



Natural Gas

WHAT IS NATURAL GAS?

Natural gas is a **fossil fuel** like petroleum and coal. Natural gas is called a fossil fuel because most scientists believe that it was formed from the remains of ancient sea plants and animals.

When the plants and tiny sea animals died, they sank to the bottom of the oceans, where they were buried by sand and silt. The layers of sand, silt, and plant and animal matter continued to build until the pressure and heat from the earth turned them into petroleum and natural gas.

Natural gas is trapped in underground rocks much like a sponge traps water in pockets. Natural gas is really a mixture of gases. The main ingredient is **methane**. Methane has no color, odor, or taste. As a safety measure, natural gas companies add an odorant, **mercaptan**, to the gas so that leaking gas can be detected (it smells like rotten eggs). People use natural gas mostly for heating. Natural gas should not be confused with gasoline, which is made from petroleum.

Natural gas is almost always considered a **non-renewable** energy source. That means we cannot make more in a short time. There are some renewable sources of methane, such as landfills.

HISTORY OF NATURAL GAS

The ancient people of Greece, Persia, and India discovered natural gas many centuries ago. The

people were mystified by the burning springs created when natural gas seeped from cracks in the ground and was ignited by lightning. They sometimes built temples around these eternal flames and worshipped the fire.

About 2,500 years ago, the Chinese recognized that natural gas could be put to work. The Chinese piped the gas from shallow wells and burned it under large pans to evaporate sea water to make salt.

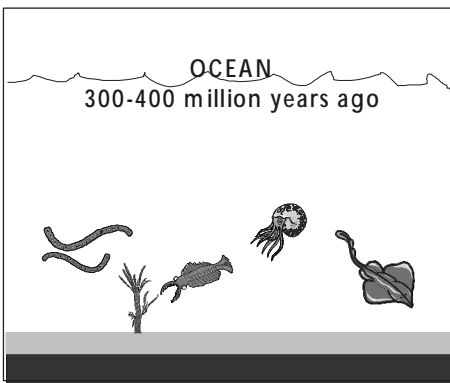
In 1816, natural gas was first used in America to fuel street lamps in Baltimore. Soon after, in 1821, William Hart dug the United States' first successful natural gas well in Fredonia, New York. It was just 27 feet deep, quite shallow compared to today's wells. Today, natural gas is the country's third largest supplier of energy, after petroleum and coal.

PRODUCING NATURAL GAS

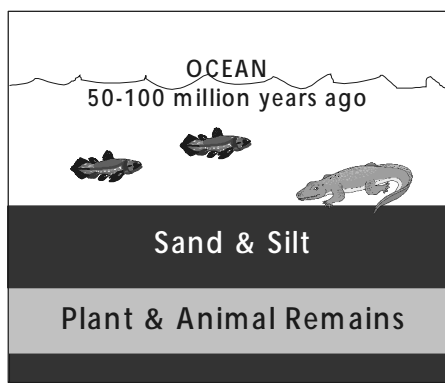
Natural gas can be hard to find since it is trapped in porous rocks deep underground. Scientists use many methods to find natural gas deposits. They may look at surface rocks to find clues about underground formations. They may set off small explosions or drop heavy weights on the surface to record the sound waves as they bounce back from the rock layers underground.

Natural gas can be found in pockets by itself or in petroleum deposits. Natural gas wells average 5,000 feet deep!

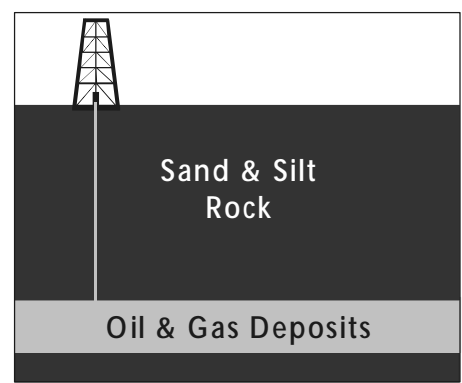
PETROLEUM & NATURAL GAS FORMATION



Tiny sea plants and animals died and were buried on the ocean floor. Over time, they were covered by layers of silt and sand.



Over millions of years, the remains were buried deeper and deeper. The enormous heat and pressure turned them into oil and gas.



Today, we drill down through layers of sand, silt, and rock to reach the rock formations that contain oil and gas deposits.



Natural gas pipelines, if connected end to end, would stretch to the moon and back twice.



After natural gas comes out of the ground, it is sent to a plant where it is cleaned of impurities and separated into its various parts. Natural gas is mostly methane, but also contains small amounts of other gases such as propane and butane.

Today natural gas is produced in 32 states, though just three states—Texas, Louisiana, and Oklahoma—produce most of our supply.

The United States has large reserves of natural gas. States with the biggest reserves are Texas, Louisiana, Oklahoma, New Mexico, Wyoming, Kansas, and Alaska. Scientists estimate that we have enough natural gas to last for at least 50 years.

Natural gas can also come from other sources. One is the gas found in coal. **Coal mine methane** was once considered just a safety hazard to miners, but now it is a valuable source of energy.

Another source of natural gas is the gas produced in landfills. Landfill gas is called a renewable source of natural gas since it comes from rotting garbage.

SHIPPING NATURAL GAS

Natural gas is usually shipped by pipeline. More than one million miles of underground pipelines link natural gas fields to major cities across the United States. Natural gas is sometimes transported thousands of miles in these pipelines to its final destination. It takes about five days to move natural gas from Texas to New York.

Eventually, the gas reaches the city gate of a local gas utility. Smaller pipes carry the gas the last few miles to homes and businesses. A gas meter measures the volume of gas a consumer uses.

WHO USES NATURAL GAS?

Just about everyone in the United States uses natural gas. **Industry** is the biggest user. Industry

burns natural gas for heat to manufacture goods. Natural gas is also used as an ingredient in fertilizer, glue, paint, laundry detergent, and many other items.

Residences, or homes, are the second biggest users of natural gas. Six in ten homes use natural gas for heating. Like residences, **commercial** buildings use natural gas mostly for heating. Commercial users include stores, offices, schools, churches, and hospitals.

Natural gas can also be used to make electricity. Just as the chemical energy in coal is used to make electricity, so can the energy in natural gas.

Natural gas is even used as a fuel for automobiles. Natural gas is cleaner burning than gasoline, but vehicles must have special equipment to run on natural gas.

NATURAL GAS AND THE ENVIRONMENT

Burning any fossil fuel, including natural gas, releases emissions into the air, as well as carbon dioxide—a greenhouse gas.

Natural gas and propane are the cleanest burning fossil fuels. Compared to coal and petroleum, natural gas releases much less sulfur, carbon, and ash when it is burned. Because it is a clean source of energy, scientists are looking for new sources of natural gas and new ways to use it.

NATURAL GAS USE

