United States Senate
Republican Policy Committee
Jon Kyl, Chairman

July 29, 2003

***Backgrounder*:**

Increasing the Supply of Natural Gas

Executive Summary

- The tight U.S. natural gas supply situation is now critical. Demand for natural gas will continue to increase rapidly while supply growth is sluggish, and will remain so for the foreseeable future. As a result, natural gas prices have doubled over the last few years, and futures markets suggest that the prices will remain high. The economic impacts of high natural gas prices already are being felt throughout the economy.

- The primary cause of rising demand is the major shift from coal-fired to gas-fired electricity generation, engendered primarily by strict air quality regulations under the Clean Air Act of 1990. The ability to increase market supply with domestic natural gas resources has been impeded by moratoria on drilling, onerous leasing and permitting processes, and litigation.

- S. 14, the energy bill, contains provisions to address the problem, but its provisions will not result in increased production sufficient to meet demand. Hence, natural gas prices are likely to remain high and may even increase.

- Beyond S. 14's provisions, other options for policymakers' consideration should include removing impediments to natural gas imports, increasing fuel diversity (e.g., greater use of coal), and encouraging domestic natural gas production through such efforts as streamlining the lease and permit process for exploration.

Introduction

The precarious natural gas market situation is likely to be a topic of discussion in the Senate this week during consideration of S. 14, the energy bill, which does contain some provisions that seek to address natural gas supplies. At issue are how completely – and how quickly – this market situation can be addressed by the pending bill, and beyond that, what government can and should be doing.

Not at issue, however, is the significance of the problem. Federal Reserve Chairman Alan Greenspan, in recent testimony before the Joint Economic Committee, said "I'm quite surprised at how little attention the natural gas problem has been getting, because it is a very serious problem...."[1] In a separate hearing, Mr. Greenspan noted that the current tight natural gas markets "have been a long time in coming," and suggested that the economy is "not apt to return to earlier periods of relative abundance and low prices anytime soon."[2]

Among the energy bill's provisions seeking to address the natural gas shortage is a loan guarantee for construction of a natural gas pipeline from Alaska, although it will be several years before the pipeline could be completed. Another longer-term solution is the establishment of a Federal Permit Streamlining Pilot Project designed to improve permit coordination among the relevant agencies. After three years, the Secretary of the Interior is required to recommend whether the project should be implemented nationwide.

Additionally, S. 14 contains several short-term provisions designed to increase production in areas already under production or open to production. These include various forms of royalty relief and other credits to increase deep-water, deep-well, and marginal-well production. These short-term endeavors will help, but they only encourage doing more of the same and will not make available the vast natural gas resources needed to meet rapidly increasing demand. Perhaps some immediate tangible help will come from the bill's increase in authorized funding for the Bureau of Land Management for permitting and enforcement. This will help the Bureau reduce its backlog of permit applications (discussed below).

This paper assesses the current natural gas shortage and offers some general solutions.

The Current Natural Gas Situation

Fully 25 percent of this nation's energy consumption comes from natural gas. The United States uses about 23 trillion cubic feet (Tcf) of natural gas per year – of which 19 Tcf comes from domestic sources and 4 Tcf comes from imports. According to the Department of Energy, demand for natural gas will rise to about 35 Tcf by 2025, but U.S. production is expected to increase barely if at all.[3] This projection is not based on a lack of resources: the Department of the Interior estimated in 2000 that more than 362 TcF of natural gas lies under the Outer Continental Shelf (an amount which represents more than half of known U.S. natural gas resources), and a separate, more recent federal study estimates

[1]Alan Greenspan, testimony before the Joint Economic Committee, May 30, 2003.

[2]Greenspan, testimony before the House Energy and Commerce Committee, June 10, 2003.

[3]Energy Information Administration, "Annual Energy Outlook 2003: With Projections to 2025," January 2003.

that there is 138 Tcf of natural gas resources and reserves on Federal lands in the Interior West, making it the second largest natural gas resource in the United States. This onshore reserve contains sufficient natural gas to heat all of the 56 million homes that use natural gas in the United States for 30 years.[4]

Despite these large reserves, supplies have tightened substantially since the late 1990s; that, combined with rapidly increasing demand, has led to price spikes. Chairman Greenspan noted in his June testimony that the price of gas for delivery in July has more than doubled since July 2000, and that prices are projected to increase through the summer and into next winter. Other economists agree.[5]

Economic Impacts of High Natural Gas Prices

Global Insight, Inc., an economics analysis firm, explains the consequences of continuing high natural gas prices: "As with the oil price shocks in the 1970s and 1980s, inflation would increase, economic activity would be reduced, and unemployment would rise. Since natural gas is used in the production of all goods and services, all other prices would rise as well, depending on the energy content of that product."[6]

The chemistry and fertilizer industries, which depend heavily on natural gas, are already reeling from high natural gas prices, and many firms have cut production, declared bankruptcy, or gone out of business. Today only one of the nine member companies of the Louisiana Ammonia Producers remains in business. A spokesman for the association noted the loss of 2,000 employees, and blamed high natural gas costs as the "the overwhelming reason."[7] Mississippi Chemical Corp., which was forced to file bankruptcy, announced the furlough of 1,300 workers.[8] The American Chemistry Council warns that 35,000 well-paying jobs in the chemistry industry and 200,000 jobs nationwide are at risk unless natural gas prices subside.[9]

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[4]U.S. Department of the Interior, U.S. Department of Agriculture, U.S. Department of Energy, "Scientific Inventory of Onshore Federal Lands' Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development," January 2003.

[5]See, for example, Global Insight, Inc. "The Impact of High Gas Prices on Jobs, the Economy and Consumers," Prepared for the American Chemistry Council, June 2003.

[6]Global Insight, Inc., June 2003.

[7] *Time*, "Why U.S. Is Running Out of Gas," July 13, 2003.

[8]Associated Press, "Mississippi Chemical Furloughs Workers," June 19, 2003.

[9]American Chemistry Council, statement for the record for the Senate Subcommittee on Clean Air, Climate Change and Nuclear Safety, May 8, 2003.

Consumers, too, feel the impact of high natural gas prices. In New England, for example, the average homeowner saw his winter natural gas bill rise from $900 in 2001 to more than $1,300 in 2002. New Englanders can expect more of the same this year under normal winter conditions. If the coming winter is colder than normal, however, New Englanders can expect to pay up to $1,700 to heat their homes.[10] And the average Ohio consumer will see home heating costs rise by $220 this coming winter. Last year, the number of Ohio homeowners who were disconnected from gas service due to nonpayment of heating bills rose 50 percent. The Public Utilities Commission of Ohio blames the skyrocketing natural gas prices.[11]

Precipitants to the Current Precarious Market Situation

Given the United States' vast reserves of natural gas, why are supplies lacking and prices skyrocketing? Quite simply, the U.S. government has pursued policies that encourage natural gas consumption on the one hand and discourage production on the other. This is a recipe for disaster. As Greenspan argued, "Something has to give, and what is giving, of course, is price."[12]

Encouraging Natural Gas Consumption

The government has encouraged increased demand for natural gas by passing stringent air quality regulations, which has compelled electricity producers to switch from coal to natural gas.

Robert Liuzzi, President and CEO of CF Industries, Inc., who testified on behalf of the Fertilizer Institute, also points to air quality regulations for the decrease in demand for coal:

> The requirements of the Clean Air Act have made it increasingly difficult to permit, construct and enlarge the nation's coal-fired plants. Where the nation once relied on coal for the lion's share of its electric power, over 90 percent of all new power plant construction intends to rely on natural gas. Recent proposals to impose further rules on mercury and carbon dioxide emissions will only add to the burden of coal-fired generators and hasten the move to natural gas. This, of course, will cause a tremendous new demand to be placed on the existing gas supply base, ensure high prices into the foreseeable future, and threaten the viability of the domestic nitrogen fertilizer industry – an industry, unlike the electric power industry, that does not have an alternative to natural gas."[13]

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[10]Global Insight, Inc., June 2003.

[11]Donald L. Mason, Commissioner of the Public Utilities Commission of Ohio, testimony before the House Committee on Energy and Commerce, June 10, 2003.

[12]Greenspan, May 30, 2003.

[13]Robert C. Liuzzi, testimony before the House Committee on Energy and Commerce, June 10, 2003.

Restricting Natural Gas Supply

At the same time, the government has impeded the nation's ability to increase supply. As noted above, the Outer Continental Shelf contains over half of the nation's known natural gas reserves. But the area has been subject to both congressional and executive moratoria since 1981, and many coastal areas are closed to new leasing through 2012.[14]

Additionally, significant regulatory hurdles exist that prevent natural gas development in the Interior West. A recent federal study (see footnote 4) examined five major geologic basins within the Interior West that contain most of the known onshore natural gas resources to determine impediments to development. That study concluded that 63 percent of the technically recoverable gas in the basins is on acreage that can be leased under standard lease stipulations, and 25 percent is available with restrictions on oil and gas operation beyond standard stipulations. The remaining 12 percent of technically recoverable natural gas is on land not available for leasing.

Yet, the 63-percent figure is misleading. For example, the study identifies about 600,000 acres of the Bridger-Teton National Forest that are available for leasing under standard stipulations and that have cleared the environmental review process. But it fails to mention that the forest supervisor decided not to authorize the issuance of oil and gas leases on portions equaling 370,000 acres.[15] According to the Forest Service, forest managers have also failed to act on an additional 132 applications filed for leasing since 1995 on over 200,000 acres in that area.[16]

The study also points out that even when the gas is located on land with standard lease stipulations, those standard stipulations may be so onerous that they preclude development. One frequent problem is inconsistent land management: "These inconsistencies included differences in protective stipulations that resulted from jurisdictional boundaries – state line, agency boundaries, BLM Field Office areas – rather than a resource protection need."[17] The study noted that the reasons were usually unclear for the high degree of variance in management practices for the same resource in the same setting.[18]

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[14]National Oceanic and Atmospheric Administration, "Turning to the Sea: America's Ocean Future," September 2, 1999, http://www.publicaffairs.noaa.gov/pdf/ocean_rpt.pdf.

[15]*Casper Star-Tribune*, "Bridger-Teton areas off-limits for oil and gas," March 11, 2003.

[16]Data supplied by Barry Burkhardt, United States Forest Service Intermountain Region, Minerals Team Leader.

[17]Rebecca Watson, Assistant Secretary of Land and Minerals Management, Department of the Interior, testimony before the House Resources Subcommittee on Energy and Mineral Resources, June 24, 2003.

[18]Watson, 2003.

Moreover, the successful acquisition of a lease to develop a natural gas field still does not assure production of natural gas. The next step is the permitting process. The federal study did not address the myriad constraints to development associated with the permitting process and other post-lease conditions of approval. It did, however, hint at the problems: "All oil and gas leases on Federal land, even those with the least restrictive stipulations, are subject to full compliance with all substantive and procedural environmental laws and regulations. These laws include the National Environmental Policy Act, Clean Water Act, Clean Air Act, Endangered Species Act, and the National Historic Preservation Act."[19] Also, the BLM has a backlog of 2,800 applications for permits to drill, which can take as long as 130 days to process.[20]

Finally, the whole process is subject to aggressive litigation by environmental groups. A representative for the Independent Petroleum Association of America spelled out how significant the litigation process can be to development:

> The federal government is now confronted with litigation threats and actions at every step in its process. Litigation has been filed to prevent exploration activities designed to identify possible resources. Litigation is filed over granting permits, challenging existing RMPs [Resource Management Plans] and opposing revisions to EISs [Environmental Impact Statements]. The primary result of this litigation is delay and more delay – and no new energy supplies. Delay is a key component of the strategy. Energy producers must invest capital, must replace and expand their production. If opponents to development can forestall access, it forces producers to shift their investment elsewhere. The longer producers are delayed, the higher the likelihood that they will give up on an area. This is the ultimate objective of this strategy of litigation, but it is ultimately a strategy that costs the nation domestic natural gas and impacts our energy security.[21]

Some Suggested Solutions

Several potential solutions exist to ease the problem of inadequate natural gas supplies. For the very short term, the only real solution is conservation. This does not necessarily require government action. Government may not even need to encourage conservation as consumers change their behavior in response to higher natural gas prices.

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[19]Watson, 2003.

[20]American Petroleum Institute, "Natural Gas Supply: An Overview," 2003, http://www.naturalgasfacts.org/factsheets/overview.html.

[21]Bruce Thompson, testimony before the Senate Energy and Natural Resources Committee, July 10, 2003.

For the long-term, supplies will have to increase. Chairman Greenspan suggested that Congress remove impediments to greater imports of liquefied natural gas (LNG).[22] This would not only increase natural gas supplies, but also would diversify the sources of natural gas and reduce the likelihood of future supply problems and price volatility. Significant growth in LNG is still several years away due to the need to build the necessary infrastructure to accommodate additional imports.

It is also important that the United States take advantage of its vast domestic natural gas resources. Congress should exercise oversight over the relevant agencies to ensure that they streamline the leasing and permitting process in response to the already-established need. It should also assure that the agencies participate in determining how legislation can further rationalize the process.

S. 14 contains a provision to conduct a comprehensive inventory of Outer Continental Shelf oil and natural gas resources. This is a good first step, but there is considerable environmental opposition to offshore drilling on the East and West coasts, and a study to determine the environmental impacts of offshore drilling would help. This is because there is little evidence that offshore drilling is harmful to the environment beyond the visual impacts, and those can be eliminated by subsea wells.[23] Onshore drilling technologies also have advanced significantly so that the environmental impact of drilling is minimal. Current laws that were put into place decades ago may no longer serve the best economic and environmental interests of this country.

Finally, Congress should look into the economic, environmental and national security implications of reducing U.S. fuel diversity. Air quality and other regulations have resulted in the decreased use of coal (the nation's most plentiful energy source), and this has led to other unintended consequences. If all the costs and benefits of reducing fuel diversity are taken into account, it may well be that there is little justification for an anti-coal bias in our national policies.

Conclusion

The natural gas supply situation in this country has reached the critical stage. The economic impacts are already being felt and will worsen with time. Rapidly rising demand, propelled by government regulation, is not being met by increased production – again, because of government restrictions. This government-exacerbated problem can only be relieved by government. Government must modify its regulation of the use and the production of natural gas. It must either reduce natural gas demand through encouraging fuel diversity, or increase supply by removing regulatory barriers. Failing to act quickly and in a meaningful way will worsen an already serious problem.

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[22]Greenspan, June 10, 2003.

[23]Rattie, June 19, 2003.