

Crossing the Natural Gas Bridge: The Changing Outlook and Implications

CSIS B1 Conference Center
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12:00 pm – 3:00pm

Summary

On Wednesday, June 24, 2009 the CSIS Energy and National Security Program hosted two panels of distinguished experts to explore the changing outlook for natural gas in the U.S. energy portfolio and its implications for environmental/climate policy and energy security. Panelists also addressed natural gas issues from a stakeholder perspective, including from utilities and producers.

Sarah Ladislaw, Fellow in the CSIS Energy and National Security Program, gave context to the discussion by explaining the unique role natural gas may play in meeting the nation's energy security and climate change challenges. In early 2009, the World Resources Institute and CSIS published *A Roadmap for a Secure, Low Carbon Energy Economy* to guide the new administration and Congress as they consider energy and climate policy. That work, Ladislaw said, concluded that natural gas is attractive in the near- to medium-term as a bridge to a secure, low-carbon future, but there are important questions regarding its role. For instance, does an increased natural gas build out hinder our ability to reach long-term emissions goals if we become too heavily dependent on it? Is there a changing role for natural gas in the electric sector as we expand renewables? Can the massive North American shale gas deposits be developed given potential regulatory, cost and environmental hurdles? Further, what are the dynamics of different options to increase supply (LNG, Alaska, Canadian, unconventional, deep offshore) and does over-reliance on natural gas expose the North American market to any security risks? And finally, what kind of policies should we be thinking about to define an appropriate role for natural gas in the energy system?

Panel One: Outlook and Implications

Michael Schaal, Director of Integrated Analysis and Forecasting at the Oil and Gas Division of the Energy Information Administration, addressed the changing outlook for natural gas from both the demand and supply sides. Natural gas consumption peaked in the 1970's and then declined rapidly. In the last decade, however, natural gas consumption has rebounded. The EIA projects that total natural gas demand will continue to increase, despite the fact that the electricity sector is expected to consume less natural gas as a result of increased energy efficiency and renewable energy portfolio mandates. Schaal asserted that the gap between demand and domestic natural gas supply will narrow as resource base estimates increase and new technologies are developed. He noted that production costs have not yet declined, since more expensive unconventional resources comprise an increasing share of U.S. output.

Sharon Buccino, the director of National Resources Defense Council's Land and Wildlife program, enumerated the potential land use conflicts and degradation that have arisen and may continue to grow with the expansion of natural gas use in the U.S. Opening her comments by noting that NRDC views renewables and efficiency as more promising long-term solutions to climate change than natural gas, she pointed out

that natural gas exploration and production can have detrimental impacts on air and groundwater quality, animal habitat, and human health. Wilderness areas often explored for and utilized as sources of natural gas are valuable for recreational purposes and ecosystem health as well. Buccino spoke about concerns over groundwater contamination due to the technical process of hydraulic fracturing and also noted uncertainty regarding the life-cycle emissions, both of CO₂ and other pollutants, caused by the production of shale and other forms of unconventional natural gas. Questions about specific values for life-cycle emissions of natural gas were raised at the end of both panels, making this observation a theme of the meeting and an item for further research.

Frank Verrastro, Director and Senior Fellow in the CSIS Energy and National Security Program, discussed the energy security implications of natural gas. Verrastro introduced the topic by referring to a concept introduced in *A Roadmap for a Secure, Low Carbon Energy Economy*; that policy makers must balance economic, environmental, security and foreign policy objectives when planning for a low carbon future. Verrastro emphasized, particularly for the electricity sector, the critical role natural gas will play in easing this transition due to many of its favorable characteristics: it is reliable, storable, transportable, available domestically, and is less harmful to the environment. The U.S. has a large and growing natural gas resource base due to new estimates of shale resources, but the pace and scale of its development will be strongly influenced by above-ground factors. Such factors, noted Verrastro, include technology, investment, regulation, land availability, and environmental impacts. Shale and other natural gas resources – outer-continental shelf, onshore conventional, Alaska, imports from Canada, and imports of liquefied natural gas (LNG) – will all compete as components of supply to the North American market. Any gap in domestic supply will likely be filled by imports of LNG from a growing global market, which may increase exposure to some of the same security risks within the oil market.

Panel Two: Stakeholder Perspectives

Revs James, Director of the Energy Technology Assessment Center at the Electric Power Research Institute, discussed the role of natural gas from the electricity utility's perspective. He opened by stating that utilities favor long-term and reliable energy sources, two criteria satisfied by natural gas. James presented two different carbon-constrained policy scenarios and explored differing roles natural gas might play. In the first policy scenario, a limited technology portfolio that excludes carbon capture and sequestration, nuclear power and a variety of other technologies, natural gas plays a huge role by economically meeting carbon constraints. In the second policy scenario, in which a full energy portfolio is permissible, natural gas plays a smaller part. He continued, forecasting electricity demand to continue growth, underlining the need for a major technology transformation. James noted that much progress is needed to develop low-carbon technologies. Technology, however, is no silver bullet and natural gas will be needed to maintain a diverse and reliable energy portfolio in order to bridge the gap to a future with lower environmental impacts and minimized costs.

David Trice, Chairman of America's Natural Gas Alliance (ANGA), argued that natural gas, due its abundance and benefits should be viewed as not only a bridge, but a foundational element of a low-carbon future. Trice stated that benefits include availability in the United States, reasonable cost, lower greenhouse gas emissions than electricity generation from coal, and the jobs and revenue provided to the economy. He addressed questions regarding land and water impacts of natural gas production, emphasizing that horizontal drilling reduces the land occupied by operations and that regulation of hydraulic fracturing is best administered at the state, not federal, level. Finally, Trice observed the favorable location of existing natural gas pipeline infrastructure compared with that of emerging shale resources and noted its benefit to future distribution.