August 11, 2014

Ms. Adonica Renee Pickett

Office of Energy Policy & Systems Analysis (EPSA-60)

QER Meeting Comments

U.S Department of Energy

1000 Independence Avenue, SW

Washington, DC 20585-0121

(submitted via email to qercomments@hq.doe.gov)

RE: Comments of America's Natural Gas Alliance on Quadrennial Energy Review: New England Regional Infrastructure Constraints Public Meeting

Dear Ms. Pickett:

America's Natural Gas Alliance (ANGA) appreciates the opportunity to provide comments on the Quadrennial Energy Review (QER) public meetings held on April 21, 2014 in Providence, Rhode Island (Part I) and Hartford, CT (Part II). ANGA submits the following comments to underscore the ability of natural gas to continue to serve as a reliable and affordable resource for meeting our nation's growing energy needs.

Representing North America's leading independent natural gas exploration and production companies, America's Natural Gas Alliance (ANGA) works with industry, government and customer stakeholders to promote increased demand for and availability of our nation's abundant natural gas resources for a cleaner and more secure energy future. The collective natural gas production of the ANGA member companies is approximately eight trillion cubic feet per year, which represents one third of the total annual U.S. natural gas supply.

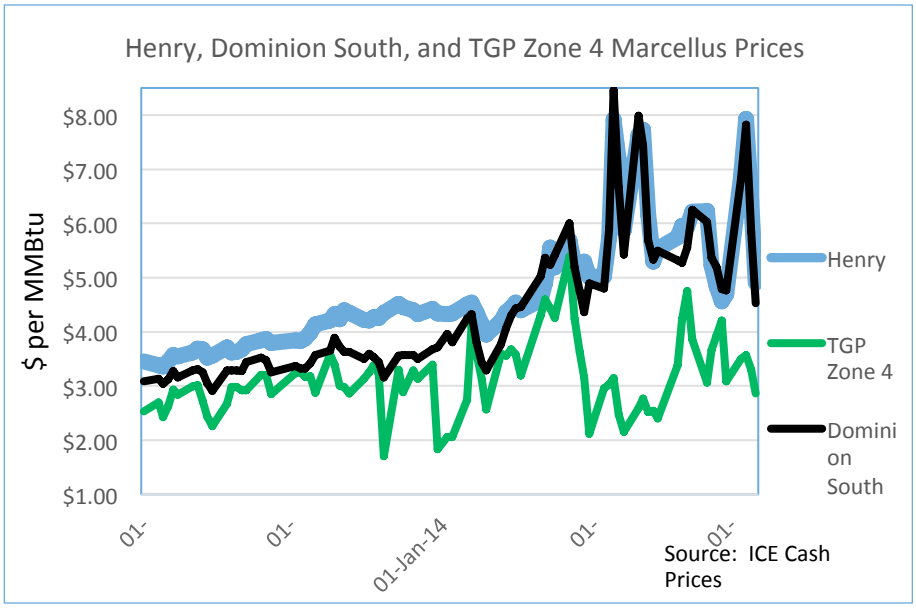
The safe responsible development of domestic natural gas has been, and increasingly will be, an important component of America's energy supply and economic strength. Natural gas is a clean-burning, efficient, abundant, and cost-effective fuel that offers the potential for significantly decreasing air pollution emissions and promoting America's energy security. As we previously noted in our comments to DOE "QER Public Meeting: Enhancing Energy Infrastructure Resilience and Addressing Vulnerabilities", the expansion of U.S. pipeline systems is critical to ensuring ample

access of our abundant natural gas at stable prices throughout the country. ANGA would like to take this opportunity to highlight the infrastructure need in the Northeast in order to negate the effects of extreme weather events, such as Hurricane Sandy and the record-setting cold temperatures of this past winter (the "Polar Vortex"). We will also highlight the ways that infrastructure expansion can enhance more efficient, clean burning natural gas-fired power generation.

Winter of 2013-2014

The challenges facing fuel supply this winter were not a function of our level of energy supply. In fact, natural gas resources are abundant and can meet the nation's current and future needs.[1] Rather, constraints experienced this winter demonstrate a need for increased pipeline and/or storage capacity, dual-fuel capability, or other arrangements such as portfolio management or backstop capacity-release agreements, to ensure that fuel supplies can be readily accessed when needed. This need is already well known, and while energy delivery systems were stressed this winter, these stresses did not highlight weaknesses or needs for infrastructure that had not been previously identified. It is important to recognize that those with firm natural gas transportation contracts received their supplies,[2] and this winter simply showed that the reliance by gas-fired generators on the availability of interruptible transportation is not without limits.

Northeast Region



Much attention has been focused on the high prices in the Northeast region of the United States, especially New York and New England. However, these same high prices did not occur in other parts of the country. Pennsylvania, for example, maintained low prices through the Polar Vortex: Dominion South—a major indicator of Marcellus region prices—tracked exactly with Henry Hub prices throughout the Polar Vortex and Tennessee Gas Pipeline's Zone 4 Marcellus receipts actually stayed below Henry, hovering around $3.00 per MMbtu. On the day the New York price went above $120 per MMbtu, less than 200 hundred miles away, the price in Western Pennsylvania was $4.30 per MMbtu.

[1] See U.S. Energy Information Administration, Annual Energy Outlook 2013 (Apr. 2013), available at: http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf (projecting natural gas resources to increase through 2040).
[2] See Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs, Docket No. AD14-8-000 (Apr. 1, 2014) Presentation of Commission Staff at slide 4.

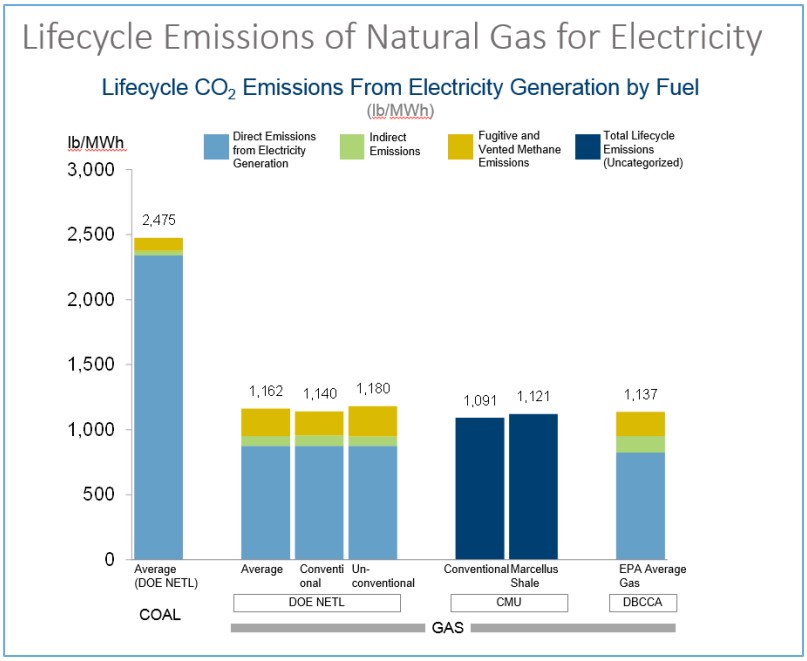
These high prices occurred in areas with inadequate pipeline infrastructure. The $116 per MMBtu price difference between New York and Pennsylvania was solely the result of limited pipeline capacity into New York.

The natural gas industry is working to move forward with infrastructure projects designed to meet growing market demand. There is substantial growth in natural gas supplies within the Marcellus Shale basin on the border of the Northeast region (New York, New Jersey and New England). Even so, getting these new supplies to market requires additional natural gas pipeline infrastructure investments, which requires incremental contract commitments. In the Northeast, an expansion to support New Jersey and New York was placed into service by Spectra Energy.[3] And its Algonquin Incremental ("AIM") expansion project, which is under review at the Federal Energy Regulatory Commission (FERC), will address bottlenecks into New England.[4] Accordingly, the industry is already responding to enhance infrastructure and will do so as long as grid operator's market rules, regulatory tariffs supporting expansion, and local and state permits facilitate expansion.

Natural gas-fired generation in New England is heavily reliant on intermittent pipeline contracts to provide gas to electric generation units. The purpose of pipeline expansions is to remedy this situation, to enable New England's substantial existing natural gas-fired generating fleet to take advantage of abundant, economically stable natural gas supplies only a few hundred miles away. These supply and pipeline developments have the potential to transform the traditional paths of supply sourcing into the region, creating a more diverse supply mix and a more varied delivery network. This bodes well for regional supply security and economic competitiveness.

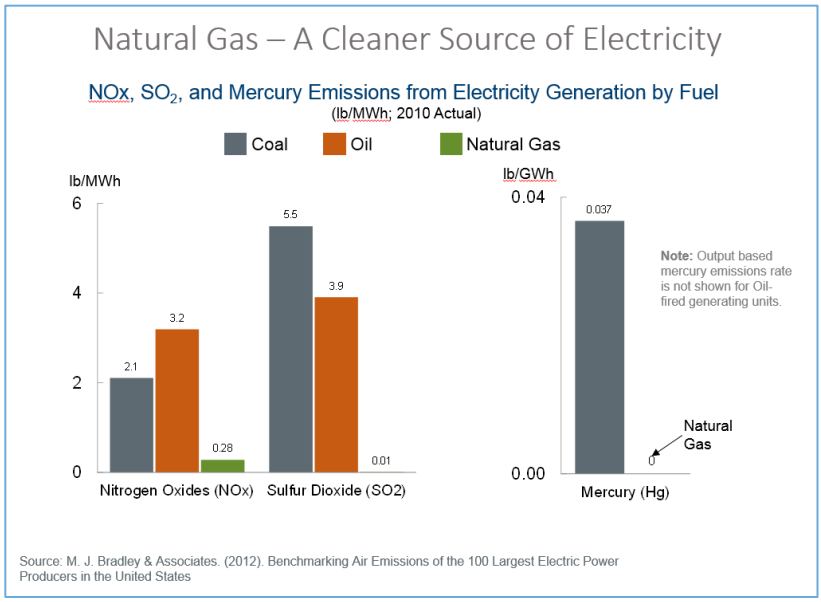
Electric Generation

The movement toward fuel diversity in electric generation actually calls for the addition of gas. The industry is seeing growth in gas-fired generation and renewables because both generation resources address the national policy goals of reducing environmental impacts from electric generation. Natural gas is a known, low-cost technology that can provide both reliable baseload power, intermediate power, and peaking power. As older generating facilities are retired, natural gas-fired power plants can play an important role in maintaining electric system reliability and reducing air pollution emissions.

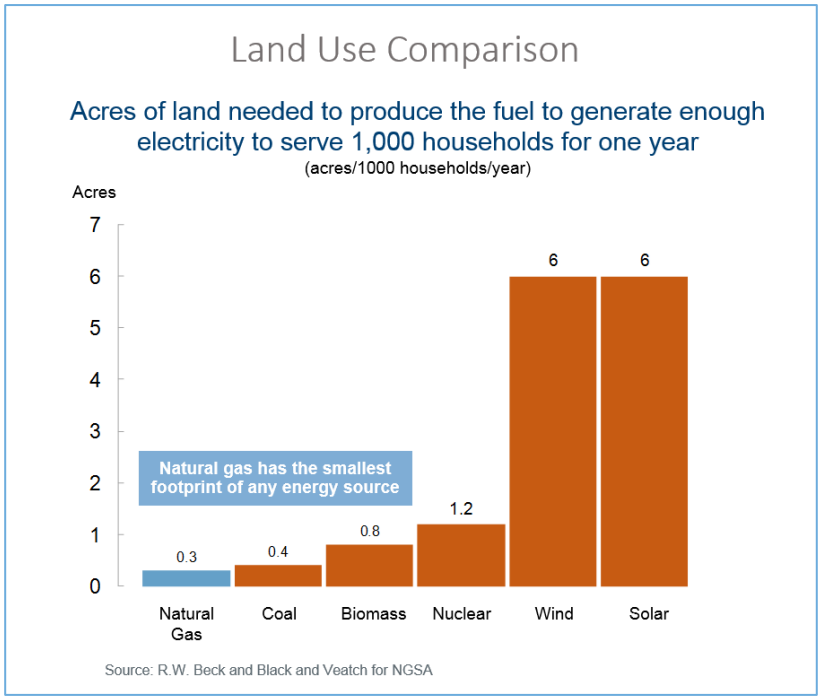


[3] Letter from Richard Kruse, Spectra Energy Partners, to Heather Hunt, New England States Committee of Electricity (May 7, 2014) available at http://www.nescoe.com/uploads/Spectra_EDC-IGERSupport_05072014.pd
[4] Ibid.

In the U.S., electric sector CO2 emissions have declined by about 16% since 2005 due to fuel switching to natural gas and other renewable energy sources.[5] At similar electric generation levels, ANGA estimates 286 million fewer tons of CO2 in 2013 compared to 2005 resulting from natural gas fuel switching. Natural gas power plants are highly efficient, emit no mercury air pollution, virtually no sulfur dioxide or particulate matter, and far lower nitrogen oxides and greenhouse gases when compared to other types of fossil fuel power plants.



In addition, they have a relatively small footprint when compared to other types of fossil fuel-fired power plants as well as renewables, making natural gas a clear choice for urban, suburban, and other space-constrained areas as well as areas where habitat destruction is a concern. Because of the low emissions and small footprint of natural gas power plants, natural gas power can be sited closer to urban areas and other demand centers, relieving electric grid transmission constraints and the need for long-distance high-voltage power lines. New natural gas plants can also be readily sited in the footprint of plants that are being retired from service to take advantage of existing transmission infrastructure. Because natural gas plants involve low-emitting, known technologies, they can be relatively quickly permitted and constructed.



Natural gas has increased the fuel diversity of the electric grid. According to EIA the grid has become more diverse with the growth of renewable generation resulting from public policy mandates and incentives, as well as natural gas generation due to stable, affordable natural gas prices in the wake of the shale gas revolution.[6] In fact, natural gas is helping make it possible for electric utilities to reliably incorporate more renewable sources of energy to meet the

[5] Richard Newell, Duke University, Workshop on Risks of Unconventional Shale Gas Development, National Academy of Sciences, May 31, 2013.
[6] See U.S. Energy Information Administration, Annual Energy Outlook 2014 (May 2014), available at:

growing demand of electricity customers. Gas-fired generation affords the ability to provide flexible ramping capacity to manage intermittent resources. The combination of natural gas and renewable resources, such as solar and wind, allows utilities to provide electricity 24 hours a day under any weather conditions. Natural gas enables the production of power at full capacity, while ensuring reliability.

Further, there are many ways to enhance the ability of gas-fired generation to provide the same baseload benefits as coal. For example, pairing firm storage with firm pipeline capacity can provide "no notice" storage, which allows an electric generator to treat natural gas reserves in the same way a coal-fired resource relies on its inventory. Even though natural gas is stored in an offsite location such as in a depleted reservoir, aquifer or salt cavern, by combining the storage with firm pipeline capacity, these supplies can be accessed when it is needed and reliability delivered. The bottom line is that increased use of existing gas-fired generation and new gas-fired generation construction are signs of working markets. Gas will be part of a diversified portfolio and the level of its participation will reflect the commercial, operational and environmental benefits it offers.

Combined Heat and Power

Combined heat and power (CHP) is another generation resource that utilizes natural gas and produces environmental benefits. Instead of producing separate heat and power, an industrial or commercial facility can use CHP to provide these energy services in one step, significantly increasing its efficiency. The traditional method of producing separate heat and power has a typical combined efficiency of 45 percent, in contrast CHP systems can operate at efficiency levels as high as 80 percent. CHP in the United States today avoids more than 1.9 quadrillion Btus of fuel consumption and 248 million metric tons of CO2 emissions when compared to traditional electricity production. Because CHP uses natural gas (71 percent of existing CHP capacity is fueled by natural gas), this approach offers a clean generation option for electricity or mechanical power.[7]

Further, CHP technology can be deployed quickly, cost-effectively, and located at or near end users reducing the construction of infrastructure. CHP garners few geographic limitations, however, it must be supported by adequate pipeline infrastructure. Once that infrastructure is in place, CHP can—when necessary—independently generate much if not all of its critically required electricity and heating needs. Because CHP uses natural gas, it is an extremely reliable form of power generation even when the wind is not blowing, the sun in not shinning, and in the face of extreme weather events when sustaining critical infrastructure is the priority.

When Hurricane Sandy hit the eastern coast of the United States, extended power outages affected much of the region for many days. For example, the South Oaks Hospital located in Amityville, New York is a 245-bed healthcare facility. On the same campus are the Broadlawn Nursing Home and the Broadlawn Nursing and Rehab Center, which together have an additional 420 beds. South Oaks operates five 250 kW natural gas-fired reciprocating engines for a maximum capacity of 1.25 MW.

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http://www.eia.gov/forecasts/aeo/MT_energydemand.cfm#renew_natgas (Market Trends: U.S. energy demand).
[7] ICF International, The Opportunity for CHP in the United States, May 2013, p. 1, 9.

The CHP system provides power, steam, cooling and hot water to the hospital. When Super Storm Sandy hit, South Oaks was able to isolate itself from the Long Island Power Authority and remained operational while disconnected for two weeks relying solely on their CHP system.[8] Likewise, Princeton University, which has a district energy facility comprised of a 15 MW gas-turbine CHP system that provides electricity, steam, and chilled water for the campus, was able to continue running normally during Super Storm Sandy. Princeton disconnected from the grid and used its CHP system to power the campus for four days.[9]

There is a great deal of potential growth for CHP utilization in the U.S. CHP projects can yield important benefits for the electrical grid including: reduced peak electrical demand, improved efficiency, and reduced congestion. Further, because CHP uses natural gas it reduces the environmental impact of power generation and increases its efficiency.

Conclusion

ANGA appreciates the work that the Department of Energy is doing to ensure an affordable, clean, and secure energy future, and believes that natural gas is a critical and necessary part of that future. ANGA looks forward to continuing to work with the Department of Energy (DOE) and the Administration as it addresses U.S. energy needs, including the expansion of our pipeline systems. ANGA seeks to encourage state and federal policies that increase the pipeline network in the United States in order to ensure that all regions have ample access, not only to the abundant supplies at stable prices that natural gas can afford, but also for the environmental benefits and increased flexibility in power generation that natural gas offers.

Thank you again for the opportunity to participate in the Quadrennial Energy Review process and ANGA is available to address any questions or concerns.

[8] ICF International, Combined Heat and Power: Enabling Resilient Energy Infrastructure for Critical Facilities, March 2013, p. 13.
[9] Ibid., 16.