



**Written Statement of ANGA President and CEO Marty Durbin
Quadrennial Energy Review Public Meeting
Panel: Key Perspectives on Energy Infrastructure and Vulnerabilities
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Introduction

Thank you for the opportunity to appear on behalf of America's Natural Gas Alliance and its member companies. ANGA represents North America's leading independent natural gas exploration and production companies. Our mission is to promote growing demand for and use of our nation's vast domestic natural gas resources for a cleaner and more secure energy future.

Whether for greater geopolitical stability through exports or powering a manufacturing renaissance and cleaner air here at home, a strong, resilient and secure energy infrastructure—including for natural gas—is essential to our nation. So we appreciate the emphasis on this subject during the first year of the quadrennial review process.

Shale Abundance Reduces Historic Vulnerabilities

U.S. shale gas abundance is eliminating many long-assumed energy vulnerabilities. For our air quality, growing use of natural gas in power generation largely made it possible for President Obama to state that the United States has reduced carbon emissions more than any other country on earth over the past eight years. More than other fuels, we also provide consistent, flexible power that helps make intermittent wind and solar energy viable. And, natural gas has reduced sulfur dioxide and NOx emissions by more than two-thirds over the past two decades.

Using modern techniques like hydraulic fracturing and horizontal drilling, shale is being developed in a highly efficient manner, getting more production from fewer rigs. And the onshore nature of the shale resource has dramatically mitigated the impact of weather-related curtailments.

The Eastern U.S. just experienced the 10th coldest January on record since 1897. As a result, January 7th set a record for daily gas demand, nearly two times the annual average. Yet consumers were largely spared the \$10 prices of the similarly cold 2000-2001 winter or the \$13 prices of hurricane season 2008. During the Polar Vortex, everyone with firm contracts received the gas they needed. There were isolated areas in the Northeast where spot prices did reach double-digits, but that impacted just 1% of the regional market during that record January cold.

Bottom line: We have the gas. In fact, the Marcellus Shale is widely considered to be the second largest natural gas field in the world. What the record cold exposed, however, was the lack of adequate pipeline infrastructure in the Northeast to allow the region to take full advantage of its nearby shale gas resources. This challenge is well-understood both by

industry and policymakers at all levels of government. The good news is that the vast majority of infrastructure investment over the past few years has been focused on the Northeast. Investment is flowing into the region at a pace of about \$1.5 billion annually between 2012-2015 to help close the gap.

Experts inside and outside of government agree that we have enough domestic supplies of natural gas to power our nation for generations. As the DOE materials in preparation for this panel rightly point out, this windfall is creating jobs, powering a manufacturing renaissance and delivering cleaner power generation—and thus cleaner air—here at home, while simultaneously empowering our nation to export liquefied natural gas to our allies and friends abroad.

Shale abundance has transformed the energy possibilities of our nation. In just a handful of years, the United States has emerged as the world's leading producer of natural gas. Indeed, the greatest vulnerability we face is not taking full advantage of what our abundant, domestic supplies of natural gas have to offer our nation's economy, environment and energy security.

More Infrastructure Needed

Beyond the specific issues in the Northeast, the shale revolution created a period of substantial infrastructure investment from 2007 to 2011 with well over 100 Bcf/d of pipeline capacity added. This investment comes entirely from the private sector. Numerous new large-diameter pipelines have been developed to connect emerging shale supplies to the market, along with gathering and processing capacity to condition the gas for the pipeline network.

Growing market demand for natural gas is leading to additional infrastructure development, particularly as new natural gas-fired power generation loads come online and access supply through pipeline expansions and laterals that connect with existing pipelines and sources of supply. We simply need more pipelines to deliver the gas to where it's needed and solutions—commercial and otherwise—that ensure substantial infrastructure investments continue.

Infrastructure needs are being closely examined by the industry. ANGA co-sponsored a recently updated INGAA Foundation study on the topic. Among the findings, the study projects:

- Significant gas supply, market and infrastructure growth, primarily related to shale resources.
- Producers will focus on shale plays with large quantities of oil and natural gas liquids, which also have significant needs for new pipeline infrastructure as well as gas processing, pipeline and fractionation facilities to accommodate growing production.

Bottom line: The study finds that more than \$640 billion or about \$30 billion per year of total capital expenditures will be required through 2035 to keep pace with the combined natural gas and liquids outlook. This includes 43 Bcf/d of new gas transmission capability, 14,000 miles per year of new gas gathering lines, 37 Bcf per year of new working gas storage capacity, and 9 Bcf/d of new LNG export capacity.

Beyond the needed infrastructure, innovation is bringing new ways to diversify our ability to deliver gas to where it's needed:

- The geographic diversity of many shale formations, especially the Marcellus and Utica in the Northeast, has created opportunities for existing pipelines to offer new kinds of services to customers through concepts such as backhauls as well as displacement and physical flow reversals that allow pipelines to move gas in either direction more dynamically in response to the needs of the market.
- Patterns of supply and end use also are having a significant impact on infrastructure, with numerous pipelines now offering flexible new services to avail their shippers of opportunities to take advantage of supply growth in the traditional market areas.
- The proximity of these Marcellus and Utica shale plays to major demand centers in the Northeast has reduced the overall cost of expanding facilities to serve new markets, making some projects possible that once seemed insurmountable.
 - One of the more recent examples is the New Jersey – New York Expansion project, which brought 800,000 Mcf/d of new pipeline capacity into the region and marked the first new natural gas pipeline into Manhattan in more than 40 years. This is enough natural gas to heat more than two million homes every day. These additional new supplies provide energy diversity, greater competition and less seasonal price volatility – all of which has resulted in lower energy costs in New Jersey and New York.

Another means of diversification is distributed power options such as Combined Heat and Power. These systems consist of on-site electrical generators that are primarily fueled by natural gas. They are highly efficient because they capture the heat that is a byproduct of electricity generation and use it to heat the buildings. Because CHP is designed to serve a single large building or campus, it also has the capacity to go into “island mode,” separating from the electricity grid and providing its own uninterrupted power, heating and cooling in the event that the grid becomes unstable.

As ICF noted in a study released last year, the power and resilience of CHP was on full display in the aftermath of Superstorm Sandy. New York University's 13.4 MW CHP plant and self-sufficient micro-grid system provided electricity to 26 of its buildings while the rest of downtown Manhattan was in the dark. Hospitals in the tri-state region also were able to draw full power from their CHP plants until the electric grid was stabilized. In fact, engineers at South Oaks Hospital on Long Island anticipated the emergency and isolated their 350,000 square foot facility, drawing their power instead from the hospital's 1.3 MW CHP plant. The outcome? Uninterrupted service to a facility that includes an acute psychiatric hospital, nursing home and assisted living center.

On matters of cybersecurity and physical threats to this infrastructure, we concur with the comments of the American Petroleum Institute and the ongoing work of both the Interstate Natural Gas Association of America and the American Gas Association, all of which are very active on these issues.

As API has noted in its comments, the latest National Petroleum Council study will address emergency preparedness for natural disasters that impact the oil and natural gas industry. Scheduled to be completed in August, this study will provide recommendations on how industry and government at all levels can better prepare for and respond to natural disaster related emergencies and to improve supply chain resilience. Most ANGA member companies are participants on this council, and we believe this study will offer valuable insights that can inform the QER process.

Recommendations

The QER provides an opportunity to continue the progress made possible by our shale gas revolution. We must therefore ensure government policies and practices encourage further development of the resource, expand needed infrastructure and focus on reliable and innovative delivery mechanisms for the fuel supply.

I also concur with the comments of other panelists that the objectives of the QER should remain tightly and constructively focused. With that in mind, there are a number of things the U.S. government can contemplate as it conducts its quadrennial review:

- Government can work, alongside industry, to broaden public understanding of the demonstrated safe management and use of natural gas in transportation applications, including on-road and off-road vehicles, rail and marine.
- In addition, there is an opportunity to better coordinate and streamline across agencies when it comes to approvals of affiliated permits that can dramatically enhance the resilience of our natural gas infrastructure.

Conclusion

The United States is the envy of the world for the sheer magnitude of our shale gas resources—and for our pipeline, distribution and storage system. We have studied closely current and future demand patterns and understand where challenges remain. We need to ensure that proper, consistent market signals remain in place to keep the investment flowing into these areas, so our nation can reap the full benefits that natural gas offers. Thank you again for the invitation to join the conversation today. ANGA and its member companies are committed to constructive engagement with policymakers on these important issues for the nation.

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Appendix

- *“North American Midstream Infrastructure Through 2035: Capitalizing on our Energy Abundance,”* INGAA Foundation, 3/18/2014
- *“Northeast Infrastructure Study: Leading the Market in a New Direction,”* Bentek Energy, 9/10/2014
- *“Combined Heat and Power: Enabling Resilient Energy Infrastructure for Critical Facilities,”* ICF International, 3/2013