



Joint Economic Committee

CHAIRMAN ROBERT F. BENNETT OCTOBER 6, 2004

The Pressures on Natural Gas Prices

The price of natural gas has increased sharply in recent years after an extended period of relative stability. However, higher prices are not due to the U.S. running out of natural gas; domestic reserves remain plentiful and vast foreign reserves have yet to be developed.

Rather, natural gas prices rose largely due to policies that encouraged consumption while the infrastructure necessary to bring more natural gas to the market failed to keep pace. Improvements in drilling and exploration could not fully offset the declining productivity of existing wells, and access to natural gas fields on federal lands has become problematic. The price volatility that has plagued the market in recent years has made it difficult for natural gas companies to finance necessary capital improvements, including pipelines. What's more, the market for liquefied natural gas, touted by many as the answer to our natural gas problems, faces numerous bureaucratic and financial obstacles and is years away from making a significant difference in our nation's supply.

Natural gas is a vital source of energy—it burns cleanly, is already in use all over the country, and much of the world's reserves can be found in countries that are closer and more stable than the Middle East. However, a policy that simultaneously encourages demand while constraining supply is a recipe for problems.

There is no shortage of natural gas, but the infrastructure needed to extract and transport it is sorely lacking

The effects of high natural gas prices ripple through the economy

The impact of high natural gas prices reaches far and wide, but it affects some industries and regions especially hard. Natural gas accounts for 19% of all electric power generation¹ and nearly all new power plants built in the United States use natural gas to generate power. Hence, electricity prices must inevitably rise with natural gas prices.

Certain key industries, such as chemicals and plastics, use natural gas as the primary input in the production process. For these industries, diversifying away from natural gas is not an option. The impact of high prices is evident: Employment in the chemical and plastic industries has fallen 12% since natural gas prices first went above \$4 per million cubic feet in September 2000².

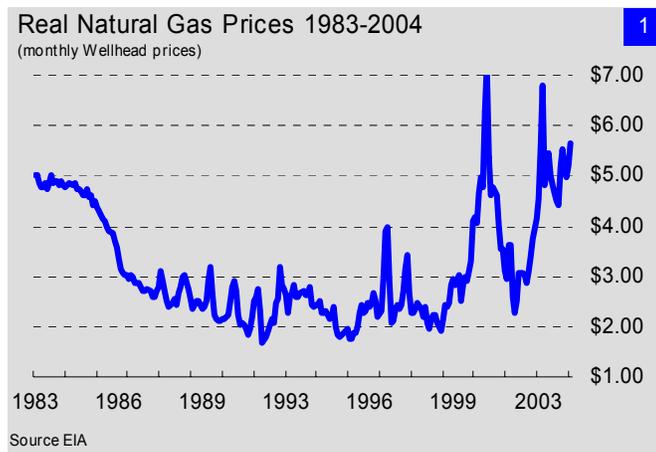
¹ Energy Information Administration, Monthly Energy Review, April 2003.

² Bureau of Labor Statistics, *2004 Employees on Nonfarm Payrolls by Industry Subsectors*.

Also, the market for natural gas (both domestically and abroad) is more segmented than is the market for oil, so that a shortage of gas on the east coast cannot be easily resolved by shifting supply from the west coast. As a result, natural gas prices can vary significantly across the country. For example, a cold snap in February 2003 pushed prices on the east coast to \$20 per mbtu, nearly triple the \$7.22 price in Wyoming.

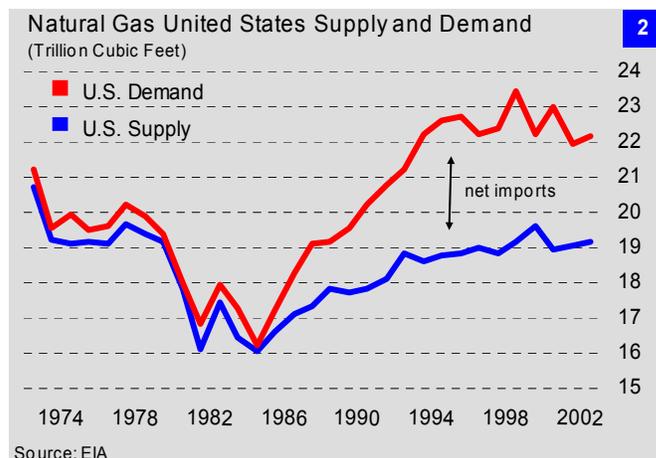
The causes of high natural gas prices

This is not the first time the U.S. has seen steep increases in the price of natural gas. In the wake of the oil crisis of the 1970s and early 1980s natural gas prices surged in lockstep with oil prices. Prices slowly returned to pre-embargo levels by the early 1980s as new exploration and technological breakthroughs increased output. Since the late 1990s prices have been high as well as volatile, as can be seen in Figure one.



There has been skyrocketing demand for natural gas...

In the last twenty years the demand for natural gas has taken off. Figure two shows that since 1986 the amount of natural gas burned in this country increased by over 40%, a rate that far surpasses the increase in coal or oil³. The rapid rise in natural gas consumption owes to two key factors. First, the economy has grown at a healthy clip over the period;



real gross domestic product today is more than 40% greater than it was in 1986, in turn increasing the demand for electric power as well.

The growth in natural gas consumption is truly extraordinary considering the improvements in energy efficiency of late. In the last 30 years the industrial sector has reduced the amount of energy required to produce one unit of output by nearly 40%. Consumers have reduced the amount of natural gas used per customer by

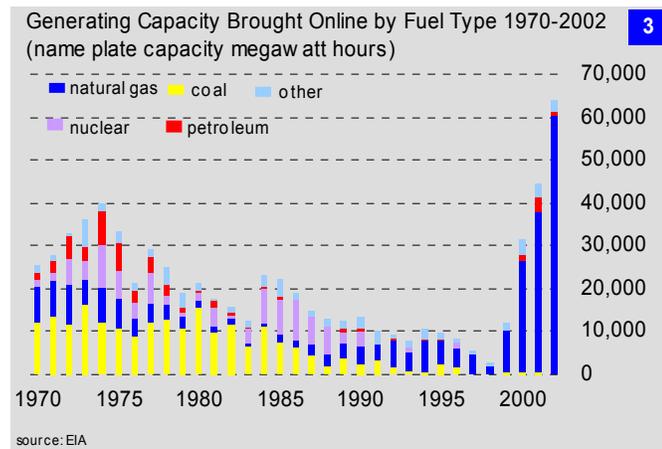
³ Energy Information Administration, *International Natural Gas Information*, <http://www.eia.doe.gov/emeu/international/gas.html#IntlConsumption>

16% from 1980 to 2001, largely due to improved insulation and more efficient furnaces⁴.

Second, environmental regulations passed in the 1980s and 1990s encouraged utilities to use clean burning natural gas rather than coal or oil. The Clean Air Act of 1990 created an incentive for electric power plants to invest in either gas-only equipment or fuel switching generators in order to reduce emissions of sulfur dioxide and nitrogen oxide. The Public Utility Regulatory Policies Act, designed with the goal of improving the efficiency of energy-producing equipment, encouraged the use of natural gas in energy production as well. Figure three shows that since the early 1990s nearly all new utility plants generate power by burning natural gas.

And lagging increases in supply

While demand for natural gas in the United States has spiked over the past fifteen years, supply has stagnated. Since 1996, U.S. production of natural gas has grown at an annual rate well below one percent and supply is still below the peak of the early 1970s. This slow increase is due to a number of factors, a primary one being that gas fields in the U.S. that are more accessible are slowly being tapped out. In order to maintain production, domestic



producers are having to drill more wells or extract gas more efficiently from existing wells. Both are occurring; the current rig count is near an all-time high and wells are being depleted at an ever-increasing rate⁵.

Another factor is that gaining access to public lands, where most of the promising natural gas fields lay, has become increasingly difficult. The first step is to acquire a lease to develop a natural gas field, but this alone is not sufficient to begin drilling: Oil and gas leases on Federal land must also comply with the National Environmental Policy Act, the Clean Water Act, the Clean Air Act, and the Endangered Species Act.

However, obtaining leases and complying with the law are often not sufficient to extract natural gas. Litigation has stifled access to natural gas sources as environmental groups have brought numerous lawsuits to prevent even preliminary, noninvasive exploration activities.

One place to turn to increase supply is Alaska, which has 18% of all domestic gas reserves. However, its gas is relatively inaccessible—there is currently no pipeline to transport it to the lower 48 states and the LNG facilities in Alaska are limited. Solving this transportation problem will be neither cheap nor quick, but it will measurably improve supply.

⁴ American Gas Association, *Energy Analysis EA 2003-01*, 2003.

⁵ Find citation

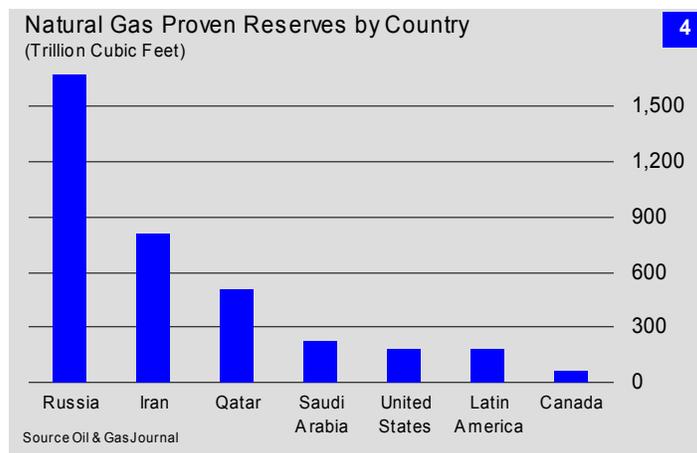
There is no disputing that known natural gas reserves both within and outside of the United States are more than sufficient to satisfy demand for decades to come. However, the cost of accessing these reserves remains high and shows no signs of falling.

Liquefied natural gas is part of a long-run solution

LNG will undoubtedly play a role in meeting the long-term demands for natural gas, but not in the short run. LNG currently makes up only about 1% of U.S. natural gas consumption, and there is relatively little excess capacity at the four LNG terminals currently in operation. While there are many new terminals planned, regulatory hurdles have made expansion difficult.

However, even if the U.S. builds additional capacity, the major natural gas producers in the world must expand export facilities. The infrastructure needed to export natural gas is immense; it takes years or even decades to construct the necessary pipelines, terminals, cooling facilities, regasification plants, and tankers necessary to produce LNG at the scale necessary to make exports cost-effective. Such projects are only now being contemplated as the world begins to adjust to the idea that the higher demand for natural gas may be permanent.

One upside of an impending world market for natural gas is that the prospects of an OPEC supremacy seems slight. As Figure 4 shows, substantial natural gas reserves exist all over the world, both within as well as outside of the Middle East.



The government can improve the market for natural gas

The government has played a key role in the natural gas market in recent years by by encouraging demand legislation encouraging the use of cleaner burning fuel and then later by . While no one sees demand falling for natural gas, domestic investment in production has not kept pace.

In part this is because legislation and litigation have made domestic production more difficult.

Obviously, policies that simultaneously encourage demand and discourage supply cannot co-exist indefinitely. Natural gas makes a great fuel; it burns cleanly, the U.S. has the basic underpinnings of a natural gas infrastructure, and there are truly staggering amounts of natural gas available throughout the world. Government must take steps to make accessing and transporting natural gas more inexpensive.