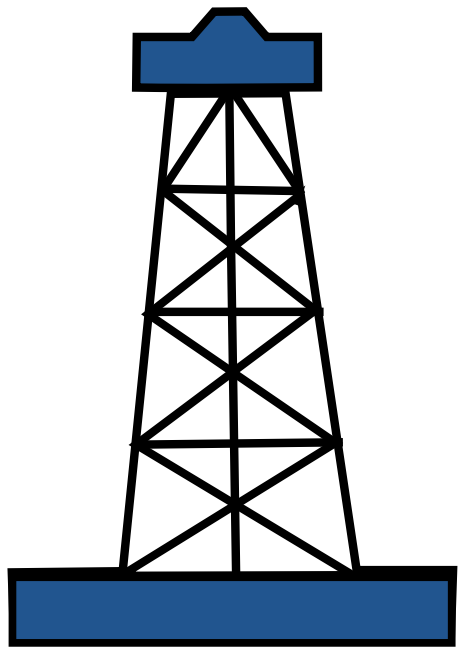


Natural Gas

What Is It?

A naturally occurring hydrocarbon, natural gas is mainly composed of methane and is an odorless, transparent gas.



How Clean Is It?

Natural gas is a carbon-based resource, which means burning it releases carbon dioxide. It is the least carbon-intensive of any fossil fuel, releasing only 116 pounds of carbon dioxide per million Btu.



If released directly into the atmosphere, methane acts as a greenhouse gas.

What Does It Cost?

Natural gas is relatively low cost – available for around \$5 per thousand cubic feet. When generating electricity, natural gas can produce 1 kWh for around 6 cents, which could power an average U.S. home for only \$600 per year

Space



Natural gas is found underground in geologic formations. The surface footprint of natural gas includes the well pads and drilling sites to access it, pipelines to transport it, and power plants to generate electricity. Due to its energy density, natural gas has a low footprint per kWh produced.

Point

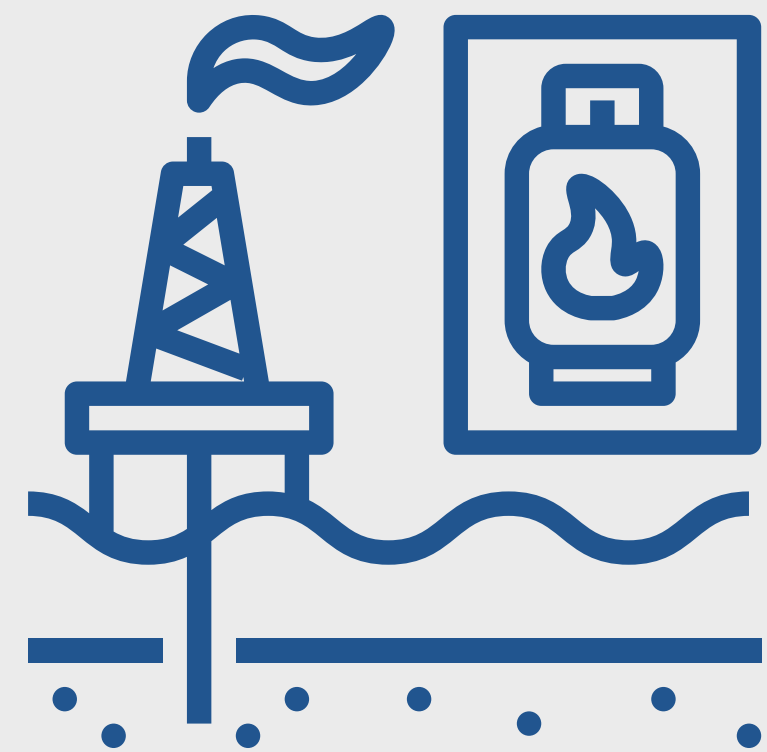
- Natural Gas is an exhaustible fossil fuel and is projected to eventually run out.
- Proven global reserves of natural gas will only last another 50 years at current demand.
- Burning natural gas releases particulate matter and carbon dioxide, which contribute to respiratory issues and the greenhouse effect.
- Even though it generates electricity and energy, natural gas causes emissions, safety concerns, and deaths from drilling, pipelines, and power generation.
- Natural gas may eventually be less needed for energy if nuclear, wind, solar, hydro, geothermal, and storage are sufficiently and sustainably ramped up. If that occurs, leaving it in the ground may be preferable.

Counterpoint

- In addition to geologic natural gas, numerous renewable sources of methane can be captured and utilized.
- Unproven and economically inaccessible reserves alongside new technology will increase the future supply of natural gas.
- Power plants can capture particulate matter at the source and minimize carbon emissions. Natural gas is also twice as clean-burning as coal, lowering net emissions wherever it displaces coal.
- Natural gas produces over 1.5 TWh of power in the U.S. annually along with heat, supporting the economy, hospitals, and schools. The value created far outweighs the minimal safety and health risks.
- Natural gas will always be needed for energy because it is energy dense and flexible for minute-by-minute peak demand. Even if it were unneeded for energy, natural gas is essential for agriculture and manufacturing and cannot be left in the ground.

How Does It Work?

1. Natural Gas is a versatile resource used for energy, agricultural, and manufacturing applications.
2. No matter its end purpose, natural gas must first be released from underground reservoirs and geologic formations. Through exploration and production, geologists and energy workers identify likely reserves and establish drilling sites.
3. Natural gas is extracted, often alongside crude oil, through drilling (including through horizontal drilling and hydraulic fracturing) and pumping the resource into separator tanks and holding tanks.
4. Once collected and separated from oil and produced water, natural gas is piped to storage, liquefaction terminals, or end users.
5. Natural gas can be burned directly for heat, such as cooking, building heat, or water heaters. In industrial applications, intense heat is needed to produce bricks, steel, and other materials. Natural gas is also favored to generate electricity, where burning the gas produces heat that spins turbines to generate electricity.
6. For non-energy applications, natural gas is a valuable input or feedstock for producing fertilizer, chemicals, pharmaceuticals, plastics, fabrics, and more.



Did You Know?

The United States led the world in carbon dioxide reduction by utilizing natural gas. From 2000 to 2019, emissions fell 16% while natural gas consumption increased by 31%. Despite a nearly 40% increase in natural gas production since 1990, the EPA reported a 20% decrease in methane emissions in 2013.

What's Next?

Renewable Natural Gas (RNG) can turn this traditionally exhaustible fossil fuel into carbon neutral, renewable resource that both reduces climate impacts and adds to our energy supply. RNG is scaleable for small urban settings or large agricultural environments.