's attention are due by **April 23, 2025**, to Kristin Iwanechko, MRC Secretary (Kristin.Iwanechko@nerc.net). Please include a summary of your comments in your response (i.e., a bullet list of key points) for NERC to compile into a single summary document to be provided to the Board for reference, together with the full set of comments. The formal agenda packages and presentations for the Board, Board Committee, Technical Session, and MRC meetings will be available on April 24, 2025. The Board looks forward to your input and discussion during the May 2025 meetings.

Thank You,



Suzanne Keenan, Chair
NERC Board of Trustees

cc: NERC Board of Trustees
Member Representatives Committee

The NERC logo consists of the letters "NERC" in a bold, black, sans-serif font. A horizontal blue bar is positioned directly beneath the letters.

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

NERC Electric/Gas Efforts Work Plan

April 2025

RELIABILITY | RESILIENCE | SECURITY

Natural Gas Supply and Transportation Risks

- Production Well Freeze-Offs and Winterization
- Dependence on Electricity
- Pipeline Constraints
- Facility Outage / Disruption

Resource Adequacy and Capacity to Support Large Ramps Risks

- Resource Performance During Winter Peak Demand
- Generation Preparedness and Fuel Assurance

Electric and Gas Market Harmonization Risks

- Fuel and Transportation Scheduling
- Unit Commitment
- Operational Coordination
- Planning Coordination

Vulnerabilities in Generator Winterization Risks

- Implementation Challenges
- Actual Winter Conditions More Severe than Design Capability
- Back-up Fuel Unavailability

Mitigation Opportunities

- Enhanced Winterization Requirements
- Operational Preparedness
- Improved Communication Protocols
- Market Reforms
- Cross-Market Coordination
- Capacity and Energy Planning for Ramps
- Regulatory Reform

**NERC-Driven
Initiatives**

**Study-Driven
Initiatives**

**Engagement-Driven
Initiatives**

NERC-Driven Initiatives

Enhanced Winterization

Initiative	Description	Lead	Timeline
Monitor compliance with mandatory generator winterization requirements	<ul style="list-style-type: none"> Proactive engagement with industry ahead of Standard effective dates through Small Group Advisory Sessions Ongoing focus area in the CMEP Implementation Plan (CMEP IP) with a variety of tools being used (e.g. Audits, Spot Checks, Self-Certifications) 	CMEP	Ongoing
Monitor implementation of voluntary pipeline and production well winterization standards	Follow Readiness Forum (subset of GEAR) who fosters operational education, situational awareness and peer-to-peer connections across the entire natural gas industry, electric sector, and federal and state government and end-users	RAPA	Ongoing
Implement next state of energy assurance standards	<ul style="list-style-type: none"> Project 2023-08 ensures various forms of historical and forecast Demand, energy data, and information for reliability studies and assessments Project 2024-02 will require energy reliability assessments for the Long-Term Transmission Planning horizon including availability of fuel 	Standards	Ongoing
Assess generator performance during extreme cold events	Annually evaluated through assessment of GADS and EIA data and published in State of Reliability report, winter performance reviews, and other post-event analysis.	EA	Q2 – 2025, As needed

Study-Driven Initiatives

Operational Readiness

Initiative	Description	Lead	Timeline
Implement new gas situational awareness tools	BPSA to implement monitoring of critical gas assets impacting BPS operations	BPSA	Q4 – 2025
Provide monitoring through DNG-ISAC coordination	Continue supporting the Downline Natural Gas Information Sharing and Analysis Center through contract	E-ISAC	Ongoing

Improved Communication Protocols

Initiative	Description	Lead	Timeline
Participate in AGA/NARUC's Natural Gas Readiness Forum	Participate in Forum that focuses on enhancing electric reliability by fostering better planning and operating coordination among the full natural gas value chain, grid operators, and regulators, particularly for winter preparations and operations	RAPA, BPSA	Ongoing
Finalize FERC/NERC winter 2025 event evaluation	NERC Event Analysis co-leads Joint FERC-NERC cold period system performance reviews. The team dedicates a high-level view of gas system performance during named cold weather periods of interest.	RAPA	Q2 – 2025

Study-Driven Initiatives

Capacity and Energy Planning for Ramps

Initiative	Description	Lead	Timeline
Implement enhanced energy analysis into the reliability assessments	Investigate and select an industry modeling tool to enhance gas availability characteristics (e.g., ServM) to incorporate natural gas risk analysis into NERC assessments	RAPA	Pilot Complete 2025
Finalize Natural Gas Coalition study	Provide advisory input into the Natural Gas Coalition pilot study regarding intra-day/hourly ramping in PJM-East	RAPA	Phase I Complete Q4 – 2025
Finalize NPCC Gas-Electric Study and Recommendations	NERC supported the study recently released. The study quantified the physical capability of the consolidated network of pipeline and natural gas storage infrastructure to serve gas-fired generation under cold weather conditions; and, identified key uncertainty variables and risk factors affecting gas/electric interdependencies.	RAPA	Awaiting Approval from DOE Sec.
Finalize SPOD analysis and communicate externally	Complete the 2024 study of single points of disruption on the natural gas system report and communicate the risks to stakeholders	RAPA	Q2 – 2025
Conduct additional analysis on key gas system contingencies	Leverage analytical tools from NPCC study on gas contingencies in New England and New York and expand analysis to all other regions in North America	RAPA	Scoping, 2026

Engagement-Driven Initiatives

- Market Reforms
- Cross-Market Coordination
- Regulatory Reform

Initiative	Description	Lead	Timeline
Review of FERC natural gas regulatory jurisdiction	Confirming scope of NERC authority, as well as other regulatory agencies such as FERC	Legal	2025
Engagement with Gas Trades and industry participants	Continue to discuss NERC's risk mitigation strategies with key gas trades (AGA, INGAA, NGSA, AXPC, Marcellus Shale Coalition) through different engagement strategies	External Engagement	Ongoing
Coordinate with NARUC's GEAR Task Force	Track and inform – as requested – GEAR's task force efforts; share recommendations across NERC's ecosystem	External Engagement	Ongoing
Explore engagement efforts with FERC	Continue to explore implementation of lessons learned and explore opportunities for joint efforts/engagements	External Engagement	Ongoing
Engage in Canadian Gas-Electric efforts	Support voluntary industry efforts to increase gas/electric coordination in Canada	External Engagement	Ongoing



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**Input for the NERC Board of Trustees
Provided by the Edison Electric Institute
April 23, 2025**

On behalf of our member companies, the Edison Electric Institute's (EEI) Reliability Executive Advisory Committee (REAC) appreciates the opportunity to provide the following input for consideration by the North American Electric Reliability Corporation (NERC) Board of Trustees (BoT) at its upcoming meeting on May 8, 2025. Our perspectives on bulk-power system (BPS) reliability are informed by EEI's CEO Policy Committee on Reliability, Security, and Business Continuity with the support of the Reliability Technical Committee.

I. SUMMARY OF COMMENTS

- The "Reliability Insights" is well-organized and informative.
- The risks identified in the "Reliability Insights" captures the highest priority risks and generally the appropriate mitigation to address these challenges.
- EEI recommends that NERC work with other government agencies to better understand the Natural Gas Coalition's study findings and next steps before purchasing a tool; this will ensure new resources are cost effective and do not duplicate efforts of other agencies, given cost pressures and affordability challenges facing asset owners.
- EEI supports NERC's continued coordination and collaboration with the gas sector to identify any shortfalls, challenges, and gaps impacting BPS reliability.

II. COMMENTS

Investor-owned electric companies have a long history of operational excellence and experience that is critical to meeting customer growth quickly, addressing market-driven challenges, combatting manmade threats, and responding to evolving natural hazards. Given the electric power sector's increasing dependance on natural gas, EEI members agree that enhanced gas and electric coordination is critical to ensure reliability, security, and resiliency of the grid.

1. Does the "Reliability Insights" capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?

The "Reliability Insights" is well-organized and informative. While it is impossible to capture all risks associated with gas and electric interdependency and

coordination, EEI and its members agree the risks identified in the “Reliability Insights” captures the highest priority risks and generally the appropriate mitigation to address these challenges. To this end, EEI and its members support the following:

- The NARUC Taskforce on Gas-Electric Alignment for Reliability (GEAR)¹ initiative that brings together state regulators and industry representatives to develop solutions to better align the gas and electric industries;
- The Federal and State Current Issues Collaborative,² which will explore cross-jurisdictional issues relevant to FERC and state utility commissions, including generic issues related to gas-electric coordination and gas storage.
- Cross-market coordination to support enhanced alignment of gas and electric market schedules during extreme weather conditions.
- TSA security measures for gas due to the electric sector’s reliance on gas infrastructure for generation; and
- Continued prioritization for building additional gas infrastructure.

2. Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?

The Work Plan initiatives properly address the mitigation strategies. EEI and its members generally support the NERC- and study-driven initiatives. Regarding the study-driven initiative around implementing enhanced energy analysis tools, EEI recommends NERC work with the Natural Gas Coalition to better understand its study findings before moving forward with specific actions, including purchasing a tool. This study will provide valuable insights on the data, conditions, and other information necessary to model the risks associated with natural gas. Additionally, it is important that NERC understand the scope and findings of others government agencies’ work, including both FERC and DOE. Given cost pressures, EEI and its member companies ask that NERC ensure new resources and tools are, in fact, necessary and not duplicating efforts.

EEI also supports addressing recommendation 20 from the North American Energy Standards Board Gas Electric Harmonization Forum Report from July 28, 2023³, which does not appear to be addressed. This recommendation states that: “DOE or FERC should conduct, fund, and/or direct efforts to study, by region, whether there is adequate natural gas infrastructure in place to support new gas usage patterns affected by flexible gas generation resource requirements as the latter resources are increasingly called upon for more frequent and/or steeper

¹<https://maxxwww.naruc.org/forms/committee/CommitteeFormPublic/viewExecCommittee?id=13B6350000001C&multicolumns=1>

² <https://www.ferc.gov/federal-state-current-issues-collaborative>

³ https://www.naesb.org/pdf4/geh_final_report_072823.pdf

ramping to balance the increased use of variable energy resources. This study should be conducted in conjunction with an industry advisory group made up of diverse interests to ensure broad engagement and support for study results that are credible and unbiased. Currently, there are no comprehensive regional assessments that examine whether regions have sufficient natural gas infrastructure to support new usage patterns of gas generators, yet this information is essential for policymakers to have so that they can make informed policy decisions and take steps to avoid any potential reliability and resilience risks that accompany the transition to a lower emissions energy future.”

3. Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?

EEl and its members support NERC’s continued coordination and collaboration with the gas sector. NERC’s current regulatory structure is appropriate to ensure reliability and security of the grid. EEl cautions NERC, in the course of that coordination and collaboration to recognize the significant regional differences that exist around gas infrastructure, gas and electric markets, contracting and other issues, and that the gas industry is regulated at both the federal and state levels. Moreover, seeking to create new regulatory reforms or a gas reliability organization could add another layer of bureaucracy without the authority to address these issues. For example, many of these concerns are with intra-state pipelines subject only to state regulation. It is unclear whether federal oversight could dictate appropriate standards to address those risks and why NERC needs a review of its authority, FERC’s natural gas regulatory jurisdiction, or other regulatory agencies. This initiative should not be a priority and if undertaken, should be done transparently with the other agencies. If the initiative is looking to create a gas reliability organization, this type of activity could hinder collaboration with the gas sector and cause delays in collaborating and addressing the important crosscutting issues. Rather than regulatory reform, EEl and its members support NERC, as the independent technical organization, continuing to enhance gas and electric collaboration and coordination at the federal and state level by highlighting the initiatives identified in the “Reliability Insights”.

4. What should be NERC’s priorities in terms of initiatives?

Given NERC’s role as the independent technical organization, EEl supports the continued focus on gas and electric collaboration and coordination to work with the gas sector to address the risks identified in the “Reliability Insights” at the federal and state level, including highlighting shortfalls and gaps in reliability.

EEl’s REAC looks forward to continuing its long-standing collaboration with NERC to efficiently and effectively mitigate risk to the BPS.

MEMORANDUM

TO: Suzanne Keenan,
Chair, NERC Board of Trustees

FROM: Roy Jones
Scott Tomashefsky
Tom Heller
Colin Hansen

DATE: April 23, 2025

The Sector 2 and 5 members of the North American Electric Reliability Corporation (NERC) Members Representatives Committee (MRC), representing State/Municipal and Transmission Dependent Utilities (SM-TDUs), appreciate the opportunity to respond to your April 3, 2025, letter to the members of the MRC in which the NERC Board of Trustees (Board) requests MRC input on the reliability implications of large load integration. Your letter specifically asks:

1. Does the “Reliability Insights” capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?
2. Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?
3. Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?
4. What should be NERC’s priorities in terms of initiatives?

SM-TDUs appreciate the Board’s continued improvement in stakeholder engagement, particularly with the MRC. And we appreciate the continued efforts of NERC management to collaborate with Sectors 2 and 5 through strong engagement with our trade associations and through direct contact with our sector members. Engagement on issues such as Large Load Integration and the Modernizing Standards Processes and Procedures has been positive, and we believe that our participation on these issues will facilitate our shared goal of improving grid reliability. We look forward to continued collaboration. To facilitate that collaboration and to continue improving communication between the Board and MRC members, we reiterate our previous request to have an additional in-person meeting with the Board and MRC. With the pace of change and uncertainty we face, we believe this additional meeting is important.

SUMMARY OF COMMENTS

- We support NERC’s focus on addressing the reliability risks associated with gas-electric interdependencies.
- NERC’s existing jurisdiction allows for NERC to continue improving transparency into gas-electric interdependency issues and to play a coordinating role among various stakeholders.
- We urge NERC to keep in mind regional differences when addressing gas-electric coordination issues.

SM-TDU COMMENTS

We support NERC's focus on addressing the reliability risks associated with gas-electric interdependencies.

For many years, we have understood the risks to electric reliability due to interdependencies with the natural gas system. While progress has been made in addressing some of the risks, more work is needed to increase product and asset availability, price transparency, accountability, and coordination between the natural gas and electric industries to ensure electric reliability. This is especially true as natural gas now fuels over 40% of the nation's electricity generation and as demand forecasts for electricity continue to increase. NERC's continued focus on addressing the reliability risks associated with gas-electric interdependencies is therefore appropriate.

NERC's existing jurisdiction allows for NERC to continue improving transparency into gas-electric interdependency issues and to play a coordinating role among various stakeholders.

NERC's Electric/Gas Work Plan properly identifies actions within NERC's existing jurisdiction to address reliability risks associated with gas-electric interdependencies. Nearly all of the identified initiatives are being led by NERC's Reliability Assessment and Performance Analysis (RAPA), Bulk Power System Awareness (BPSA), and External Engagement teams. This reflects NERC's appropriate focus on actions that (i) improve transparency and analytics around specific gas-electric reliability issues (ii) coordinate the efforts of various stakeholders who are ultimately responsible for making any necessary changes.

In particular, NERC can play an important role in facilitating transparency, monitoring, and reporting on installed and forecasted gas production and transportation capability. Electric generators and load-serving entities have very limited visibility into natural gas supply—from the wellhead to delivery points—making it difficult to identify key risk points. Improving transparency, monitoring, and reporting on the gas system will allow electric utilities to better manage the risks associated with gas availability during tight conditions.

We urge NERC to keep in mind regional differences when addressing gas-electric coordination issues.

The specific reliability issues associated with gas-electric interdependencies vary around the country: gas storage issues in Southern California, for example, are very different than pipeline constraints in New England. NERC analysis and recommendations from one region of the country will therefore not always be directly transferable to other regions. While there are certainly opportunities to leverage analytical tools from one region to another, we urge NERC to pay close attention to regional differences with respect to solutions.

Sectors 2 and 5 Responses to Board Questions

- 1. Does the "Reliability Insights" capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?*

NERC's *Reliability Insights* is a high-level document that effectively summarizes the extensive analysis that NERC and other entities have conducted with respect to reliability risks associated with gas-electric interdependencies. All the risk and mitigation strategies captured in NERC's *Reliability Insights* are consistent with recommendations made in previous reports. We note, however, that many of the mitigation strategies are actions that must be taken by entities other than NERC. As discussed above, NERC's existing jurisdiction allows NERC to improve transparency into those issues and to coordinate the actions of relevant stakeholders.

2. *Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?*

The Work Plan is a concise, single-document summary of all the actions NERC can and should take to improve transparency and coordinate activities of relevant stakeholders to address gas-electric interdependency risks.

3. *Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?*

We recognize that NERC's authority to implement mitigation strategies is limited, especially regarding policies that will facilitate an affordable supply of natural gas as well as the pipeline infrastructure necessary to ensure reliable and timely transportation. NERC should continue to work within its existing authorities to address reliability risk, particularly through improving transparency and convening stakeholders.

4. *What should be NERC's priorities in terms of initiatives?*

The priorities identified NERC's Work Plan are appropriate. We urge NERC to focus on those pieces of the Work Plan that will improve transparency and better coordination between the gas and electric sectors.

Cooperative Sector Input to the NERC Board of Trustees

The Cooperative Sector appreciates the opportunity to provide insights to the NERC Board of Trustees (BOT) regarding the NERC Work Plan associated with gas and electric system interdependencies, focusing on prioritization of risks and discussing key projects aligned with mitigating high priority risks. In addition, Cooperatives are sharing thoughts on the NERC action plan for ensuring reliable large loads integration.

Summary of Input

The Cooperative Sector agrees that the NERC March 2025 Reliability Insights: The Interconnected Gas and Electric Systems provides a well-structured overview of the significant risk categories affecting gas-electric interdependence including:

- Natural gas supply and transportation disruptions (e.g., freeze-offs, pipeline capacity limits, etc.)
- Misalignment of electric and gas market schedules
- Resource adequacy challenges during high ramp events
- Generator winterization vulnerabilities

Cooperatives continue to support NERC in its efforts to assess and identify reliability issues and potential gaps in interconnected systems that impact the reliable operations of the Bulk Electric System (BES) including the work associated with the integration of large loads.

Responses to the specific questions asked by the NERC Board

1. Does the “Reliability Insights” capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?

- The “Reliability Insights” captures many of the risks and mitigation strategies associated with gas and electric interdependencies.
- Based on recent cold-weather events (e.g., Winter Storms Uri and Elliott), these represent the most visible and recurrent system stressors. The identified mitigation opportunities focusing on winterization, better market and operational coordination, improved communication, capacity and energy planning, and regulatory reforms are appropriate.
- The key to successfully managing any system emergency is keeping sufficient generation assets on-line to provide the needed load and generation balance. The gas-electric coordination is therefore key to grid reliability. The ERO and industry must focus their efforts on deliverability of the gas to all units and improve gas-electric coordination as recommended in the previous NERC ERO Reliability Risk Priorities Reports developed by the Reliability Issues Steering Committee (RISC). As the RISC continues to address gas electric coordination in its report, NERC should promote consistency from the input provided to the NERC BOT and the content on this issue that is included in the RISC

report. In addition, Cooperatives suggest a periodic review be conducted of the NERC Reliability Guideline: Natural Gas and Electrical Operational Coordination Considerations to determine if improvements to this resource are warranted. The guideline can be helpful to individual utilities as they develop individual coordination plans, including load restoration protocols, where gas assets are treated as "priority loads."

2. Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?

- The initiatives outlined in the NERC Work Plan (Attachment A) are directionally aligned with the identified risks and cover a broad scope of mitigation strategies. These include:
 - Implementation tracking of generator winterization standards (e.g., EOP-011, Cold Weather Prep)
 - Scenario modeling enhancements for cold-weather events
 - Coordination with NAESB, ISO/RTO councils, and INGAA to evaluate market harmonization including a review of the July 2023 [Gas Electric Harmonization Forum Report](#) to facilitate coordination improvements.
- The following are provided as potential gaps in the proposed work plan:
 - Consideration of whether there is value or a need for coordination and data-sharing protocols between natural gas and electric system operators. There is limited consideration of how regional differences of gas infrastructure constraints are managed in the work plan.

3. Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?

- The current fragmentation of regulatory authority which includes but not limited to FERC (electric reliability and interstate gas pipelines), NAESB (North American Energy Standards Board), PHMSA (pipeline safety), and TSA (pipeline security guidelines) creates significant challenges for comprehensive gas-electric reliability oversight. This fragmented structure hinders coordinated reliability action. Cooperatives support the ERO as a thought-leader in influencing Energy Policy in North America as the need to provide insight in the Long-Term Energy Assurance is necessary for the reliable operations of the Bulk Electric System. The ERO's engagement with agencies other than FERC (e.g., EPA and DOE) and the natural gas industry is encouraged to enhance energy sources/generation assets policy in North America.
- Although market operations are outside the purview of NERC, Cooperatives are concerned that the interdependence between natural gas and electricity is a structural market design issue that involves the reliance on markets for commitment of generation resources. The ERO and industry must focus their efforts on deliverability of the gas to all units and improve gas-electric coordination.
- Cooperatives recognize the differences in the Cybersecurity Regulatory Frameworks for the gas and electric systems and suggest that NERC coordinate with TSA and other agencies, as appropriate, to support their efforts to ensure that pipelines are appropriately protected from cyberattacks.

4. What should be NERC's priorities in terms of initiatives?

- Cooperatives suggest the acceleration of Cold Weather Preparedness Validation by moving toward implementing EOP-011 and associated cold weather readiness standards with appropriate coordination with regional entities. Implementing EOP-011-3 and related Cold Weather Standards (e.g., EOP-012) represents significant progress in ensuring system reliability during extreme weather events.
 - Partner with Regional Entities on cold weather readiness, including winterization plans and implementation
 - Develop best practices for cold weather preparedness
 - Encourage proactive measures during the winter seasons
- Cooperatives suggest that NERC work with Regional Entities to conduct Regional Gas-Electric Dependency Risk Assessments to better understand zone-specific critical gas-electric interdependencies. Incorporate these insights into NERC's Long-Term Reliability Assessments (LTRAs) and Regional Risk Registers.
 - Evaluate the impact of increased reliance on natural gas-fired generation, including vulnerabilities to fuel supply disruptions, pipeline constraints, and weather-related risks
 - Develop and analyze scenarios to understand the implications of natural gas supply disruptions on grid reliability and how such disruptions could cascade across regions.
- Cooperatives support the development of a NERC guideline for best practices for gas-electric interdependencies to include
 - Communication protocols between electric grid operators and natural gas pipeline operators to ensure timely information sharing about supply disruptions, maintenance schedules, or pipeline outages.
 - Guidance to develop contingency plans for scenarios involving simultaneous gas and electric system stress.
- Collaborative training programs and simulation exercises between the gas and electric industries to improve coordination during emergencies.
- Cooperatives support NERC working closely with regulators, policymakers, and industry stakeholders to identify regulatory misalignments between the natural gas and electric sectors (e.g., scheduling mismatches between gas markets and electric markets).
 - Facilitate discussions to align gas pipeline nomination cycles with electricity dispatch schedules and promote flexibility in pipeline capacity markets to improve responsiveness during high-demand periods.
 - Support regional forums for gas and electric operators to address coordination challenges, enhance real-time communication during emergencies, and promote information sharing to improve reliability

Follow-up Items from February 2025 NERC Board Meeting

Cooperatives appreciate the efforts of NERC and stakeholders to accelerate the activities of the Large Load Task Force (LLTF) as we recognize the reliability impacts of large loads on the Bulk Power System (BPS). Nevertheless, the scope and magnitude of impacts should be subject to comprehensive scrutiny, due to the many variations of large loads such as load ramp rates, real-time behavior and

flexibility, protection systems, and backup power schemes. Cooperatives caution NERC when considering making a Load Serving Entity (LSE) responsible for compliance obligations of Large Loads as described on April 18, 2025, NERC presentation to FERC. Cooperatives suggest that NERC and the LLTF refrain from prematurely developing uniform protocols that may not be beneficial in the long run.

Submitted on behalf of the Cooperative Sector by:

Patti Metro

Senior Director, Grid Operations & Reliability

Business & Technology Strategies | National Rural Electric Cooperative Association

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Policy Input of the Merchant Electricity Generator Sector (Sector 6)

To the North American Electric Reliability Corporation (NERC) Board of Trustees

May 7, 2025

Summary:

There are initiatives not listed in the Work Plan that NERC could undertake today, are within their oversight authority and would have a material impact on lessening the gas-electric coordination risk. They are:

- Balancing Authorities (BA) have a pivotal role in how they commit and schedule generation, and such practices materially impact gas-electric coordination and are within NERC oversight. Investigation into scheduling practices should be a priority NERC initiative.
- Functional Entities (FE) that must provide Operating Reserves should ensure that there are enough generation resources that have immediate access to fuel (such as firm transportation tied to storage) to supply such Operating Reserves in the most constraining conditions. Definition of acceptable Operating Reserves is within NERC oversight, and reexamination of the qualification of generation resources that may provide Operating Reserves should be a priority NERC initiative.

Policy Input:

The *Reliability Insights* paper is a concise and comprehensive compendium of the risks posed to the natural gas and electric systems, and the NERC Electric/Gas Efforts Work Plan expands on the Opportunities section of the *Insights* paper. However, both focus on a subset of entities that have responsibility for gas-electric coordination and omit other entities subject to NERC oversight that have equal or greater responsibility. This omission leaves a significant gap in the ability to mitigate gas-electric coordination risk. While we agree that it may take statutory action or regulatory reform to adequately address all risk items, NERC can act now within its authority to reduce these risks by focusing on these gaps. We encourage NERC to review the

existing, relevant Reliability Standards and determine whether they are adequate to require functional entities responsible for developing Operating Plans, Reliability Assessments, and provisioning for Operating Reserves to sufficiently address fuel security and consider their own scheduling practices as it relates to fuel security concerns.

Certain Reliability Standards are intended to ensure that functional entities develop Operating Plans¹ that provide for necessary generation commitments and reserve requirements, among other things, to meet expected load. Other Reliability Standards require the functional entities to prepare for and mitigate for Emergencies.² However, experience has anecdotally demonstrated that these plans are not always sufficient, yet we are not aware that the sufficiency of these plans has been a focus of NERC's enquiry. In our experience, the BAs do not interpret these Reliability Standards to require that generation resources are scheduled in a manner that ensures fuel adequacy or that generation resources assigned as Operating Reserves have access to "no notice gas" or its equivalent in all hours. Unfortunately, the Reliability Standards developed by the Energy Assurance with Energy-Constrained Resources project do not appear to address the gaps either.³ The Near-term Energy Reliability Assessment standard, BAL-007-1, does not require BAs to assess energy adequacy between the delivery hour and up to two days. Historically, time horizons from a few hours before the delivery hour through a long weekend (i.e., shorter than 5 days) have presented the most challenges for scheduling gas. Finally, the Standards Authorization Request guiding the newly formed Planning Energy Assurance project stops short of addressing these fundamental gaps. NERC's priority should be closing these gaps and requiring functional entities to obtain generation resources that have (i) sufficient fuel security and (ii) implement unit commitment practices that recognize the limitations of the gas system serving specific generators.

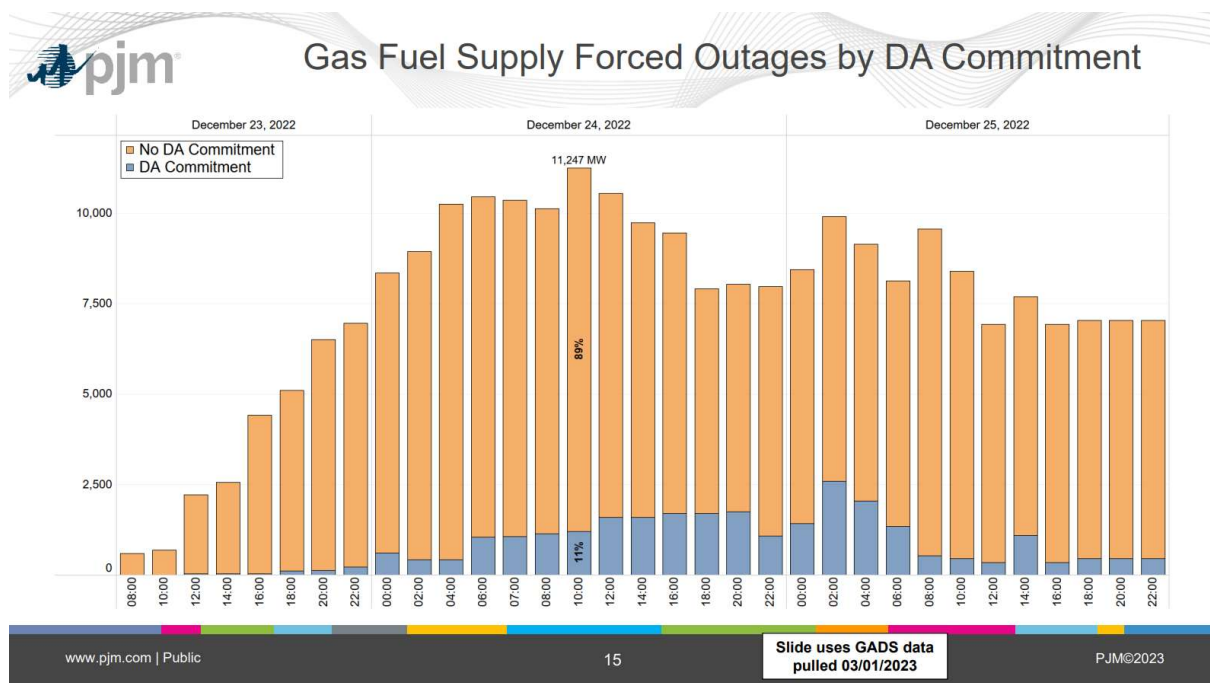
To be clear, we are not proposing that all gas-fired generation must be backed by firm transportation and tied to storage. This would be cost prohibitive, unnecessary, and ineffective in

¹ Requirement R4 of NERC-TOP-002-4 – Operations Planning, requires Functional Entities to have an Operating Plan for next-day operations that addresses each of the following criteria: expected generation resource commitment and dispatch, interchange scheduling, demand (load) patterns, and capacity and energy reserve requirements

² Requirement R2 of EOP-011-4 – Emergency Operations, requires Balancing Authority to have an Emergency Operating Plan to prepare for and mitigate Capacity Emergencies and Energy Emergencies including generating resource fuel supply and inventory concerns.

³ BAL-007-1 – Near-term Energy Reliability Assessments requires BA to perform an energy reliability assessment considering generation resource fuel supply limitations and scenarios that include a "fuel supply contingency." TOP-003-7 – Transmission Operator and Balancing Authority Data and Information Specification and Collection requires functional entities to receive information regarding generating resource fuel supply *during* certain events.

some circumstances. As a rule of thumb, the most flexible and responsive resources providing Operating Reserves require the costliest arrangements to ensure adequate, timely performance in all conditions. Base load or intermediate-duty generation resources that receive Day Ahead unit commitments have performed at acceptable levels in extreme conditions without mandatory transportation arrangements. PJM presented metrics (reproduced below) that showed this phenomenon during Winter Storm Elliott. Outage rates for gas-fired generation resources that received Day Ahead Unit Commitments – i.e., financial commitments from the BA that allowed these resources to procure and schedule gas a day before – were significantly lower than resources PJM attempted to commit in real time.



Winter Storm Elliott Continued Outage Analysis
Operating Committee, March 9, 2023

[20230309-item-04a---winter-storm-elliott-outage-data-review.pdf](#)

Moreover, the cost of fuel security cannot be mandated on generator owners without compensation. As an initial matter, fuel requirements (or options) are not uniform from generator to generator. The only feasible means of “right sizing” fuel security requirements is for the BAs to quantify their needs based on ramping, largest contingencies, their own unit commitment practices, and their regional gas availability. However, it must start with placing the obligation on the BAs to quantify and qualify the gas-electric coordination risk given these parameters and

require the BAs to provision for generation resources, providing varying service levels, in quantities necessary to reliably serve load in a range of conditions. Consequently, the most impactful initiative NERC could undertake today to mitigate the gas-electric coordination risk is to focus on how BAs commit generation resources, when they commit generation resources, and what levels of fuel supply they require for generation resources providing Operating Reserves.

Industry recognizes and appreciates the efforts that NERC and the Board has taken on this issue, and thanks you for the opportunity to provide these comments.

Sincerely,

Sector 6 Merchant Electricity Generator Representatives:

/s/

Mark Spencer

LS Power

/s/

Srinivas Kappagantula

Averon Energy

To: NERC Board of Trustees
From: Sector 7 – Electricity Marketer MRC Representatives
Date: April 16, 2025
Re: May NERC Board Meeting Policy Input

Thank you for the opportunity to provide input to the NERC Board of Trustees on gas-electric interdependency. We greatly appreciate the open exchange between the NERC Board of Trustees and the MRC Representatives.

Does the “Reliability Insights” capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?

Sector 7 MRC Representatives find that the “Reliability Insights” document provides a comprehensive overview of key reliability risks and mitigation strategies associated with gas-electric interdependencies. We encourage continued emphasis on improved communication protocols, cross-market coordination, and market reforms that support both, as these are critical to addressing the operational and planning challenges identified.

Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?

Sector 7 MRC Representatives note that the Work Plan comprehensively addresses the mitigation strategies identified in the “Reliability Insights” document. The Work Plan’s initiatives align well with the key risks associated with gas-electric interdependencies. We encourage continued emphasis on those initiatives that foster effective coordination and information sharing between the gas and electric sectors, as these are essential for addressing the operational and planning challenges highlighted in recent reliability assessments.

Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?

Sector 7 MRC Representatives recommend prioritizing increased coordination and market-driven solutions over additional regulatory measures to address the gas-electric interface. As highlighted in the “Reliability Insights,” the primary challenges—such as market harmonization, operational coordination, and planning alignment—are best addressed through improved communication protocols, cross-market coordination, and reforms that incentivize reliability and fuel assurance. We support NERC’s ongoing efforts to enhance winterization standards, situational awareness, and industry engagement, and encourage continued collaboration with policymakers and stakeholders to close remaining gaps without imposing additional prescriptive regulations

What should be NERC's priorities in terms of initiatives?

Sector 7 MRC Representatives believe that initiatives addressing both the natural gas and power industries should be prioritized, as reliability concerns can only be effectively mitigated when both sectors are working in close coordination. In particular, we recommend prioritizing "Improved Communication Protocols," "Market Reforms," and "Cross-Market Coordination" from the Work Plan, as these initiatives directly support enhanced operational alignment, risk mitigation, and resilience across the interconnected gas-electric system.

ISO/RTO Council's Policy Input to Board of Trustees

April 23, 2025

The ISO/RTO Council¹ (IRC) offers the following input to the Member Representatives Committee (MRC) in response to Suzanne Keenan's letter dated April 3, 2025.

The IRC appreciates this opportunity to provide input on prioritizing gas-electric interdependency risks and mitigation efforts. As observed during recent winter events, the natural gas and electric systems are highly interdependent, and the IRC expects that this interdependency will increase in coming years. Recent FERC, NERC, and Regional Entity Staff Reports on Winter Storm Uri and Winter Storm Elliott contained multiple recommendations highlighting the importance of gas-electric coordination. Many improvements have been made as a result of the lessons learned during these storms, resulting in notable improvements in gas-fired generation performance and enhanced communication and coordination between the electric and gas industries during Winter Storms Gerri and Heather in January 2024 and most recently during Winter Storm Enzo in January 2025. While previously unidentified risks can certainly develop, the Reliability Insights document presents a good high-level summary of the primary risk areas. The following comments and recommendations are meant to expand on these risk areas and support the trend of improved gas-electric coordination and gas-electric system reliability.

Summary of IRC Comments

- **Co-dependency vulnerabilities and the linkage to differences in planning standards and economic recovery mechanisms:** The bulk electric system (BES) and the gas system increasingly rely on each other to operate reliably. Unlike the BES, critical gas infrastructure often depends on single gas system elements or sources, and failures of these elements or sources can result in gas system reliability issues that may impact gas supplies to end-use customers, including gas-fired generators connected to the BES. The BES is explicitly planned to meet mandatory reliability standards and financed through a variety of regulatory mechanisms to meet forecast demand from all consumers, whereas the gas system is not planned to meet forecast demand from all users and is financed through voluntary contracts that are approved by regulators. The different regulatory models have resulted in inefficiencies and reliability risks. Growth in the demand for electricity, coupled with the changing electric system resource mix, is increasing operational volatility and risks for both systems, particularly risks related to high-impact, low-probability wintertime events. This raises the regulatory question of how best to mitigate these co-dependency risks. NERC does not have jurisdiction to set standards for the gas system and therefore cannot directly address the risks inherent in the interdependency of the two systems; however, it has an important role to play by quantifying and highlighting systemic co-dependencies and the resulting reliability risks.
- **Wellhead weatherization:** The IRC recommends states leverage safety oversight to address the jurisdictional gap in regulation. The IRC supports a national forum to help develop regional weatherization guidelines as needed.

¹ The IRC comprises the Alberta Electric System Operator (AESO), the California Independent System Operator Corporation (California ISO), Electric Reliability Council of Texas, Inc. (ERCOT), the Independent Electricity System Operator (IESO) of Ontario, ISO New England, Inc. (ISO-NE), Midcontinent Independent System Operator, Inc., (MISO), New York Independent System Operator, Inc. (NYISO), PJM Interconnection, L.L.C. (PJM), and Southwest Power Pool, Inc. (SPP).

- **Force majeure reform:** Current NAESB base contract language allows for the declaration of a Force Majeure event by gas producers when wellhead freeze-offs occur and result in significant production losses; the IRC recommends supporting a narrowing of contractual force majeure definitions to incentivize proactive wellhead winterization.
- **NERC mitigation strategies:** The IRC requests more specifics on how NERC's strategies will be implemented and what outcomes are expected, especially regarding communication protocols and gas situational awareness tools.
- **Real-time communication:** Direct communication between RTO/ISO control rooms and gas pipeline control rooms should be prioritized and encouraged to allow for real-time information sharing and coordination of planned outages, thereby enhancing situational awareness and supporting system reliability by ensuring free and open lines of communication between operators of the electric system and operators of the gas system.
- **Winterization compliance:** The IRC supports NERC's work on mandatory generator winterization requirements; however, uncertainties remain regarding how exceptions will be authorized within the framework established in EOP-012-3.²
- **Human needs prioritization:** Gas-fired generation also supports human needs customers but isn't prioritized in the same way. Pipeline and gas supply industries, RTOs/ISOs, electric distribution utilities, and the respective regulatory communities must collaborate to develop redundant power sources for critical gas facilities and sufficient redundancy in the elements of the bulk gas system to withstand single element contingencies.
- **Environmental regulatory alignment:** Given that electrification mandates have increased dependency concerns by discouraging gas-powered equipment at gas facilities, an increased coordination with environmental regulators to address electrification mandates is needed.
- **Gas trading liquidity:** The IRC recommends supporting improved gas trading liquidity on weekends/holidays to better match electric demand fluctuations, especially during critical winter periods.

IRC Responses to Specific MRC Policy Input Questions

Does the "Reliability Insights" capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?

Enhance gas trading liquidity. Current multi-day natural gas trading limitations during weekends and holidays hinder responsiveness to demand fluctuations, impacting grid reliability and efficiency. While no single entity has complete jurisdiction, FERC and NARUC can leverage their convening and regulatory authority to facilitate proactive solutions, such as enhanced liquidity in gas markets during critical winter periods.

Wellhead weatherization regulation. The jurisdictional gap in wellhead regulation presents a reliability challenge. States should leverage their existing safety oversight to address wellhead reliability. A national forum could establish regional weatherization guidelines for wellhead operations, ensuring consistent reliability standards and a level playing field across all jurisdictions. Of note, there has been recent positive movement by gas producers in the area of facility winterization, including the December 2024 Recommended Practices

² EOP-012-3 Extreme Cold Weather Preparedness and Operations, <https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-012-3.pdf>

initiative developed by the Marcellus Shale Coalition, which is designed to provide consistent winterization guidance for its members.

Reform Force Majeure Provisions. Current NAESB contract language allows for the declaration of a Force Majeure event by gas producers when wellhead freeze-offs occur and result in significant production losses. Narrowing force majeure definitions would incentivize proactive wellhead winterization. FERC and the states should support enhanced force majeure provisions in commodity contracts, which should allow review of whether reasonable mitigation measures (e.g., weatherization) were in place during force majeure events.

Provide additional detail regarding NERC's mitigation strategies. The Reliability Insights publication and the NERC Electric/Gas Efforts Work Plan provide high-level summaries of the mitigation strategies NERC intends to pursue. However, it would be helpful if NERC provided more details of how it intends to implement the mitigation strategies and the overall results it hopes to achieve. The *Operational Coordination and Improved Communication Protocols* bullet points in the Reliability Insights publication and the *implement new gas situational awareness tools* initiative in the NERC Electric/Gas Efforts Work Plan are items that would particularly benefit from additional detail.

As NERC advocates for improved communication and coordination between the gas and electric industries, it should focus on supporting the development of real-time communication and coordination of planned outages between RTO/ISO control rooms and gas pipeline control rooms. Commodity trading firms that trade gas and electricity ensure free and open lines of communication exist between their gas and electric trading teams. Similar free and open lines of communication should exist between operators of the electric system and operators of the gas system to help enhance situational awareness and support system reliability.

Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?

The IRC supports NERC's work relating to mandatory generator winterization requirements. While the winterization standard (EOP-012) has created a requirement for resources to implement freeze protection measures, uncertainties remain regarding how exceptions will be authorized within the framework established in EOP-012-3.³

The IRC would also encourage NERC to keep in mind as it develops its work plan that changing electric demand profiles, the growth of electric demand, and the evolution of the resource mix to include more weather-dependent resources all directly impact the operation of the gas system. For example, the increasing number of intermittent and limited-duration resources on the electric grid (both behind and in front of the meter) means that the instantaneous loading of the gas system and the overall average capacity factor both become more volatile as the gas system needs to respond to rapidly changing fuel demand from gas-fired generation resources called upon to help balance the electric grid during output fluctuations of intermittent resources. The gas and electric markets have fundamental differences that need to be accounted for. For example, the electric system is planned and built based on load forecasts, while the gas system is designed and constructed based on long-term contracts from customers. This makes it difficult for the gas and electric systems to function efficiently as interdependent systems and it introduces co-dependency risks.

³ EOP-012-3 Extreme Cold Weather Preparedness and Operations, <https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-012-3.pdf>

Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?

The IRC understands why gas delivery service to critical loads has been prioritized in the definition of human needs priorities in local distribution company tariffs. However, bulk system gas supply is also needed to operate gas-fired generating units to supply electricity for those same human needs customers. This need will increase as the electric grid becomes more reliant on gas-fired generation to balance the gaps from intermittent and limited-duration resources. Pipeline and gas supply industries, RTOs/ISOs, electric distribution utilities, and the respective regulatory communities must collaborate to develop redundant power sources for critical gas facilities and sufficient redundancy in the elements of the bulk gas system to withstand single element contingencies. Coordination with environmental regulators is also crucial, given that electrification mandates have contributed to this dependency by discouraging the use of gas-powered equipment in gas production, transmission, and distribution facilities. This issue can best be addressed through an organized approach involving environmental and reliability regulators at the state and federal levels so that critical gas pipeline compressors and other infrastructure have sufficient levels of redundancy.

What should be NERC's priorities in terms of initiatives?

In addition to the topics discussed in its response to the first question, the IRC asks that NERC prioritize the following initiatives:

Enhance scheduling flexibility: Generators experience inconsistent scheduling flexibility when responding to RTO dispatch, particularly under constrained conditions. Most often, the cause is the lack of sufficient gas system pressure due to a combination of insufficient gas supply and the high demand on a gas system that has not been built to supply the demand of both gas and electric users. This problem is exacerbated by multi-day natural gas trading limitations during weekends and holidays. NERC should highlight this issue with the regulatory community to encourage the appropriate changes in the gas industry.

Address co-dependency vulnerabilities: As NERC structures its engagement-driven initiatives, it should keep in mind that electric-powered gas infrastructure often depends on a single power source for reliable operation, creating system vulnerabilities. Pipeline operators, gas suppliers, ISOs/RTOs, electric distribution utilities, and the respective regulatory communities must collaborate to ensure critical gas facilities have redundant power supplies and that the gas system is not vulnerable to single element contingencies. Given that electrification mandates have contributed to the trend of gas infrastructure shifting away from the use of gas-based power sources, coordination with environmental regulators at both state and federal levels is essential to ensure adequate redundancy for critical infrastructure.

Conclusion

The IRC appreciates the opportunity to provide policy input to the MRC in advance of NERC's upcoming Board of Trustees meeting. The effectiveness of winterization efforts (both on the gas side and the electric side) will be a significant factor in the reliability of both systems in the future as evidenced by the recent winter storms. As ISOs/RTOs, we have observed a high degree of interdependency between the natural gas and electric systems in several recent winter weather events, and we expect that this trend will continue as the electric system continues to shift toward higher penetrations of intermittent and limited-duration resources. The gas system relies on the electric system to power gas production, processing, transmission, and distribution equipment while the electric system relies on the gas system to fuel gas-fired electric power generation; over time, the two systems have effectively become one system. Consequently, the effectiveness of winterization efforts of both gas and electric infrastructure will be a significant factor in the reliability of both systems in the future, as evidenced by recent winter storms.

Input to NERC Board of Trustees

From: Jim Huston and Marcus Hawkins, Sector 12 MRC Representatives

1. Does the “Reliability Insights” capture all risks and appropriate mitigation strategies? Are there any risks or mitigation strategies missing and if so, what are they?

- One additional aspect to be considered under the “pipeline constraints” reliability risk is the expected growing demand throughout the country for dispatchable natural gas generation to meet anticipated datacenter loads. Many Indiana utilities have indicated to the Indiana Utility Regulatory Commission, either through their integrated resource planning processes or through individual updates, that they are planning on adding natural gas generation resources to meet growing demand and to replace aging generation plants. There is a growing awareness that this continued shift to natural gas generation may stress current interstate pipeline capacity and erode the price competitiveness of natural gas as a fuel source. Indiana Governor Mike Braun recently signed an executive order tasking the state to assess the supply of natural gas available for electricity generation within the state ([EO 25-50](#)). A regional or nationwide study regarding the current and future anticipated capacity of the interstate natural gas pipeline system may prove fruitful in helping guide future generation resource decisions and ensure the reliability of the bulk power system.

2. Do the Work Plan initiatives properly address mitigation strategies? Is there anything missing?

- The Work Plan initiatives all appear properly oriented to address the needed mitigation strategies. One suggestion under the “state of energy assurance standards” would be, in addition to the natural gas risk analysis modeling tool, to evaluate the benefits of an independent industry modeling tool for electric load forecasting to help understand supply needs.
- Additionally, the work plan should make space for consideration of the authorities of other entities involved as well as the economic impact of mitigation strategies.

3. Are current regulatory structures sufficient to ensure that needed mitigations are put in place? Are administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems, with a focus on the gas-electric interface?

- Greater attention needs to be placed on resource adequacy for both the electric and gas industries. Resource adequacy makes operations more reliable. As discussed above, a regional or national assessment of both the electric and gas supply systems (including the availability of the gas commodity and the capability of the interstate pipeline and storage systems) on a near, medium, and long-term basis would be helpful. Rapid changes in electric load growth will strain both the electric system and the interstate gas system. Under the current FERC – State jurisdictional divide it is not clear how these studies would be facilitated, implemented, and used across the diverse entities operating in both the electric and gas industries. A more wholistic planning process is necessary but the biggest problem will be evaluating whether the current regulatory structures can make effective use of this information.
- Additional electric market tools should be considered to deal with the realities of the electric market. Day-ahead electric markets do not always provide the price certainty that is needed to ensure reliable operation of gas units.

4. What should be NERC's priorities in terms of initiatives?

1. Monitoring compliance with generator winterization requirements.
2. Advocating for generator reliability characteristics receiving proper economic incentives for their role in ensuring the operations of the grid.
3. Finalizing the Gas-Electric Study and recommendations with RAPA.

April 23, 2025

Suzanne Keenan, Chair
NERC Board of Trustees

Re: Comments in Response to the April 3, 2025 Letter on Gas-Electric Matters

Chair Keenan:

The American Gas Association (“AGA”) appreciates the opportunity to comment on the April 3, 2025 letter on gas-electric matters and the related North American Electric Reliability Corporation (“NERC”) electricity and gas efforts work plan. AGA is submitting the following comments in response to the NERC inquiry about administrative and/or regulatory changes needed to ensure the reliable operation of natural gas systems; matters related to reviewing the scope of NERC’s authority over gas-electric issues and the jurisdiction of the Federal Energy Regulatory Commission’s (“FERC”); and regulatory reforms as part of the work plan. AGA values the collaborative and constructive partnership with NERC as we address various gas-electric matters. These comments are intended to highlight the importance of the current state and federal regulatory process that helps maintain the reliability of the natural gas system.

AGA, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 79 million residential, commercial and industrial natural gas customers in the U.S., of which 94 percent — more than 74 million customers — receive their gas from AGA members. AGA is an advocate for natural gas utility companies and their customers and provides a broad range of programs and services for member natural gas pipelines, marketers, gatherers, international natural gas companies, and industry associates. Today, natural gas meets one-third of the United States' energy needs.

AGA believes that reliability of service for customers is an overarching priority for both the gas and electric industries. The highest priority for a natural gas utility is the ability to deliver natural gas to its customers safely,¹ reliably, responsibly, and at just and reasonable rates.² Furthermore, local natural gas distribution companies (“LDCs”) are obligated, in accordance with applicable state law and regulatory requirements, to distribute the natural gas transported by interstate pipelines to retail residential, commercial, governmental, and industrial customers

¹ Regarding safety, natural gas distribution pipeline systems are regulated by the Pipeline & Hazardous Materials Safety Administration, and its state partners, under 49 CFR Part 192.

² Elements of a utility’s retail services are regulated at the state level.

(including electric generators).³ Due to this obligation to serve, LDCs develop detailed long-term supply and transportation plans to ensure they can reliably meet the physical demand for service on peak days for the present and in the future. Acquiring and maintaining pipeline and storage capacity as well as natural gas supply are integral to the planning process. AGA appreciates NERC's desire to foster gas-electric harmonization and recognizes NERC's understanding of the differing regulatory and operational constructs between the natural gas and electric systems. As such, AGA recommends NERC refrain from taking advocacy positions or actions that could reduce or obstruct services that natural gas utilities need to serve customers.

Residential and business customers expect and demand uninterrupted service for human need purposes, such as home heating and business purposes. As an essential predicate to providing natural gas distribution services, LDCs develop and implement detailed long-term supply plans⁴ that are subject to periodic update, review, and approval processes, as applicable. Guided by past experience and regulatory oversight, LDCs plan natural gas deliveries on a daily, weekly, monthly, and seasonal basis by matching supply resources to forecasted demand and preparing for "design day" conditions (or a historic "peak day" load). During the winter, LDCs typically use a full suite of supply assets and tools to fulfill the obligation to serve customers reliably and safely -- both on an average day as well as a peak demand day. The goal of these gas supply plans is to ensure natural gas utilities can reliably meet their projected physical demand for service on peak days. This process requires building and managing portfolios of physical natural gas supply and building or contracting for storage and pipeline transportation services in order to meet anticipated peak day customer needs. NERC should not ignore the reliability consequences of altering regulatory mechanisms that could impact LDCs and its customers.

Current state and local energy service prioritization requirements are premised on the need to provide service for health and safety reasons. LDCs factor these requirements into their planning for peak day conditions. Prioritization of local gas service must remain subject to state and local jurisdiction. Federal entities, such as FERC -- or by extension NERC -- do not have the authority to redirect natural gas subject to state jurisdiction away from LDCs nor their utility customers.

Federal oversight pertains to interstate transportation and for interstate facilities and services prioritization should remain subject to FERC's authority under Commission approved

³ Most laws or regulations that govern utility service include the concept of the "obligation to serve." In short, this duty stems from the reality that when a franchise service territory is granted by a state or regulatory entity a public interest is established in maintaining reliable service. *See, e.g.*, 66 Pa. Cons. Stat. § 2207 (stating that "the natural gas distribution company shall serve as the supplier of last resort for residential, small commercial, small industrial and essential human needs customers and any other customer classes determined by the commission"); Nev. Admin. Code § 704.499 (stating that each utility shall exercise reasonable diligence and care to provide customers with natural gas and to the extent possible, should avoid any shortage or interruption).

⁴ As one state court succinctly explained, "[n]ecessarily encompassed within a utility's obligation to serve is an attendant obligation to plan and make reasonable provision for the continuing availability of its products or services in order to meet reasonably expected future demand, given the information which the utility possesses and the options open to it." *People's Org. for Wash. Energy Res. v. Utils. & Transp. Comm'n*, 104 Wn.2d 798 (Supreme Court of Washington, 1985).

tariffs and its non-discrimination policy.⁵ FERC policy since Order No. 436 has been to mandate non-discriminatory transportation of natural gas.⁶ Additionally, since Order No. 636, FERC has required that pipelines establish a level playing field for all shippers on the interstate pipeline system so that “no gas seller has an advantage over another gas seller,” and to “ensure that the benefits of [wellhead] decontrol redound to the consumers of natural gas to the maximum extent as envisioned by the NGPA and the Decontrol Act.”⁷ This goal has been manifested in various ways, including FERC’s specific requirement that capacity be allocated to those that value it the most, thus serving the policy of maximizing economic efficiency through the use of “allocative efficiency.”⁸ NERC advocating for changes in the regulatory mechanisms related to prioritization/allocation or attempting to alter interstate pipeline capacity allocations to end-uses invites rather than resolves controversy. Such actions would also be inconsistent with the policy of non-discrimination and economic efficiency that FERC has consistently followed for decades. Additionally, AGA is concerned that attempts by NERC to change regulatory policies on pipeline and storage capacity and/or supply would also be inconsistent with applicable contract terms and general contract law. AGA requests that any gas-electric efforts by NERC, and any related advocacy actions or proposals, be aligned with rather than contrary to state and federal laws/policies and not be inconsistent with contract law.

An area in which NERC’s voice may effectively drive constructive change is to focus on ensuring that sufficient infrastructure (both pipeline and storage) exists for all users of the natural gas system. AGA members take service from virtually every interstate natural gas pipeline regulated by FERC under the Natural Gas Act. AGA members are directly affected by FERC’s rules and policies addressing or affecting the certification of new pipeline capacity. AGA’s goals include ensuring that the interstate natural gas transportation and storage network provides safe, secure, and reliable service. Given that natural gas currently accounts for 43% of power generation⁹ it is imperative that NERC recognize and support, at FERC, additional natural gas

⁵ Notably, interstate and intrastate pipelines may have different prioritization mechanisms due to differing regulatory requirements. Even if local rules permit different prioritization, this should not impact interstate pipelines. Natural gas supply being transported via an interstate pipeline to an LDC in one state should not be adversely affected by local rules in another state.

⁶ *Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, FERC Stats. & Regs. ¶ 30,665 (1985), *vacated and remanded*, *Associated Gas Distribs. v. FERC*, 824 F.2d 981 (D.C. Cir. 1987), *readopted on an interim basis*, Order No. 500, FERC Stats. & Regs. ¶ 30,761 (1987), *remanded*, *Am. Gas Ass’n v. FERC*, 888 F.2d 136 (D.C. Cir. 1989), *readopted*, Order No. 500-H, FERC Stats. & Regs. ¶ 30,867 (1989), *reh’g granted in part and denied in part*, Order No. 500-I, FERC Stats. & Regs. ¶ 30,880 (1990), *aff’d in part and remanded in part*, *Am. Gas Ass’n v. FERC*, 912 F.2d 1496 (D.C. Cir. 1990), *order on remand*, Order No. 500-J, FERC Stats. & Regs. ¶ 30,915, *order on remand*, Order No. 500-K, FERC Stats. & Regs. ¶ 30,917, *reh’g denied*, Order No. 500-L (1991).

⁷ *Pipeline Service Obligations and Revisions to Regulations Governing Self-Implementing Transportation; and Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, Order No. 636, FERC Stats. & Regs. ¶ 30,939, at 393, *order on reh’g*, Order No. 636-A, FERC Stats. & Regs. ¶ 30,950, *order on reh’g*, Order No. 636-B, 61 FERC ¶ 61,272 (1992), *order on reh’g*, 62 FERC ¶ 61,007 (1993), *aff’d in part and remanded in part sub nom. United Dist. Cos. v. FERC*, 88 F.3d 1105 (D.C. Cir. 1996), *order on remand*, Order No. 636-C, 78 FERC ¶ 61,186 (1997).

⁸ See, e.g., Order No. 636-A at 30,555.

⁹ See <https://www.eia.gov/todayinenergy/detail.php?id=61444> (last visited April 23, 2024).

pipeline and storage capacity as a way to ensure reliability. This could include supporting a streamlining of FERC's certificate review process in order to provide for a timelier review of, and decisions on, infrastructure applications. An updated permitting process could expedite the modernization of natural gas infrastructure to meet the needs of all citizens, enhance reliability, and help meet the nation's energy security and independence goals. An untimely review process and unreasonable delays undermine the resilience of the natural gas system. This is especially concerning due to the fact that hundreds of millions of Americans rely on the gas system either directly or indirectly via the electric power generation.

Notably, a critical component of the U.S. energy infrastructure, providing essential reliability, stabilizing market prices, and ensuring resiliency during high-demand periods and unexpected disruption, is natural gas storage. AGA is in the process of completing a report on natural gas storage. The report will cover various topics including the role storage plays in supporting the energy system, the market landscape for storage, and the value of storage. AGA will share the report with NERC staff once it is completed.

Thank you,

A handwritten signature in dark ink, appearing to read 'M. J. Agen', is positioned above a horizontal line.

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