

## **"NATURAL GAS OUTLOOK TO 2020"** *Executive Summary*

The American Gas Foundation study "Natural Gas Outlook to 2020" (February 2005) analyzes the U.S. natural gas market to the year 2020 under three alternative public policy scenarios: "Expected", "Expanded", and "Existing". These scenarios, outlined below, were used to describe potential market conditions and to emphasize the key policy variables that will have an impact on markets through 2020. They were not constructed in an attempt to present the "best" and "worst" possible cases.

### **Expected**

The moratoria on exploration & production in the eastern Gulf of Mexico and off the East and West Coasts continues and drilling in the Intermountain West remains partially restricted. Also assumes that an Alaskan natural gas pipeline is operational by 2014 and that liquefied natural gas (LNG) import capacity will be 18 billion cubic feet per day (Bcfd) by 2020. Natural gas fuels 40% of new electricity generation.

### **Expanded**

Assumes a lifting of the drilling moratoria in the eastern Gulf of Mexico and off the East Coast, but not the West Coast. Under this scenario, access in the Intermountain West is less restricted but it is not unlimited. Also assumes the Alaskan pipeline will be operational by 2014 and LNG import capability is 23 Bcfd by 2020. New electricity generation capacity fueled by natural gas falls to 20% of the total fuel mix.

### **Existing**

This "status quo" public policy scenario has the same exploration & production moratoria assumptions as in the Expected scenario. Also assumes that an Alaskan gas pipeline is NOT operational by 2020 and although the four currently operational LNG terminals are assumed to expand, no new terminals are completed. The LNG import capacity is 5.3 Bcfd by 2020. Natural gas fuels 40% of new electricity generation.

## **SUMMARY OF FINDINGS**

The results of the study point to the need for public policy makers and industry decision makers to immediately address critical issues that will have a significant impact on the availability and price of natural gas for decades to come. Under none of these scenarios does the natural gas market return to the conditions that prevailed in most of the 1980s and 1990s – surplus supply and relatively low, stable prices. Therefore, failure to act swiftly, decisively and positively on issues such as constructing liquefied natural gas receiving terminals and an Alaskan gas pipeline, diversifying our electricity generating mix and increasing access to domestic supplies of natural gas would prolong and exacerbate problems affecting natural gas markets and all consumers of natural gas.

## ***Natural Gas Prices***

*Expected:* Natural gas prices remain in the \$5 to \$6 per MMBtu range for most of the study period with a 2020 nominal forecast price of \$8.15.

*Expanded:* Prices average \$5.50 over the entire study period with a 2020 forecast price of \$5.47. ***This price is 33% lower than the Expected scenario and results in a savings of roughly \$80 billion dollars for consumers in 2020.***

*Existing:* The supply constraints of this scenario push the 2020 nominal forecast price to \$13.76 with an average price of \$9.43 over the study period. Average natural gas prices are nearly 70% higher in 2020 under the Existing scenario. ***This represents over \$120 billion dollars in additional natural gas costs to the U.S. consumer in 2020 versus the Expected scenario and \$200 billion versus the Expanded scenario.***

## ***Natural Gas Supply***

*Expected:* Natural gas supply will become more diverse, in contrast to the traditional 85% Lower-48 and 15% Canadian supply mix that we have come to expect. This scenario projects much greater supply diversity in the future, including major contributions in the form of Alaskan natural gas and LNG. Delays or denials of these sources will shift supply to more expensive marginal sources of domestic natural gas.

*Expanded:* Despite the measures incorporated under this scenario to increase access to gas supply in the U.S. and Canada, both Lower-48 production and Canadian imports are lower relative to the Expected scenario. The higher level of LNG imports under this scenario acts to reduce exploration for higher cost traditional sources of gas in a lower price environment.

*Existing:* The lower demand level in this scenario is met primarily by a greater dependence on traditional Lower-48 sources of gas and increased Canadian imports. No Alaskan gas is shipped to the Lower-48 and LNG imports do not reach 2 quads per year.

## ***Natural Gas Demand***

*Expected:* In spite of higher prices, annual natural gas consumption is projected to exceed 30 quads by 2020. This growth is attributable primarily to continued rising demand for gas to power electricity generation, while residential and commercial demand increase at a modest rate, just over 1% per year. Electricity generation accounts for two-thirds of the natural gas demand growth over the period.

*Expanded:* Total overall consumption is very similar to the Expected scenario, but industrial consumption is higher in response to lower prices while consumption for electricity generation is lower.

*Existing:* Higher prices in this scenario reduce consumption in total and for each of the consuming sectors. Consumption is somewhat lower in the residential and commercial sectors, but two quads lower for electricity generation and one quad lower for industrial customers.

### ***Critical Study Implications***

- The extreme prices of the Existing scenario are the result of not expanding the natural gas infrastructure much beyond that which is in place today. Operating under the Expected or Expanded scenario would require a significant increase in the natural gas infrastructure, including LNG terminals and the Alaskan gas pipeline.
- Increased unemployment, plant closings and the movement of industrial operations overseas have occurred over the past four years, in part in response to higher natural gas prices. The industrial sector will remain the most sensitive sector to tight supplies and high prices.
- Due to expectations of continued access restrictions and declining deliverability, both Lower-48 and Canadian sources will struggle to keep production stable at the current levels.
- Expectations for persistent tight market conditions are not a negative reflection on the natural gas resource base – domestic or worldwide. Ample resources of natural gas exist to meet demand for generations to come. However, the U.S. industry is severely restricted in terms of exploring for, producing and delivering natural gas, and severe restrictions are likely to remain.
- The outlook for significant natural gas-fired demand growth by electricity generators is unlikely to be altered, particularly prior to 2015, due to increasing use of the vast number of gas units completed over the past five years and the difficulty in siting and constructing coal or nuclear generating units in less than 10 years.
- Natural gas demand will become less predictable as the relative share of total demand attributable to electricity generators increases, while the relative share attributable to the industrial sector declines.
- The lack of a contribution in the Existing scenario from new LNG operations and Alaskan gas most likely would occur as a result of environmental opposition to the siting and construction of new facilities. However, failure to construct these new facilities would result in a far greater reliance on Lower-48 sources of supply, increasing the need to drill in both onshore and offshore areas, which also will be subject to environmental concerns.

#### American Gas Foundation

Founded in 1989, the American Gas Foundation is a 501(c)(3) organization that focuses on being an independent source of information research and programs on energy and environmental issues that affect public policy, with a particular emphasis on natural gas. For more information, please see [www.gasfoundation.org](http://www.gasfoundation.org) or contact Gary Gardner, AGF's Executive Director at [ggardner@gasfoundation.org](mailto:ggardner@gasfoundation.org).