# Topic Page: Natural gas

Definition: **natural gas** from *Dictionary of Energy*

*Oil & Gas, a* mixture of hydrocarbon compounds and small quantities of various nonhydrocarbons, widely used as a fuel throughout the industrialized world; it exists in the gaseous phase or in solution with crude oil in natural underground reservoirs. See next page.

Image from: **oil** in *The Macmillan Encyclopedia*

Summary Article: **natural gas**
From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

Mixture of flammable gases found in the Earth's crust (often in association with petroleum). It is one of the world's three main fossil fuels (with coal and oil).

Natural gas, a non-renewable resource, is formed from the remains of dead plants and animals. When plants and animals died, they were buried with mud near the sea floor. Over millions of years, heat from the Earth's interior and pressure from overlying rocks slowly changed the dead remains into hydrocarbons (substances containing only hydrogen and carbon). The hydrocarbons that make up natural gas, being light molecules, moved upwards until they became trapped beneath impermeable rocks.

Natural gas is a mixture of hydrocarbons, chiefly methane (80%), with ethane, butane, and propane. Natural gas reservoirs are often found beneath the seabed and drilling technology is used to locate these supplies. The gas is usually transported from its source by pipeline, although it may be liquefied for transport and storage and is, therefore, often used in remote areas where other fuels are scarce and expensive. Prior to transportation, butane and propane are removed and liquefied to form ‘bottled gas’.

Methane burns in air to form carbon dioxide and water with the release of heat energy:

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ + heat energy

Another source of gas is from the cracking of crude oil into simpler molecules. Methane, propane, and butane are all gases that can be produced from the cracking process. The gases are liquefied and stored under pressure. Propane and butane also undergo combustion when ignited in air. Large amounts of heat energy are released in the reaction. The reaction for the combustion of propane is:

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$ + heat energy

In the UK from the 1970s, natural gas from the North Sea has superseded coal gas, or town gas, both as a domestic fuel and as an energy source for power stations.

Liquefied natural gas has potential as a fuel for land transport, as it produces low emissions. In the UK some private companies and a number of local authorities use LNG-fuelled vehicles. LNG is taxed at a lower rate than conventional fuels, NGVs (natural gas-powered vehicles) are exempt from paying congestion charges in London, and a number of LNG filling stations now exist on motorway network.

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