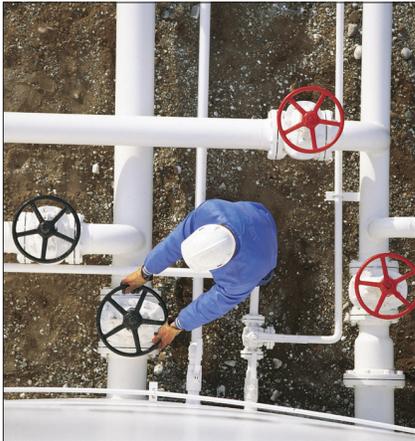


## AN INTRODUCTION TO NATURAL GAS

Natural gas is the cleanest burning fossil fuel used for power generation today. As demand for energy increases, expanded use of natural gas can help improve air quality across the country, especially when used to replace more polluting energy sources.



### FUEL OF CHOICE

The environmental advantages of natural gas have made it the smart energy choice and part of the solution to reducing greenhouse gas emissions. As the cleanest burning fossil fuel, it emits fewer pollutants than either coal or oil. It is also efficient, flexible, plentiful and domestic.

Today, Americans use about 22 trillion cubic feet of gas per year, which is about 25 percent of the energy consumed in the United States.

### NATURAL GAS 101

Natural gas is made up of hydrocarbon gases, primarily methane. It is usually found deep below the earth's surface, often with deposits of oil, and is removed by wells that are drilled to access the petroleum deposits. After it reaches the surface, the gas is separated from any oil or water that may have been present in the petroleum deposit. It is then processed to remove impurities, other gases such as propane and butane, and any remaining water or water vapor.

### THE INTERSTATE GAS PIPELINE SYSTEM

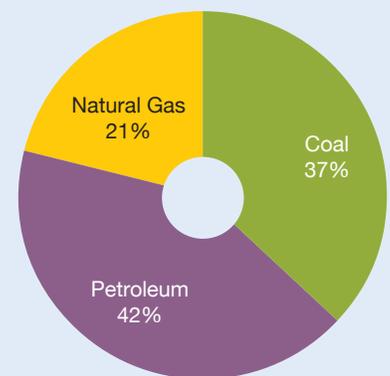
Natural gas is transported in an underground system of large-diameter pipes. The pipeline transportation system, the "interstate highway" for natural gas, consists of 220,000 miles of high-strength steel pipe six to 48 inches in diameter. It moves huge amounts of natural gas thousands of miles from producing regions to local natural gas utilities and sometimes directly to large users of natural gas. The force that propels the gas is its pressure, which gradually dissipates as it travels through the pipeline. A series of compressor stations are positioned along the pipeline's path every 40 to 100 miles. Each station has a number of large compressors that increase the pressure of the gas to push it to the next station along the line.

### NATURAL GAS CONSUMERS

There are five main groups of natural gas users:

- > Residential users: use natural gas in their homes to fuel furnaces and appliances such as stoves, water heaters and clothes dryers.
- > Commercial users: use natural gas in businesses such as restaurants, hotels and hospitals.
- > Industrial users: use natural gas for heating processes and as a fuel for the generation of steam.
- > Electric utilities: use natural gas to generate electricity.
- > Natural gas pipeline companies: use natural gas as a fuel to run compressor units.

### ENVIRONMENTALLY PREFERRED



Carbon Emissions by Fuel Type

Source: U.S. Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2008* (December 2009).

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## NATURAL GAS SUPPLY SOURCES

There is an abundance of natural gas in North America. The Energy Information Administration estimates there are 1,532.82 trillion cubic feet of technically recoverable natural gas resources in the United States. Given U.S. production levels and the EIA's estimate for available domestic resources, there is enough natural gas in the United States to meet more than 75 years of domestic production.

The Transco pipeline transports natural gas from supply areas originating primarily along the Gulf Coast and Appalachia.

## INDUSTRY SECTORS

Four industry segments coordinate to bring natural gas from producing wells to more than 160 million North American consumers.

### Gathering and Processing

Natural gas is a commodity produced by major oil and gas companies and independent gas producers and traded in a competitive market.

During the production phase, gas producers use advanced technology to locate and drill for gas reserves. Gas is pumped from wells into gathering lines. Gathering operations bring natural gas to processing plants that remove moisture and impurities from the gas stream, and to separate liquid byproducts.

### Power

Marketing companies act independently from gas pipeline companies, and serve as sales agents or brokers, purchasing gas from producers, selling gas and arranging transportation for large consumers and local gas distribution companies.

### Transportation and Storage

Interstate natural gas pipelines are transportation companies, like railroads or trucking companies. They do not own the commodity they carry in their pipelines or store in their underground facilities. Their job is to move natural gas from producing

areas to market areas under contract to gas buyers. Buyers such as local gas distribution companies and marketers resell the natural gas to their customers. Others transport directly to industrial and electric generation facilities. The Federal Energy Regulatory Commission sets transportation and storage rates charged by pipeline companies; however, the FERC requires pipelines to operate "open access" systems that allow any shipper to request gas transportation on any pipeline.

### Local Distribution

If you have gas service in your home, your meter reader works for a local distribution company (LDC). LDCs contract for gas supplies and for interstate pipeline transportation to bring natural gas to their own "city gates," where they deliver gas to homes, businesses and industrial plants served by their own distribution pipelines. State public service authorities regulate these distribution companies and their sales.

To help ensure reliable service, local natural gas companies can store natural gas underground for use during peak demand, such as cold days. In some cases, the storage is within the local distribution system. In most cases, large volume underground storage facilities are connected to the interstate pipeline network. On average, underground storage accounts for about 20 percent of the natural gas consumed each winter.

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