Natural Gas Annual 2009
Summary Highlights

In 2009 relatively abundant supply and low prices characterized natural gas markets. The combined impact of weak natural gas demand in the commercial and industrial sectors due to the economic downturn and continued strong domestic natural gas production likely contributed to a decline in prices compared with 2008 levels. The reduction in consumption in the commercial and industrial sectors, however, was partially offset by increases in the use of natural gas for electric power generation. Spot natural gas prices at Henry Hub in 2009 averaged $4.06 per thousand cubic feet (Mcf), compared with $9.12 per Mcf in 2008. Natural gas prices across most sectors spiked during the first 8 months of the recession, which officially began in December 2007. However, prices began falling in the latter half of 2008, and mostly continued to weaken through 2009.

Despite lower prices in 2009 than in 2008 and fewer rigs drilling for natural gas, production remained robust, possibly adding to downward pressure on prices. Past investments in more efficient means of production buoyed production levels. Additionally, the correlation typically observed between the natural gas rig count, prices, and production became less evident, illustrating the impact of the increasing production of natural gas from shale formations, horizontal drilling, and hydraulic fracturing. While these production methods are not particularly new, they have become more efficient and more widespread in the last few years. For example, horizontal rig counts have increased relative to vertical rig counts. Horizontal drilling tends to produce more natural gas per well and result in higher initial production rates. In addition, operators have been drilling longer laterals (the horizontal drill holes that penetrate gas-bearing rock) for horizontal wells, further increasing production.

Supply

In 2009, marketed production of natural gas reached 21.6 trillion cubic feet (Tcf), its highest recorded annual total since 1973. Production of natural gas from shale and tight sand formations continued to increase. These production increases were the result of more efficient, cost-effective drilling techniques, notably in the production of natural gas from shale formations. Additionally, shale gas has been the primary source of recent growth in United States technically recoverable natural gas resources. Natural gas production remained robust throughout the year, as the lack of any significant hurricane activity resulted in minimal production losses. Hurricane Ida occurred very late in the season (November 9, 2009), and resulted in total production shut-ins of only 4.6 billion cubic feet (Bcf). Comparatively low production in September may have been the result of relatively low prices during the late summer.

In previous years, the natural gas rotary rig count, as reported by Baker Hughes Incorporated, usually lagged the Henry Hub natural gas price by several weeks or more. This relationship weakened in the second part of 2009. The rig count fell to a low of 665 on July 17, marking the lowest level since 2002, before recovering to 759 on December 31. Despite the low number of active rigs, production continued to be robust in 2009, demonstrating continued efficiency gains. This development was facilitated by technological advances in drilling and well-completion

techniques. Also bolstering production was an increase in domestic resources and reserves, particularly shale gas. EIA's Annual Energy Outlook 2011 (AEO 2011) estimates that the United States has 827 Tcf of technically recoverable unproved natural gas shale resources, 480 Tcf higher than the AEO 2010 estimate of 347 Tcf.

During the 2008-2009 heating season (November 2008 - March 2009), working gas storage inventories set records on a national level, as well as in each of the three storage regions. The heating season began with 3,399 Bcf in storage. Net withdrawals totaled 1,740 Bcf, leaving inventories at 1,660 Bcf by the end of March. At the official end of the 2009 injection season (April 1- October 31, 2009), inventories reached 3,810 Bcf. Storage levels at the end of October 2009 surpassed the previous record-high of 3,565 Bcf, set in October 2007. Injections continued throughout November, with working gas inventories reaching 3,837 Bcf by the end of the month. In fact, 2009 was the first year since 2001 in which a net injection occurred each week of November.

In 2009, net imports to the United States reached a 15-year low of 2,679 Bcf, a decrease of about 342 Bcf, or 11.3 percent, from the previous year. The volume of net imports in 2009 equaled about 11.7 percent of U.S. natural gas consumption, which was the lowest ratio since 1994. A significant decline in pipeline imports from Canada was the largest single factor contributing to the decrease, as gross imports from the country decreased 318 Bcf or 8.9 percent in 2009 compared with 2008, while exports to Canada from the United States increased. Canada continued to be the largest source country for gross natural gas imports to the United States, accounting for 87 percent of the 2009 total. At the same time pipeline imports from both Canada and Mexico fell, liquefied natural gas (LNG) imports increased, rising from 12 percent of net imports in 2008 to 17 percent in 2009.

Demand

Even with lower natural gas prices, natural gas consumption declined from the previous year in the residential, commercial, and industrial sectors because of a combination of weather and economic factors. Weather was the primary factor contributing to lower residential consumption, while the weakened economy was a major influence in declines in commercial and industrial consumption. Gains in consumption from electric power partially offset losses in the other sectors. Total U.S. consumption fell to 62.6 Bcf per day in 2009, from 63.7 Bcf per day in 2008. Consumption in the commercial sector fell about 1 percent. In the industrial sector, consumption fell 7 percent from 18.2 Bcf per day in 2008 to 16.9 Bcf per day in 2009.

Total residential natural gas consumption declined from 13.4 Bcf per day in 2008 to 13.1 Bcf per day in 2009, in part because average heating season temperatures in 2009 were warmer than both the 30-year normal level and the previous year. Despite the overall pattern of somewhat warmer-than-normal temperatures, exceptionally cold weather led to unusually high natural gas consumption during 2 months in 2009. Residential consumption in October was 15.1 percent higher than the year-ago level, and 19.4 percent above the 5-year (2004-2008) October average. Similarly, a cold January 2009 pushed residential consumption again above the 5-year average. In contrast, temperatures warmer than the 30-year average in February and November reduced consumption.

Consumption of natural gas for electric power increased from its 2008 level of 18.3 Bcf per day to 18.8 Bcf per day in 2009. This increase was driven by fuel-switching due to sharp declines in the price of natural gas relative to coal prices. During the summer of 2008, natural gas prices spiked to high levels, but fell through the second half of the year and remained relatively low in 2009. The cost of natural-gas fired generation also fell, becoming cheaper than generation using some coal-fired power plants in some areas. As a result, when natural gas prices fell, power generators increased their utilization of existing natural gas-fired generation capacity more intensively.