American Enterprise Institute for Public Policy Research

April 2006

National Security Outlook

Energy Security, National Security, and Natural Gas

By Gary Schmitt

For the past four decades, discussions of energy security and the security implications of energy supplies have focused on oil. But, increasingly, this focus will appear to be too narrow. If current trends continue, the United States will face a similar set of problems with natural gas: growing demand, costly supplies, and governments who will use their control over gas reserves to enhance their geopolitical position in ways likely to complicate U.S. foreign policy. However, there are steps Washington and allied capitals can take—such as expanding domestic supplies, creating a global market in gas, and countering Russian efforts to create a dominant market position—which, if adopted, can significantly reduce the problems of energy security and national security associated with America's growing dependence on natural gas.

When President Bush gave his most recent State of the Union address before Congress, the headline in many American newspapers and in the electronic media the next day was: "America Addicted to Oil." And, indeed, a major, newsworthy section of the speech was the president's initiative to break that addiction:

> Keeping America competitive requires affordable energy. And here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world. The best way to break this addiction is through technology. . . . [The goal is] to replace more than 75 percent of our oil imports from the Middle East by 2025. By applying the talent and technology of America, this country can dramatically improve our environment, move beyond a petroleum-based economy, and make our dependence on Middle Eastern oil a thing of the past.[1]

Gary Schmitt (gschmitt@aei.org) is a resident scholar at AEI and director of AEI's Program on Advanced Strategic Studies.

Whatever one thinks of the president's particular policy proposals to dramatically reduce the country's reliance on imported oil—and there are certainly those who think they are a waste of money or improbable—the president is right to point to the fact that there are security implications that follow from our oil "addiction." At a minimum, our dependency requires the United States to trim its sails when it comes to dealing with the major oil-producing countries, costs the American taxpayer a substantial premium to ensure access to that commodity through the deployment of U.S. military forces, and gives any number of major oil-producing states vast revenues that allow them to support foreign and domestic policies that complicate the security of the United States and its allies. And, of course, there is the undeniable fact that a strong American economy—the backbone of current American preeminence in the world—does require, as the president stated, "affordable energy."

But the president's contention that America's economy is "petroleum-based" is not entirely accurate. Although oil makes up approximately 40 percent of total U.S. energy consumption, coal and

natural gas each now supply about 25 percent of the total energy consumed by the United States. So, while oil is a major element in America's energy supplies, it is by no means the only significant factor. Disruption in natural gas or coal supplies would pose major problems to the American economy. Moreover, there are increasing signs that when it comes to natural gas we are headed down a road similar to one we now face with oil—and with security implications that echo oil's as well. In short, like addicts the world over who try to free themselves from one addiction only to find themselves hooked on another, so too Americans may soon find imported oil is not the only energy-source problem about which we have to worry.

Gas Goes Boom

Until recently, the United States was in pretty good shape when it came to natural gas. Prices were low and supplies sufficient. In 2000, for example, North America consumed nearly one-third of the world's annual output of natural gas. Unlike oil, for which the United States, Canada, and Mexico together produced only 60 percent of the supplies they consumed, the three countries produced nearly 100 percent of the natural gas consumed. Bound together by free trade agreements, the continental market for natural gas more than doubled through the 1990s.

If energy experts inside and outside the government are correct, the proportion of total energy consumption accounted for by natural gas is likely to grow substantially over the next decade and a half. If current trend lines and government policies are sustained, about 90 percent of the projected increase in electricity generation will be fueled by natural gas plants. Indeed, between 2000 and 2004, America's electricity-generating capacity grew by approximately one-fifth, and virtually all of that growth was gas-fired. By 2020, predictions are that more than one-third of the country's electricity will be generated through burning natural gas. The reasons are well understood: power plants that burn natural gas cost less and are far easier to build than nuclear power plants and have fewer waste and emission problems than nuclear or coal plants, respectively. With the expanding use of natural gas for residences and its use as the primary feedstock in the manufacturing process for a wide variety of products, demand for natural gas is expected to rise anywhere from 40 percent to 50 percent between 2000 and 2020.

The problem is that the available supply of natural gas is not keeping pace with this growing demand. In North America, production from existing wells is declining, and new wells show a more rapid rate of decline than in the past. As the natural gas producers themselves have remarked, they have to run harder to stay even—which means digging more but less productive wells.

> Russia and Iran have almost half the world's natural gas reserves. . . . Higher demand for gas at today's higher prices will provide vast new revenues for those states and help sustain very problematic governments.

Compounding this problem of supply are two self-imposed impediments. The first of these is the nearly complete ban on exploring and developing prospective gas fields off the east and west coasts of the United States, off the Gulf Coast of Florida, and in large swaths of Alaska. In addition, federal government restrictions on exploration and drilling in the Rocky Mountain region, similar restrictions on new drilling in Canada, and the government-induced inability of Pemex (Mexico's state-owned oil company) to afford expanding gas exploration at home have created a situation in which we are fighting an energy crunch with one hand tied behind our backs.

The second major problem lies in the area of delivery infrastructure. Demand not only requires a ready supply of natural gas, but also a capacity to deliver that supply to consumers. And the two modes for delivering natural gas are by pipeline and ships designed to hold and transport vast amounts of liquefied (refrigerated and compressed) natural gas (LNG) over the oceans. In the first instance, state and local governments have made it increasingly difficult to build new pipeline networks. So too have they complicated the transportation of LNG. There is plenty of natural gas outside of North America that can be transported to the United States at reasonable prices if transport vessels have a place to unload the LNG and where it can be re-gasified for transport along an existing pipeline network. However, today, the United States has only five such sites—four of them built in the 1970s. There are plans to build more, but environmental and post-9/11 safety concerns have caused local communities to push back.

Through deregulation of the natural gas market in the late 1980s and the creation of a North American free trade region, supplies of natural gas more than kept pace with demand in the 1990s. The result was a decade of gas priced at $1.61 to $2.32 per million British thermal units (Btu). But, as ready supplies of natural gas peaked, demand continued to increase, and as cold weather pushed demand even higher, gas prices rose to nearly $10 per million Btu over the 2000–2001 winter. The new average price remains well above that of the salad years of the 1990s, ranging from approximately $4 to $6 per million Btu in recent years, with a high of $14.25 per million Btu in the fall of 2005, following Hurricanes Katrina and Rita.

Some Implications

The implications of the mismatch between stagnant natural gas supplies and growing demand are obvious. If gas prices remain high and susceptible to large spikes in prices, the cost of producing power will rise, and manufacturing sectors which rely on natural gas will move out of the country and closer to their supplies. As former Federal Reserve chairman Alan Greenspan remarked last year, "Until recently, long-term expectations of oil and gas prices appeared benign. When choosing capital projects, businesses could mostly look through short-term fluctuations in prices to moderate prices over the longer haul. The recent shift in expectations, however, has been substantial enough and persistent enough to influence business investment decisions, especially for facilities that require large quantities of natural gas."[2] And while power companies can pass along the rising costs to consumers, companies that use natural gas to produce products such as chemicals, fertilizer, and a host of other items are being driven to close plants in the United States and move overseas in an effort to cut costs and stay competitive in the global market.

Another result of the U.S. supply problem is that the gas needed to meet U.S. demand will, by necessity, increasingly come from overseas sources. And, as with oil, that fact has implications that go beyond America's economic health.

Almost two-thirds of the world's natural gas reserves can be found in five countries: Russia, Iran, Saudi Arabia, Qatar, and the United Arab Emirates. Indeed, Russia and Iran have almost half the world's natural gas reserves. The other major sources of reserves are found in West Africa and Latin America. Needless to say, these are not countries or areas marked with strong democratic credentials or close ties to the United States. Higher demand for gas at today's higher prices will provide vast new revenues for those states and help sustain some very problematic governments. And, as the global competition for energy resources heats up, it makes energy importers like most of Europe and Japan—our closest allies—more hesitant to challenge those states and their policies. (If current trends continue, Russia will be providing more than 50 percent of Europe's natural gas supplies by 2020.) Even today, Germany imports 40 percent of its gas from Russia; Italy, 30 percent; and France, 25 percent. Central and Eastern Europe are in some cases even more dependent. Slovakia gets 100 percent of its gas from Russia; Bulgaria, 94 percent; Lithuania, 84 percent; Hungary, 80 percent; and Austria, 74 percent. At a minimum, it makes Washington's efforts to build an international consensus for taking a tougher line toward countries such as Iran and Russia more difficult.

The Problem with Gazprom

The most immediate obstacle with taking a tougher line with Russia, however, is the growing power of Gazprom, the Russian energy company in which the Russian government has controlling interest. The operator of the world's largest network of gas pipelines and the world's largest producer of natural gas, Gazprom is assiduously working to expand its preeminence into a position as close to a monopoly as possible.

Gazprom's strategy for accomplishing this goal is pretty straightforward. To get the resources to develop its energy reserve holdings in Russia and increase production, it has opened up shareholding in the company to foreign entities and is inviting non-Russian companies to help develop untapped or underdeveloped fields—yet it is doing so in a way that ensures the controlling interest still lies with Moscow. Combined with the revenues produced by its pipeline operations and the quasi-liberalization of its rules on stock holdings, Gazprom's market capitalization stands at approximately $200 billion. Flush with cash, Gazprom is now in the business of trying to buy pipeline networks outside of Russia. In fact, as the European Union pushes its members and prospective members to divest themselves of state-controlled energy companies and to liberalize more generally, Gazprom is moving in to buy up pipeline assets or gain a substantial foothold in European energy companies. In short, Brussels's desire to create a more open market in the energy sector is being

used by Moscow as an opportunity to extend its control over the distribution system for natural gas.

So, does that matter? Moscow clearly thinks it does. As *Financial Times* reporter Arkady Ostrovsky recently noted in an article on Gazprom, well before Vladimir Putin appeared on the stage as a possible Russian president, Putin was writing that the key to Russia "regaining its former might" was its role as provider of natural resources to the rest of the developed and developing world. And as president, Putin halted plans among Kremlin liberals to break up Gazprom's monopoly inside Russia and, instead, placed cronies as the company's chief operating officers.[3]

If nothing else, Gazprom's profits provide an enormous slush fund for the Kremlin to dip its hand into, outside the official Russian state budget. This is made even easier by Gazprom's habit of partnering with shadow companies whose underlying ownership remain opaque, but which are suspected of having ties to the Russian mafia and Russian intelligence. Such arrangements also make it possible to feed funds to Russian and non-Russian politicians and government officials alike.

However, as the past winter's events have made clear, Putin's use of Gazprom is not always so subtle. On New Year's Day, Gazprom cut off Ukraine's gas supplies. Not long after that, the major gas pipeline feeding Georgia mysteriously blew up. In both cases, two young democracies, both looking to the West, had frustrated Gazprom's efforts to get control of their pipeline assets. (Ukraine's pipeline is the main route for transporting gas to Europe and, hence, the cutoff to Ukraine affected Europe's supplies as well.) Russian officials argued that Ukraine was paying far less than the global market price for the natural gas they took from the pipeline. But of course Moscow had little to say about the fact that Gazprom was providing Belarus and its pro-Russian leader Alexander Lukashenko gas at even lower prices. In the end, facing cutoffs and/or massive price hikes only weeks before elections, Ukraine's leaders cut a deal that keeps prices for the moment relatively low in exchange for a tangled web of corporate arrangements that gives Moscow a stake in Ukraine's pipeline system and allows billions of dollars to be siphoned off to a mysterious Swiss company (RosUkrEnergo). And to keep the gun to Kiev's head, the deal also gives Moscow and Gazprom the right to trigger another gas crisis by renegotiating the price Ukraine pays for natural gas after only a few months.[4] Moscow might not have much of a conventional military to threaten its neighbors anymore, but Putin clearly believes he has found another tool to wield influence beyond Russia's borders.

What Is to Be Done: Russia

Many in Europe, reacting to rising global demand and the uncertainty of supply exemplified by Gazprom's hardball approach to Ukraine, appear willing to grant Gazprom concessionary rights on European energy infrastructure and to sign long-term contracts with the company. Although from one perspective this might appear to satisfy Europe's energy security needs, in the process it further solidifies Russia's dominant hand in the field. Moreover, it ignores the fact that when Moscow has had a dominant hand to play with its neighbors in the past with oil or gas, it has not been shy about playing it. Would it try this with Europe? No one knows, but we do know that having this hand to play will certainly not make Moscow any easier to deal with. Nor will it encourage our European allies to challenge Russian misbehavior on other fronts.

There are steps Europe can take to lessen Gazprom's market power and, in turn, Moscow's leverage. First, Russia's goal of acceding to the World Trade Organization should be explicitly tied to Moscow ratifying the Global Energy Charter for Sustainable Development (1994). The treaty, among other things, would mandate a Russian commitment to promote "an open and competitive" energy market and, in particular, would require Gazprom to open its network of pipelines to independent gas producers. Second, Gazprom's own oil and gas fields are in decline; most of the gas it provides Russian citizens and its European customers come from non-Russian, cheap, and readily available sources in central Asia. To develop its untapped reserves in Russia, Gazprom will need to draw on the technological and financial resources of the West. The quid pro quo for providing those resources should not simply be an equity share in the revenues generated down the line but a G-8 negotiated and enforced commitment on the part of Moscow to create a truly transparent and market-based energy sector. Finally, European nations should rethink their tendency to sign long-term deals with Gazprom. Instead, they should focus on two initiatives: first, creating new pipeline infrastructure to move central Asian gas to Europe that skirts Russia; and, second, adding new LNG facilities to support imports from West Africa and the Middle East. As we have seen in other cases such as the Baku-Tiblisi-Ceyhan oil pipeline, once Moscow is

confronted with the fact that it is no longer in a dominant market position, Western companies will find it less difficult to negotiate competitive contracts with Gazprom and the other Russian energy giants.

As for America's own energy security, the solution in the short term is straightforward: increase supplies of natural gas and expand the infrastructure to deliver it to consumers.

On the Home Front

For the time being, the U.S. government should make it a priority to support a tougher, smarter line by our European partners to counter Russia's attempt to build a monopoly on gas supply and distribution. As for America's own energy security, the solution in the short term is straightforward: increase supplies of natural gas and expand the infrastructure to deliver it to consumers. In both cases, however, politics have prevented the United States from moving forward.

The fact is, the United States has plenty of natural gas reserves. The government's Energy Information Agency (EIA) believes (conservatively) that there are 1,279.5 trillion cubic feet of recoverable natural gas resources in the United States alone. That is sufficient to take care of America's natural gas demand for fifty to seventy-five years, depending on the growth in demand. But by severely restricting or simply banning drilling access to gas fields in the Rockies, the Artic, the eastern Gulf, and the Outer Continental Shelf in both the Atlantic and the Pacific Oceans, Washington has artificially created a supply shortage for the country.

Most of the restrictions or bans are tied to environmental concerns. However, in "green" Canada and Norway, new technologies developed for both land and offshore drilling have shown that natural gas exploration and extraction need not cause environmental problems. If nothing else, the federal government should begin a gradual lifting of restrictions on new exploration, test the environmental impact and, if negligible, continue to move forward with further development of America's untapped gas reserves.

Over the long term, however, energy security with respect to natural gas for both the United States and its allies will be tied to the rise of a global market for natural gas. With abundant supplies worldwide,[5] a global, competitive market would provide a diversification of supplies that should be the cornerstone of any energy security policy. As then first lord of the Admiralty Winston Churchill remarked on the risks involved in his decision to shift the British fleet's principal fuel from coal to oil, "Safety and certainty in oil lie in variety and variety alone."[6]

Although a global market in natural gas appears on the horizon, we are not there yet. The gas market today consists mainly of three, distinct major regional markets—East Asia, Europe, and North America—whose supply chains are also largely distinct from each other. The key to changing this will be an expansion in worldwide LNG tanker carrying capacity, LNG plants, and receiving terminals. As a strictly economic matter, this looks likely. The costs associated with LNG producing and shipping have dropped by some 30 percent over the past few years. Once a very costly way of moving and getting gas, LNG is now a moneymaker at prices well below today's current price levels for natural gas.[7] (Some estimates have the United States overtaking Japan as the world's leader in LNG imports, with some 20 to 25 percent of American gas consumption being fed by LNG by 2020.) In theory, with a LNG global supply system being the linchpin, the natural gas market could become a commodity market in which prices are kept as low as economically possible in light of actual demand, and where a diversified set of suppliers reduces the ability of one supplier to manipulate the market over time.

However, for LNG to play its role in helping develop a global gas market, a significant expansion in LNG port and re-gasification facilities will be needed, especially in the United States. Today, there are five LNG re-gasification terminals in the United States. While there are proposals to add substantially to this number, and the federal government regulators have made it somewhat easier to move these proposals along, there remains strong resistance among local communities and the states to allowing LNG sites "in their backyard." Environmental and post-9/11 security concerns have driven the debate. And while LNG "has a proven safety record with 33,000 carrier voyages covering 60 million miles with no major accidents over a 40-year history,"[8] the federal government will have to increase public confidence in the safety of natural gas facilities from accidents or terrorist attacks by mandating increased government scrutiny if today's thin public support for expanding LNG infrastructure is to be overcome.[9]

Finally, although the creation of a global market in natural gas is in America's security interest, like the global market for oil, a "just-in-time" supply of gas will be vulnerable to spot disruptions either for political reasons (unrest in a supplier country) or environmental causes (such as hurricanes). In the past, long-term contracts from individual suppliers to specific country consumers essentially isolated the problem of dips in supply and price spikes. In today's integrated global market, "disruptions or discontinuities in supply or demand" will have global effects. As a result, "gas users in Japan, for instance, will have a vested interest in the stability of South American gas reaching the U.S. West Coast . . . and the European Union will be compelled to monitor the political situation in gas-producing regions as remote as the Russian Far-East and Venezuela."[10] To mitigate this potential problem, as with oil and the Strategic Petroleum Reserve in the United States, governments will need to store reserves of natural gas to provide a margin of safety against severe disruptions in natural gas supplies. Taking this and the other steps outlined above should prevent the pending crisis in natural gas supply and improve not only America's energy security, but its security interests as well.

Notes

1. President George W. Bush, "State of the Union Address by the President," Office of the White House Press Secretary (Washington, D.C.: January 31, 2006), available at www.whitehouse.gov/stateoftheunion/2006/index.html.

2. Alan Greenspan (remarks, Center for Strategic and International Studies, Washington, D.C., April 27, 2004), available at www.csis.org/energy/040427_greenspan.pdf.

3. Arkady Ostrovsky, "Energy of the State: How Gazprom Acts as Lever in Putin's Power Play," *Financial Times*, March 14, 2006.

4. See Jackson Diehl, "An Explosive Gas Deal," *Washington Post*, February 27, 2006. In similar fashion, Moscow has recently demanded that Belarus more than quadruple the price it is paying for gas next year. "Analysts suggested [the demand] was a negotiating ploy to gain control of an export pipeline across the former Soviet republic," according to Neil Buckley, "Russia Demands Price Increase for Belarus Gas," *Financial Times*, March 31, 2006.

5. "The potential future supply for the world's market, the sum of reserves and resources, is well in excess of 10,000 trillion cubic feet, or nearly seventy years of natural gas supply at the EIA's 2025 projected gas utilization," according to Donald A. Juckett and Michelle Michot Foss, "Can a 'Global' Natural Gas Market be Achieved?" *Energy and Security: Toward a New Foreign Policy Strategy*, eds. Jan H. Kalicki and David L. Goldwyn (Baltimore, MD: Johns Hopkins University Press, 2005), 538.

6. *Parliamentary Debates*, House of Commons, July 17, 1913, 1474–1477, quoted in Daniel Yergin, "Energy Security and Markets," *Energy and Security*, 52.

7. "While cost estimation is speculative, some industry analysts believe that LNG can be economically delivered to U.S. pipelines for approximately $2.50 to $3.50/Mcf," according to Paul W. Parfomak, "Liquefied Natural Gas (LNG) Infrastructure Security: Issues for Congress" (Congressional Research Service report for Congress, Washington, D.C., October 12, 2005), 3.

8. National Petroleum Council, "Summary of Findings and Recommendations," *Balancing Natural Gas Policy: Fueling the Demands of a Growing Economy*, vol.1 (Washington, D.C.: National Petroleum Council, September 25, 2003), 36.

9. For an overview of this issue, see Paul W. Parfomak, "Liquefied Natural Gas (LNG) Infrastructure Security."

10. "The Geopolitics of Natural Gas," (James A. Baker Institute for Public Policy study 29, Rice University, Houston, TX, March 2005), 2–3.