

US Senate panel ponders role of gas in climate-change effort

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WASHINGTON, DC, Oct. 29 -- Witnesses at an Oct. 28 US Senate committee hearing generally agreed that natural gas should play a major part in US efforts to address global climate change. They also disagreed on how big a part it should be.

Development potential from unconventional sources in the Lower 48 states has definitely changed the domestic gas supply outlook, they told members of the Energy and Natural Resources Committee. Richard G. Newell, administrator for the Energy Information Administration, called it "the major and very positive story" in terms of production, proven reserves, and estimates of technically recoverable reserves.

"EIA has traditionally taken a relatively optimistic view of the unconventional natural gas resource, even at a time earlier this decade when many other analysts were suggesting that the lack of gas resources in North America would lead to a rapid and inexorable increase in our reliance on imports of LNG," Newell said. "Recent shale gas developments suggest that even our perspective was not optimistic enough."

Volatile gas prices make electric power utilities hesitant to switch from existing coal-fired plants to reduce carbon emissions, Newell said. EIA expects that even with recently announced new supplies, prices will rise gradually and significantly in the next few years, he told the committee.

Also testifying were Lamar McKay, chairman and president of BP America Inc.; David Wilks, president of Xcel Energy Inc.'s energy supply business unit; Edward Stones, Dow Chemical Co.'s energy risk director; Dennis McConaghy, executive vice-president for pipeline strategy and development at TransCanada Pipelines Ltd.; and Jack Fusco, president and chief executive of Calpine Corp.

Diverse strategies

McKay said BP believes that meeting future energy demand will require a more diverse mixture of strategies. These include increased efficiency, nuclear power, renewable energy, cleaner coal, oil, and gas, he said.

"This will require the right combination of policies and market-based systems to [provide incentives for] the transformation of energy use. Getting there will require all energy participants—consumers, governments, energy companies, and other stakeholders—to work together to build a sustainable energy future," he said. "If we do that, the results will create new jobs, enhance our nation's energy security, and mitigate the impacts of climate change."

BP believes that gas, with its abundant supplies, is a key element of making the vision of a lower-carbon energy future a reality, McKay continued. The company is part of the US Climate Action Partnership, which helped draft a climate change legislation blueprint that recommended, among other things, how a carbon cap-and-trade program could work with equitable treatment among all sources as a basis, he said.

"Current legislative proposals do not create a level playing field and, as a result, natural gas is in danger of being squeezed," he said. "In spite of its economic, energy security, and environmental benefits, gas is caught between support for emerging low-carbon technologies on one hand, and relief for coal generation on the other."

Massive misallocations of capital and insulated consumption could occur if all sources of carbon are not treated equitably, he warned. "Our bottom line is that a ton of carbon is a ton of carbon, whether it comes out of a tailpipe or a smokestack. It should be treated the same," McKay said.

Voluntary conversions

Wilks noted that Xcel, a Minneapolis-based gas and electric utility holding company with operations in eight midwestern and western states, recently completed a \$1 billion voluntary project in Minnesota—the Metro Emissions Reduction Project (MERP)—which included conversion of two of its older pulverized coal generation plants to gas combined-cycle technology. As a result, sulfur dioxide and nitrous oxide emissions from the plants were reduced by more than 95% and carbon dioxide emissions were cut by roughly 40%, he told the committee.

The company is pursuing a similar strategy in Colorado, where it plans to retire some of its older, less-efficient coal-fired plants and replace a significant amount of the power they generate with gas-fired electricity, he noted.

"Although we believe that, in a carbon-constrained future, utilities must rely on a variety of resources including coal, nuclear, and renewable energy, our experience with the MERP demonstrates that natural gas conversion is an excellent method of reducing emissions," Wilks said.

Gas-fired power plants generally emit about half as much CO₂ as installations which burn coal, he said. Gas technology is proven, unlike carbon capture and sequestration or other clean technologies, which will become important in the future, and utilities can rely on it now. It costs less and is easier to obtain permits for than options such as nuclear power. "And unlike renewable energy, it is a dispatchable, controllable resource easily integrated into a utility system," he said.

He acknowledged that volatile prices have historically posed a problem for gas, but added that shale gas development potentially could become a long-term stable supply that would enable utilities to make significant short-term emission reductions while awaiting the development of innovative technologies which would be needed to make significant long-term greenhouse gas reductions required under the two bills before Congress.

'No guesswork'

Fusco said existing gas-fired power plants could make a bigger immediate contribution if they were more fully utilized. "In other words, a near and medium-term solution to our climate-change solution is at hand. No guesswork. No huge spending programs needed. The power would be reliable—available all day, every day," he testified. "And if we embrace this solution with the right incentives, American business would continue to invest its own capital in existing proven technologies to build even more gas-fired plants to dramatically further reduce emissions for the longer term."

Fusco said Calpine, a Houston-based operator of power plants in 16 US states and Canada, already emphasizes lower-carbon sources with its geothermal and gas-fired installations. The company has historically been involved in the climate change and clean energy policy debate and generally supports the bill which passed the US House on June 26 as well as the measure currently before the Senate. But it also believes that real incentives to encourage more gas use to generate power are missing from the bills, he said.

"We have heard arguments that just putting a price on carbon will naturally benefit gas, as this will likely automatically lead to fuel switching from coal, and that no incentives for gas need to be included," he said. "However, both HR 2454 and S. 1733 provide such broad benefits for dirtier sources of generation and for renewable energy resources that the 'natural benefit' for gas will be seriously blunted. Under the proposed allowances methodology, carbon prices would have to be extremely high for fuel switching to occur."

Fusco said S. 1733, the measure cosponsored by Sens. Barbara Boxer (D-Calif.) and John F. Kerry (D-Mass.) that is the subject of 3 days of hearings before the Environment and Public Works Committee this week, includes a provision promoted as encouraging greater gas use. While the provision tries to provide incentives to displace high GHG-emitting electric generating units with lower emitting sources, the section could be interpreted and implemented in a way that ultimately does not benefit gas, he said.

"First, the funds would only go to new projects. Second, to be eligible for funds, the project must reduce emissions below a certain threshold that is lower than most gas-fired plants can likely meet," he explained. "More work and thought needs to be put into providing true incentives for gas in these bills."

Price concern

Stones argued that sufficient incentives are in the bills already. "We recognize natural gas's potential in helping address climate change. However, legislation which mandates its use for this purpose could push prices higher," he said.

Gas price spikes already have driven businesses from the US, he said. "We had a spike in 2001, 2003, 2005, and 2008. There will be spikes in the future before new supplies become available," Stones said. "We believe there's enough incentive in these bills to replace coal with gas without special provisions."

"Some call natural gas a bridge fuel. But if the wrong policy creates a dash to gas, it will be a bridge too far," Stones added.

He said Dow Chemical would like to see energy efficiency more aggressively pursued, gas and other domestic energy supplies increased and diversified (with nuclear energy and CCS part of the solution as well as solar, wind, biomass, and other renewable sources), long-term tax credits provided for development of new technologies, and market mechanisms employed to address climate change. The company also is a US Climate Action Partnership member and concurs with its recommendations, he indicated. "Also, climate policy should not penalize the use of fossil energy as a feedstock material to make products that are not intended to be used as fuel," he said.

Stones said Congress should also adopt policies to increase the number of gas customers who have other options as well as increase US supplies. "A resilient gas market would empower US manufacturers to create high value jobs as they did from 1983 to 1996, when US industrial gas use demand grew at an average rate of 2.7%/year," he said in his written testimony. "In the event weather increases gas demand, price-sensitive exports would be temporarily reduced, rebalance the gas market with less disruption.... Under this scenario, we can envision a circumstance in which the chemical industry is once again able to preferentially invest in the US."

Pipeline questions

McConaghy said the US already has more than 300,000 miles of large-diameter, high-pressure pipelines with the capacity to deliver more than 70 bcf/d. But the network will need to be expanded to accommodate increased supplies, he added.

"To date, the North American natural gas pipeline industry successfully has met this challenge," the TransCanada Pipelines official said. "The 84 projects completed in 2008, the greatest amount of pipeline construction activity in more than 10 years, added 44 bcf/d of capacity to the pipeline grid. These 2008 additions cost an estimated \$11.4 billion. By comparison, pipeline expansion in 2007 was \$4.3 billion for 50 projects that added 14.9 bcf/d of capacity to the network."

This growth has allowed market access for incremental supplies, notably from the Rocky Mountains and shale gas production areas; moderate regional price differentials and contributed to reducing price volatility; and provided greater supply access to electricity

generators and other gas customers, he said. "An increase in natural gas usage, as the lowest carbon content fossil fuel, in a stable investment environment that includes access to North America's large gas resources both offshore and onshore can be seen as the appropriate market response to properly designed carbon constraint policy," McConaghy suggested.

He said TransCanada endorses the Interstate Natural Gas Association's recommendations to address two specific concerns in current federal climate-change legislation. The House bill, HR 2454, contains command-and-control standards on fugitive methane emissions from gas systems, landfills, and coal mines which would impose heavy costs on the gas industry because of the vast number of small fugitive emissions sources.

TransCanada would rather see fugitive methane sources treated as offset project opportunities which would give pipelines flexibility to identify and pursue cost-effective emission reduction opportunities, generate revenue to fund installation of emissions capture systems, and increase the supply of domestic offset credits to entities within the carbon cap, McConaghy said in his written testimony.

Both bills also treat gas pipelines as industrial emitters which would incur significant costs to comply with the cap-and-trade regime and new GHG performance standards, he said. "Unlike most other industrial emitters, however, gas pipelines provide a regulated transportation service and therefore have difficulty passing these costs on to customers," McConaghy added. He noted that INGAA has strongly urged the Senate to include a provision in its climate bill that permits regulated entities to effectively and efficiently recover new costs imposed due to allowance compliance obligation as well as new GHG performance standards.

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