Reisdential 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 1999, market conditions generally have fostered an upward trend in natural gas prices that was reversed dramatically since mid 2008. Despite the recent decline in wholesale prices, the Energy Information Administration (EIA) expects that generally higher prices to residential customers will continue through this winter.

According to its *Short-Term Energy Outlook* (November 2008), EIA expects temperatures in the Lower 48 States this winter (October 2008-March 2009) to be 2.1 percent colder than last winter, but less than 1 percent colder than 30-year normal winter weather. Assuming no catastrophic disruptions of supply, EIA expects that supplies of natural gas will be sufficient to satisfy all residential consumers' needs (although there is always the possibility of isolated shortages caused by unusual regional or local conditions). EIA estimates that the average residential price of natural gas in the Midwest will be about 1.8 percent higher than last winter, while consumption is projected to be about 2.3 percent lower this winter. (Midwest projections are highlighted because 76 percent of its 24.7 million households heat their homes with natural gas–the highest concentration of any region.) As a result, EIA expects that the total amount spent for natural gas consumed by an average Midwest residential customer this winter will decrease by about 0.5 percent from the level of last winter; nationally, households on average will spend 3.6 percent more.

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 production, mostly from the Gulf Coast and Rocky Mountains. The remainder comes from imports, primarily from Canada. Domestic natural gas production and imported gas are usually more than enough to satisfy customer needs during the summer, allowing some 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?

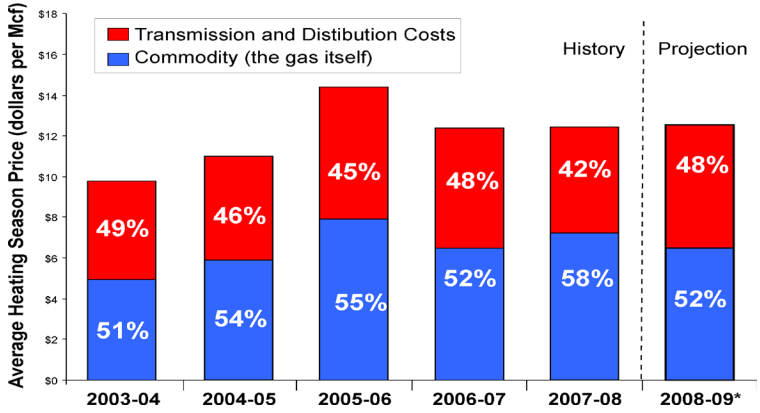
The price of natural gas has two main parts (all cost components include a number of taxes):

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

Commodity costs - of the natural gas itself.

Since the winter of 2001-2002, the natural gas commodity cost (the cost at the wellhead) has constituted more than 50 percent of the residential price, and this trend is expected to continue through next winter (Figure 1). This relative cost pattern differs from earlier years in which the commodity cost was consistently less than half the total. The large commodity cost share has resulted from increasingly high prices for natural gas during most of this decade. The increasing price trend reflects market conditions that have included colder-than-normal weather for long periods during some heating seasons, increasing use of natural gas for electric generation, production disruptions from hurricane activity in the Gulf of Mexico, fluctuating net import levels, and record high crude oil prices over much of the last 2 years.

Figure 1. Breakdown of Natural Gas Price Paid by Residential Consumers During the Heating Season, 2003-2009



Mcf = Thousand cubic feet.
Source: History: Energy Information Administration, *Natural Gas Monthly* (October 2008).
Projections: Energy Information Administration, *Short Term Energy Outlook* (November 2008).

Factors That Affect Current Natural Gas Prices

Several underlying factors have affected prices in 2008. Each has applied either upward (⬆) or downward (⬇) pressure on prices. These factors include:

⬇ **Improving production** – Total marketed natural gas production has been gradually increasing since 2005, finally exceeding the 2003 level with 20.2 trillion cubic feet (Tcf) in 2007. In the first 8 months of 2008, total U.S. marketed natural gas production increased by 1.1 Tcf from 13.2 to 14.4 Tcf, an increase of 8.6 percent. Production in onshore regions in Texas, Wyoming, and Oklahoma has increased by almost 13 percent in the first 8 months of 2008 compared with the same period in 2007. Success in the onshore producing areas has been offset somewhat by developments in the offshore. Natural gas production in the Federal areas in the offshore Gulf of Mexico (GOM) is expected to decline by 14.8 percent in 2008 because of production shut-ins and continuing repair of hurricane damage. Production shut-ins for the Federal GOM and in Louisiana are estimated to have reached more than 325 Bcf by mid November. Despite these difficulties in the Gulf region, total U.S. marketed production is expected to increase by 6.2 percent in 2008 and by 1.7 percent in 2009. In 2009, Federal GOM production is expected to recover and increase by about 2.7 percent as repairs are completed.

⬆ **Decreasing net imports** – Net natural gas imports are expected to decline by 23.7 percent in 2008 and by 3.3 percent in 2009, reversing the previous upward trend. U.S. liquefied natural gas (LNG) imports have declined sharply during 2008 because of strong global demand for LNG and higher relative prices in Europe and Asia. Comparing the first 8 months of 2007 and 2008, total LNG imports decreased by more than 63 percent. Although LNG imports are expected to increase in 2009 as new global LNG supplies become available, they are expected to remain roughly 47 percent below the 2007 level.

⬆ **Increasing demand** –Total consumption is expected to increase by 1.1 percent in 2008 over 2007 levels, as consumption for industrial use and for electric power generation in the second half of the year is expected to decline by 5 percent. In addition, the 2008-2009 winter season is projected to be about 2.1 percent colder than last winter, which would increase residential demand by about 5 percent.

⬅➡ **Oil prices** – Natural gas prices are influenced by crude oil prices due to competition on both the demand and supply side of the markets. As a result of this interrelation between fuel markets, when oil prices rise, the competitive pressure to maintain low natural gas prices diminishes, and the shift in demand to natural gas drives prices upward. Although crude oil prices rose to a record high of $145 per barrel in July 2008, they have declined to less than $60 by mid November. Crude oil prices are projected to range between $60 and $65 per barrel through 2009, a range comparable to prices prevailing through much of 2005 through 2007. Crude oil prices at this level are not expected to impose much influence on natural gas prices this winter.

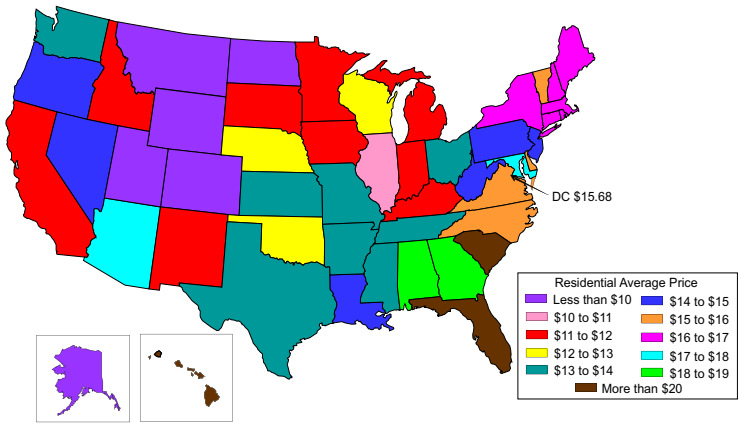
⬇ **Natural gas inventories** – Based on reports from underground storage facilities for November 14, 2008, working gas in storage was 3,488 Bcf. This is 140 Bcf or 4.2 percent above the 5-year (2003-2007) average. Natural gas inventories are expected to track within the 5-year historical range through the rest of 2008 as long as weather conditions remain close to normal.

⬆ **Weather effects** – Hurricanes Gustav and Ike caused substantial natural gas and crude oil supply disruptions starting in September 2008. Although natural gas production shut-ins for the period through mid November are estimated to exceed 334 Bcf, total production shut-ins are expected to fall well short of the more than 800 Bcf that was shut in after Hurricanes Rita and Katrina in 2005. A relatively mild summer in 2008, compared with the last three summers, eased the pressure on natural gas supplies. This winter is expected to be slightly colder than last, increasing total U.S. residential demand by about 5 percent.

Average Natural Gas Prices in the United States

Since 1999, residential natural gas prices in the United States have generally increased. The 2007 national average residential price of $13.01 per thousand cubic feet (Mcf) was almost double the 1999 price of $6.69. 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 2007 data, residential consumers along the Atlantic Coast tend to pay the most, with prices ranging from $15 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 $15 per Mcf.

Figure 2. U.S. Residential Natural Gas Prices by State, 2007 (Dollars per Mcf)



Source: Energy Information Administration, *Natural Gas Monthly*, October 2008.

How Much Will Natural Gas Cost This Winter?

Each year, EIA projects the average price, consumption, and total expenditure for natural gas during the upcoming winter for a household in the Midwest. For the heating season of 2008-2009, EIA estimates that Midwest homeowners will pay about $1.13 per therm (1 therm=100,000 Btu, which is the heat content of about 100 cubic feet of gas), or about $11.59 per Mcf, for natural gas this winter (Table 1).

Table 1: Average Midwest Household Heating With Natural Gas

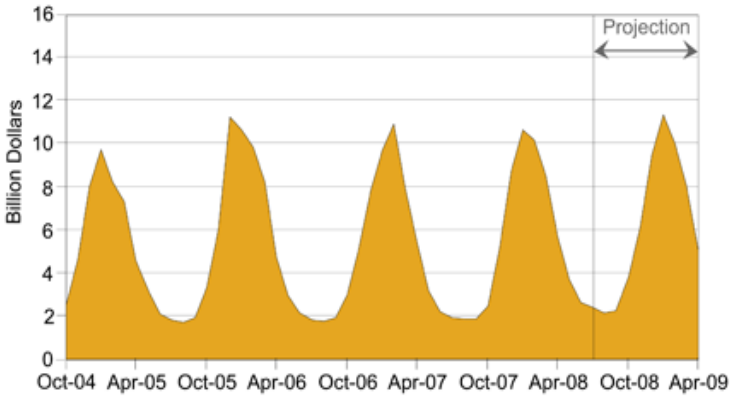
Heating Season (October-March)

	2005-2006	2006-2007	2007-2008	2008-2009*
Volumes Consumed				
(Therms)	845.8	872.6	910.7	890.1
(Mcf)	82.2	84.8	88.5	86.5
Residential Price				
(Dollars per therm)	$1.31	$1.08	$1.11	$1.13
(Dollars per Mcf)	$13.45	$11.06	$11 38	$11.59
Total Cost per Household for the Heating Season	$1,106	$938	$1,008	$1,003

*=Projection
Mcf = Thousand cubic feet. 1 Mcf=10.29 therms. (Based on the national average gas heat content for gas consumed by other than electric utilities in 2007.)
Source: Energy Information Administration, *Natural Gas Annual 2006*, (October 2007, Table B2).
Source: Data and projection: Energy Information Administration, *Short-Term Energy Outlook* (November 2008).

This winter is projected to be warmer in the Midwest than last winter, which should result in decreased natural gas use of 2.3 percent for the representative Midwest residential natural gas customer. This decreased gas use is partly offset by a projected price increase of about 1.8 percent, resulting in a decrease of about 0.5 percent in total expenditures for natural gas by the representative household (Figure 3).

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



Source: History: Energy Information Administration, derived from data in the *Natural Gas Monthly* (October 2008).
Projections: Energy Information Administration, *Short Term Energy Outlook* (November 2008).

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 natural 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 natural gas bills, residential customers can:

- Shop for lower-priced natural gas, if their State sanctions custom-er 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/nautral_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 natural 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://www.eia.doe.gov/oil_gas/natural_gas/ngs/ngs.html

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