November 1, 2010

Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
1000 Independence Avenue, SW, Room 8H033
Washington, D.C. 20585

Attention: Docket ID No. DOE-HQ-2009-0003-0959

RE: *Smart Grid RFI: Addressing Policy and Logistical Challenges to Smart Grid Implementation*, 75 Fed. Reg. 57,006 (September 17, 2010).

Ladies and Gentlemen:

The undersigned members of the natural gas industry are pleased to submit for your consideration the following comments in response to the U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability's Request for Information *Addressing Policy and Logistical Challenges to Smart Grid Implementation*, 75 Fed. Reg. 57,006 (Sep. 17, 2010). The Request seeks comment on challenges that confront smart grid implementation and recommendations on how best to overcome those challenges.

We believe smart grid implementation issues should be viewed as part of a broader smart energy future where various energy value chains are optimized to provide reliable, safe, clean and efficient energy to our nation's homes and businesses. The Gas Technology Institute ("GTI") and Navigant are working together with organizations across the natural gas industry to develop a vision of how natural gas can provide the key to a smarter energy future. Together our organizations envision the efficient, safe, and reliable delivery and use of this abundant, low-carbon energy source for homes and businesses along with the integration of natural gas infrastructure and an increasingly "smarter" electricity grid, while working in a complementary fashion with renewable energy sources.

Organizations and companies representing the full natural gas value chain are engaged in a joint effort, with GTI and Navigant facilitating, to outline the benefits and challenges for achieving such a vision. Those involved include representatives from the following organizations and their member companies: the American Gas Foundation, the American Public Gas Association Research Foundation, Canadian Gas Association, Natural Gas Supply Association and the INGAA Foundation, Inc. Each part of the natural gas value chain from primary energy production to delivery to the point of use will serve an important role in creating a smarter, more secure, and cleaner energy delivery system. When this project is completed later this year, a white paper will be submitted to the Department of Energy and we would appreciate the opportunity to continue to participate in the policy inquiry begun here.

A Smart Energy Future

The term "smart grid" is widely used to describe a more advanced network of electricity generation, delivery, and end-use applications. While the term can mean many different things depending on one's point of view, it is generally accepted that a smarter grid is more reliable, operationally efficient, and cost-effective. In addition, many people think a smarter grid can better integrate distributed clean energy resources, such as wind and solar, and power cleaner vehicles. A smarter energy grid is also expected to provide consumers with more timely intelligence to assist them when making energy decisions.

In a smart energy future, available energy sources and infrastructure are optimized to meet our nation's overall energy needs in a manner that is:

- clean and sustainable;
- reliable and secure;
- affordable and efficient; and
- robust and flexible.

To realize this future, diverse and lower-carbon energy resources must mix with an energy delivery infrastructure that is more reliable and secure than what we have today. This will require an increasing share of renewable energy resources and other technologies that increase the efficiency of energy use and reduce greenhouse gas emissions. It also will require improving the efficiency and carbon footprint of energy consumers. Finally, this must be accomplished with a focus on cost in order to maintain the global competitiveness of our economy. Natural gas will serve an important role in this transition to a smarter and cleaner energy future.

Natural Gas is Clean and Sustainable

An analysis by GTI suggests that an increase of natural gas use in power production, transportation and in residential and commercial applications can be a major component of a strategy to reach a 42% reduction in our nation's carbon emissions by 2030.[1] Natural gas provides the most direct means for immediate and sustainable carbon dioxide reduction for several reasons. The direct use of natural gas in thermal applications, such as space and water heating, is much less carbon-intensive than using electricity for the same application, particularly when the electricity is produced by high carbon-emitting generation. In addition, natural gas-fired power generation emits the least CO_2 per Btu of any fossil fuel. Natural gas generation can also be deployed as a partner to intermittent, renewable electricity generation such as wind and solar as part of the electric smart grid providing value as a carbon-reducing resource. Moreover, development of renewable gas will further reduce the carbon intensity of the energy resource mix in North America. Finally, the natural gas industry is working hard to apply carbon capture and storage technology, which is already being successfully used on a commercial-scale at several natural gas production sites, to natural gas power generation, making the future use of natural gas even more clean and sustainable.

Natural Gas is Reliable and Secure

The natural gas infrastructure is a highly integrated system of transmission and distribution pipelines, compressor stations, and storage facilities serving over 70 million

[1] Gas Technology Institute, *How Energy Efficiency, Natural Gas and Renewables Can Substantially Reduce U.S. Carbon Dioxide Emissions*, (2009).

customers with a history of close to 100 percent reliability. This reliability is leveraged in the application of natural gas to generate electricity – a proven, conventional technology that is highly dependable compared with other technologies. The integration of natural gas and electricity delivery infrastructures provides extraordinary combined reliability in applications such as backup electricity generation, micro-grids and thermal grids.

New discoveries of unconventional gas, specifically shale gas, have significantly increased supply estimates for the U.S. and Canada as well as globally. It is clear that with the deployment of technologies that can cost-effectively extract natural gas from domestic shale formations our nation has enough natural gas resources for more than 100 years at current consumption levels. Almost all of these new opportunities are located in the lower 48 states, in close proximity to a large number of end users.

Natural Gas is Affordable and Efficient

Natural gas can be delivered to consumers at 91% efficiency utilizing the nation's delivery system. No other energy delivery system from source of energy production to end-use is comparable. Almost all natural gas used in North America originates here, and is delivered through a widely available transmission and distribution system to where it is needed cost-effectively and efficiently. This is true whether it is used in direct use applications or to fuel electricity generation.

Natural Gas is Robust and Flexible

In 2008, more than 23 trillion cubic feet of natural gas was provided for use to over 70 million customers by over 6,300 producers through an intricate infrastructure of approximately 1.5 million miles of pipelines. These pipelines extend from the wellhead through gathering systems and over 530 gas processing facilities on through 24 market centers, more than 1,400 compressor stations and over 306,000 miles of transmission lines operated by over 200 transmission companies. Along the way the option exists for storage in over 400 underground facilities as well as the ability to transfer the natural gas between systems at over 1,400 interconnection points. To complement this system there are also 49 locations where natural gas can be imported or exported via pipeline along with eight import facilities for liquefied natural gas (LNG) and over 100 LNG peaking facilities. The natural gas then passes through various control facilities and custody exchange and metering points to more than 1,300 local distribution companies that operate over 2 million miles of distribution pipelines used to provide this valuable source of energy to the consumers.

The Vision for Natural Gas in a Smart Energy Future

Natural gas – an abundant, low-carbon resource – provides nearly 25 percent of the total energy consumed in the U.S. and will serve a leading role in the clean energy transition underway and envisioned by the Department. Meeting this promise, however, will require an understanding and consideration of how this primary energy source, the infrastructure used to deliver it safely, and emerging technologies will work in concert and in an interoperable fashion with a smart electric grid. The work underway with GTI and Navigant is focused on this objective, and will address recommendations for optimizing the use of the resource and the infrastructure.

In summary, a smart energy system is envisioned as one in which the natural gas system together with customer empowerment and advanced grid functionality help reduce peak electricity demand and consumption, support the reliability of electric

generation, enhance the reliability and resilience of energy delivery systems, leverage distributed energy resources, integrate renewable energy and reduce overall CO_2 emissions. In addition, natural gas and electricity usage and information should be optimized for consumers to make informed decisions on energy options. And, ensuring interoperability of gas supply, transmission and distribution with the electric smart grid must be necessary to provide for the integration of renewable energy sources, to support capacity additions of peaking and base load gas-fired generation, and to accommodate distributed energy production while continuing to safely and reliably serve existing loads on gas and electric systems.

Conclusion

We believe abundant, domestic, low-carbon natural gas resources along with robust natural gas transmission and distribution systems can and should play a significant role in increasing the reliability and efficiency of the nation's energy grid while helping to create a smart energy future.

Respectfully submitted,

American Gas Foundation
American Public Gas Association Research Foundation
INGAA Foundation, Inc.
Natural Gas Supply Association