



Residential Natural Gas Prices: What Consumers Should Know

Introduction

Typically, residential natural gas consumers have some basic questions as the winter approaches: How much will natural gas cost and will enough be available this winter heating season? The answers to these questions ultimately depend on ever-changing conditions in national and local markets for natural gas. Since the latter part of 2002, market conditions have fostered an upward trend in natural gas prices. The Energy Information Administration (EIA) expects that these generally higher prices will continue through this winter.

According to its *Short-Term Energy Outlook* (October 2006), assuming normal winter weather (and no catastrophic disruptions of supply), EIA expects that supplies of natural gas should be sufficient to satisfy all residential consumers' needs (although there is always the possibility of isolated shortages due to unusual regional or local conditions). EIA estimates that the representative average residential price of natural gas in the Midwest will be almost 18 percent lower than last winter, while consumption is projected to be more than 4 percent higher this winter. As a result, EIA expects that the total amount spent for gas consumed by the Midwest residential customer during this winter (October 2006-March 2007) will be about 14 percent less than last winter.

To understand the current high-price environment for natural gas, it is helpful to know some basics about the commodity itself and the marketplace.

Where Does Your Natural Gas Come From?

Most of the natural gas used in the United States comes from domestic gas production. The remainder comes from imports, primarily from Canada. Domestic gas production and imported gas are usually more than enough to satisfy customer needs during the summer, allowing a portion of supplies to be placed into storage facilities for withdrawal in the winter, when the additional requirements for space heating cause total demand to exceed production and import capabilities.

Natural gas is injected into pipelines every day and transported to millions of consumers all over the country. Much of it travels long distances from production areas to population centers through interstate pipelines owned and operated by pipeline companies. Natural gas is generally delivered to residential customers and other end-use consumers through the complex network of pipes owned and operated by local distribution companies (LDCs).

What Are Residential Customers Paying For in Their Natural Gas Bills?

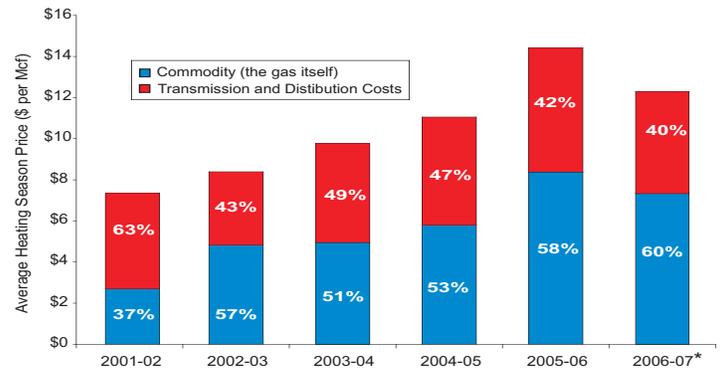
The price of natural gas consists of two main parts (all cost estimates include a number of taxes):

Transmission and distribution costs - to move the gas by pipeline from where it is produced to the customer's local gas company, and to bring the gas from the local gas company to your house.

Commodity costs - the cost of the gas itself.

In the past four winters (2002-2003 through last winter) the cost of natural gas at the wellhead (commodity cost) has comprised more than 50 percent of the residential price, and this trend is expected to continue through the next winter (Figure 1). This has been the result of unusually high prices for the natural gas commodity during these winters, driven by similar market conditions that included a weak natural gas production response despite increased drilling levels, colder-than-normal weather for a number of consecutive weeks during each heating season, production disruptions—in particular those owing to hurricane activity in the Gulf of Mexico, decreasing net imports at times, and record high crude oil prices.

Figure 1. Breakdown of Natural Gas Prices by Residential Consumers During the Heating Season



Mcf = Thousand cubic feet.
Source: Energy Information Administration, *Natural Gas Monthly*, September 2006.
*Energy Information Administration projections: *Short Term Energy Outlook* (October 2006).

Factors That Affect Current Natural Gas Prices

There are a number of underlying factors that have prevailed for most of 2006 that have affected prices. Depending on the factor, each has applied either upward (⬆) or downward (⬇) pressure on prices. These factors include:

↓ **Weak production** – Production decreased by 2.7 percent in 2005, declining below the 2000 level, and reaching the lowest production level since 1993. The industry in 2005 drilled a record number of gas wells for a single year, and in the summer of 2006 rigs drilling for gas hit a record level. The number of producing gas wells has increased each year since 2000, rising from almost 342,000 wells in 2000 to more than 405,000 wells in 2004. However, production has not increased proportionally. Production in 2006 is expected to increase by only 0.8 percent over 2005 levels, although natural gas well completions have been about 17 percent higher in the first 8 months of 2006 compared with the same period in 2005.

↑ **Declining net imports** – After net imports increased by 5.7 percent in 2005, pipeline imports in 2006 are expected to decline more than enough to offset a 3 percent increase in liquefied natural gas (LNG) imports. With a slight increase in total exports, net imports are expected to decrease by roughly 4.4 percent in 2006.

↑ **High Demand** – Natural gas demand has remained strong in 2006, owing to the continued strong performance of the economy. Additionally, unusually high temperatures prevailing across the country this summer have increased the need for home cooling, which adds to natural gas demand used by electric power generators.

↑ **High Oil Prices** – Some large-volume customers (primarily industrial consumers and electricity generators) can switch between natural gas and other fuels, such as petroleum products, depending on the prices of each. As a result of this interrelation between fuel markets, when oil prices rise, the competitive pressure to maintain low gas prices diminishes, and the shift in demand to natural gas drives prices upward. Crude oil prices increased to more than \$70 per barrel during summer 2006. Geopolitical concerns have contributed to rising oil prices over most of the year. However, crude oil prices by early October had declined to below \$60 per barrel for the first time since this past Spring.

↓ **Natural gas inventories** – Based on reports from underground storage facilities for October 6, natural gas in storage was 3,389 Bcf, which is 11.8 percent above the 5-year average of 3,031 Bcf. Total working gas in storage is currently above average largely because of last winter's relatively mild weather, which resulted in the largest end-of-winter volume in 15 years. Storage stocks since then have remained well above average despite lower-than-normal net injections this summer. Although natural gas inventories are expected to track at above average levels through the rest of 2006 as long as weather conditions remain close to normal, the relatively low injections during most of the summer have raised concerns about supply adequacy in the coming heating season.

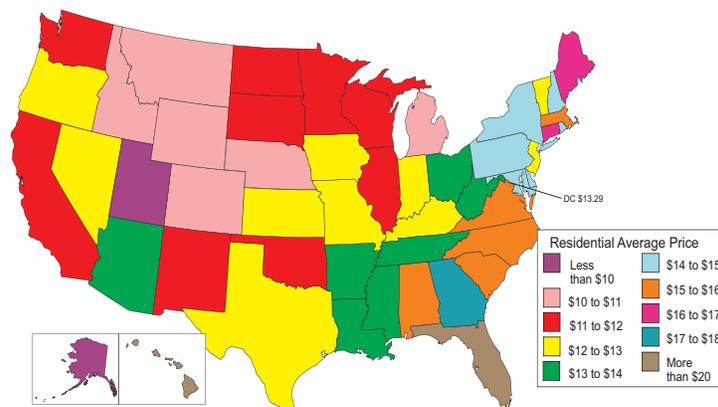
↔ **Weather Effects** – In 2005, Hurricanes Katrina and Rita caused major service disruptions and shut-ins of natural gas production in the Gulf of Mexico, resulting in record high prices for crude oil and

natural gas. The hurricane activity contributed to an already tight energy market, which was aggravated by warmer-than-normal summer weather in 2005. As of September 2006, there has been no significant storm activity in the Gulf of Mexico, although recovery operations from last year's hurricanes continue. Above normal temperatures during the summer, particularly in July and August, which engulfed most of the United States, put upward pressure on natural gas prices. Additionally, a return to normal weather this winter would increase heating demand as temperatures would be colder than last year.

Average Natural Gas Prices in the United States

Since 1999, residential natural gas prices in the United States have exhibited an overall increasing trend. The 2005 national average residential price of \$12.81 per thousand cubic feet (Mcf) exceeded the 2000 average price by more than \$5 per Mcf. The national average price of natural gas is only part of the story, as the prices in individual States can differ greatly. These differences are often related to a market's proximity to the producing areas, the number of pipelines in the State, and the transportation charges associated with them, as well as State regulations and degree of competition. For example, based on 2005 data, the residential consumers along the Atlantic Coast tend to pay the most, with prices ranging from \$14 to more than \$20 per Mcf (Figure 2). In contrast, States in the rest of the country benefit from either indigenous production or the presence of major trunk lines traversing the State. The availability of relatively abundant supplies results in prices between \$10 and \$13 per Mcf.

Figure 2. U.S. Residential Natural Gas Prices by State, 2005 (Dollars per Mcf)



Source: Energy Information Administration, Natural Gas Monthly, September 2006.

How Much Will Natural Gas Cost This Winter?

Each year, EIA projects the average price, consumption, and total cost of natural gas during the upcoming winter for a household in the Midwest. (The Midwest is used because over 79 percent of its 25.1 million households heat their homes with natural gas—the highest concentration of any region.) For the heating season of 2006-2007, EIA estimates that Midwest homeowners will pay about \$1.07 per therm (1 therm=100,000 Btu, which is the heat content of about 100 cubic feet of gas), or about \$11.01 per Mcf, for natural gas this winter (Table 1).

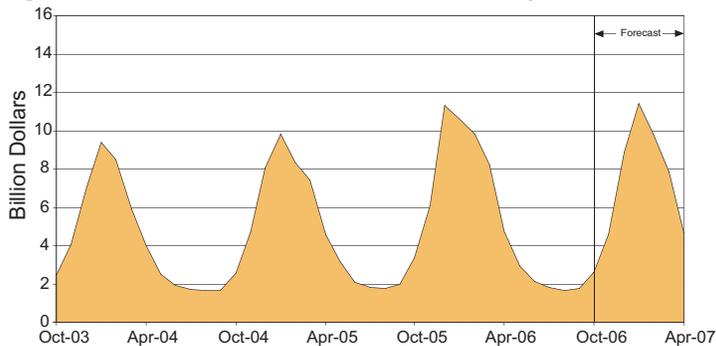
Table 1. Average Midwest Household Heating with Natural Gas Heating Season (October-March)

	2003-2004	2004-2005	2005-2006	2006-2007 *
Volumes Consumed (Therms)	880.1	876.0	845.2	881.2
(Mcf)	85.7	85.3	82.3	85.8
Residential Price (Dollars per therm)	\$0.85	\$0.98	\$1.30	\$1.07
(Dollars per Mcf)	\$8.77	\$10.02	\$13.37	\$11.01
Total Cost per Household for the Heating Season	\$751	\$855	\$1,101	\$945

*=Projection
Mcf = Thousand cubic feet. 1 Mcf=10.27 therms. (Based on the national average gas heat content for gas consumed by other than electric utilities in 2004. Source: Energy Information Administration, *Natural Gas Annual 2004*, (December 2005), Table B2.).
Source: Data and projection: Energy Information Administration, *Short-Term Energy Outlook* (October 2006).

Assuming a return to normal temperatures, this winter will be colder than last winter. This should result in increased gas use by more than 4 percent for the representative Midwest residential gas customer. This increased gas use, coupled with the projected price decrease of almost 18 percent, would result in a decrease of about 14 percent in total expenditures for gas by the representative household (Figure 3).

Figure 3. Total U.S. Residential Natural Gas Expenditures



Source: Energy Information Administration, derived from data in the *Natural Gas Monthly*, October 2006.

Any forecast is uncertain, and changes to key factors could alter the forecast significantly. Key factors that may affect market prices and consumption regardless of region include:

A prolonged cold spell or even a brief episode of severe winter weather would increase per-household use of gas and total demand in the high-consumption winter months.

Disruptions of the pipeline or LNG delivery systems would affect deliverability of natural gas.

Problems in other energy supplies, such as a prolonged outage of a nuclear or coal-fired power plant, could increase use of gas-fired generators, thus increasing gas demand.

Although increased commodity prices are passed along to consumers, residential households enjoy some protection from sudden, severe price fluctuations. This is partially because residential bills do not reflect daily market prices but rather the overall cost of an LDC's supply of gas, which depends on the LDC's usually diverse portfolio of supply sources and prices. This translates to a price to the consumer that is much more stable than the often highly variable daily "spot" prices. Also, transmission and distribution services, which are much more stable between years, make up a large fraction of residential bills. Further, residential customers have a number of steps they can take to mitigate the impact of commodity price changes.

What Can Residential Customers Do?

To cope with or reduce their gas bills, residential customers can:

- Shop for lower-priced gas, if their State sanctions customer choice programs. (For information on the status of natural gas residential choice programs in each State, go to: http://www.eia.doe.gov/oil_gas/natural_gas/restructure/restructure.html)
- Participate in their local gas company's yearly budget plan to spread gas costs evenly throughout the year, thereby lessening the impact of higher prices.
- Check gas appliances and space-heating equipment for efficient operation.
- Obtain a home energy audit to identify ways to conserve energy.
- Reduce thermostat settings, especially when they are not at home.

In addition, both Federal and State energy assistance programs are available to natural gas customers who have a limited budget. For example, the Low Income Home Energy Assistance Program (LIHEAP) is a Federal program that distributes funds to States to help low-income households pay heating bills. Additional State energy assistance and fuel fund programs may be available to help households pay energy bills during a winter emergency. To find out if you qualify for assistance in your State, contact your State public utility commission or your local gas company.

For More Information . . .

For the latest update on natural gas demand, prices, and inventories, see our *Natural Gas Weekly Update* on the EIA web site at:

<http://tonto.eia.doe.gov/oog/info/ngw/ngupdate.asp>

and the *Weekly Natural Gas Storage Report* at:

<http://tonto.eia.doe.gov/oog/info/ngs/ngs.html>



The Energy Information Administration is an independent statistical agency within the U.S. Department of Energy whose sole purpose is to provide reliable and unbiased energy information.

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