

Report finds increased domestic production won't make US self-sufficient in natural gas

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A new report by the Energy Forum at Rice University's Baker Institute for Public Policy finds that the United States will continue to rely on imported natural gas even if areas that are currently restricted are opened up to drilling.

Natural gas is already an important fuel in the United States, representing 22 percent of total primary energy use in 2006. About 20 percent of that gas was imported, the vast majority from Canada. Liquefied natural gas (LNG) imports have risen from virtually zero in 1986 to just in excess of 0.5 trillion cubic feet (tcf), or 2.9 percent of total U.S. natural gas consumption in 2006. The United States imports LNG from a variety of countries, including Trinidad and Tobago, Egypt, Nigeria and Algeria.

According to the new study, under a business-as-usual scenario, where U.S. lands are not opened up for drilling, by 2030, U.S. consumers could be relying on LNG imports for as much as 30 percent of total supply. This has strong implications for security of natural gas supply, as the United States becomes more reliant on LNG from the Middle East and Africa. U.S. end-use natural gas demand is expected to climb to 23.9 (tcf) in 2015 and 26.9 tcf by 2025, up from 20.0 tcf in 2006, according to study forecasts. This represents a gain of about 1.3 percent per year.

"Studies of the market outlook show that our high cost domestic production will increasingly have to compete against a swath of more competitively priced imports," said Kenneth Medlock, fellow for energy

studies at the Baker Institute and a key author of the study. "In the short term, the net impacts on U.S. supply security are not all that worrisome. But long term, as our demand grows, we will have to worry more about security of supply."

In recent years, environmental and land-use considerations have prompted the United States to remove from energy development significant acreage that was once available for exploration. Twenty years ago, nearly 75 percent of federal lands were available for private lease to oil and gas exploration companies. Since then, the share has fallen to 17 percent.

Given the importance of the changing outlook for North American natural gas supply and U.S. oil and natural gas prices, the Baker Institute embarked on a two-year study, "Natural Gas in North America: Markets and Security," to investigate the future development of the North American natural gas market and the factors that will influence security of supply and pricing.

The Baker Institute Energy Forum developed a world gas trade model. The Baker Institute World Gas Trade Model (BIWGTM) simulates future development of North American natural gas trade based on the economics of resource supply, demand and commodity transportation, and it determines a market-clearing price in the process.

To determine whether the United States and its allies will become vulnerable to increasing market power of major international natural gas suppliers, like Russia and countries of the Middle East, and the role that existing drilling restrictions in the United States play in this question, scenario analysis is utilized to determine the possible effects of a complete lifting of restrictions on drilling in the Rocky Mountains and

Outer Continental Shelf (OCS). The aim of these scenarios is to examine whether the impact of the increase in natural gas production from these now blocked U.S. regions would reduce the monopoly power of any potential large supplier or group of large suppliers and, similarly, would ameliorate the impact of a major accidental disruption of natural gas supply.

The Baker Institute's scenario analysis shows that opening restricted areas in the OCS and Rocky Mountains to drilling and natural gas resource development will not render the United States energy independent nor will it even lower U.S. dependence on liquefied natural gas (LNG) imports in 2015 by a significant volume. Price impacts are also limited, with U.S. prices only registering marginal reductions.

But longer term, the study concludes, an opening of restricted areas to drilling and the contribution of expanded OCS and Rockies natural gas production could, nonetheless, be geopolitically important in combating the rise of a cartel in the international natural gas market, a so-called "GasOPEC." According to the study, "Reducing U.S. demand for LNG helps lower global natural gas prices and enhances available supplies for other major buyers in Europe and Northeast Asia. The wider swath of alternative supplies for Europe and Northeast Asia translates into significantly reduced market power of producers in Russia and the Middle East. Furthermore, the higher elasticity of supply from alternative sources as a result of allowing greater access to resources in the United States also reduces market power in the sense that a larger reduction in cartel supply would be needed to achieve any given increase in price." The study also notes that development of alternative energy could play a similar role.

One more surprising key finding of the study is that an opening of restricted areas for drilling for natural gas could have significant impacts on the flow of natural gas from Alaska to the lower 48 states. Under a

business as usual scenario, where there is greater access to resources in the lower 48, the study finds that there would be delays in the development of the Alaska gas pipeline, reducing Alaskan production by as much as 0.95 tcf in 2025 (or a 40 percent reduction) relative to the case where access restrictions remain in place.

Source: Rice University

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