

Propane Vs. Natural Gas

Natural gas is made up of several gases including propane, butane, ethane and mostly consists of methane. While propane is a part of natural gas in its raw state, it is a hydrocarbon separated from the other gases at gas processing facilities. The propane that is separated during this process is stored and sold to propane dealers for end use by consumers. The comparison of propane vs. natural gas is widely used in applications for vehicles and residential fuel supply. Also, while propane is stored as a liquid, natural gas can be stored as liquefied natural gas (LNG), compressed natural gas (CNG) and in its uncompressed form, which is just referred to as "natural gas".

Propane Vs. Natural Gas - Energy Content Comparison

While propane is sold and delivered in gallons, it can easily be converted to cubic feet, which is how natural gas is measured for delivery. The cubic foot unit of measurement pertains to both natural gas and propane in their vapor forms. Provided that 1 cubic foot of propane contains 2,516 BTU and 1 cubic foot of natural gas contains 1,030 BTU, it is accurate to say that propane contains over twice the usable energy content per cubic foot (2.44 times more). Applying these numbers to compare the energy values in real-world examples, we'll use a 100,000 BTU/hr furnace to demonstrate the comparison.

- 100,000 BTU/hr furnace will use about 97 cubic feet of natural gas ($100,000 \div 1,030 = 97.1$) in one hour
- 100,000 BTU/hr furnace will use about 40 cubic feet of propane ($100,000 \div 2516 = 39.7$) in one hour

In examining the costs of natural gas vs. propane, the rates of local energy utilities and propane companies differ and will need to be taken into account for accurate comparison. But to obtain the cost comparison between the two fuels, one must compare the cost of the energy value which can be obtained through local propane companies and utility companies. While utility companies provide price per cubic foot, propane companies provide price per gallon. Natural gas availability will generally determine whether or not propane can be used because many municipalities will require the use of natural gas if a business or residence is within a certain distance of a natural gas main line.

Propane Vs. Natural Gas Cost Comparison

The cost comparison between propane and natural gas is much easier due to the fact that unlike electricity, natural gas and propane can be directly compared based on their individual [BTU ratings](#). Seeing that natural gas contains approximately 1,030 BTU per cubic foot and propane contains 2,490 BTU per cubic foot, we can easily derive each fuel's cost per BTU and compare their differences in price for more realistic volumes.

Let's assume the cost for natural gas is \$15.00 per 1,000 cubic feet. This means that \$15.00 will purchase approximately 1.03 million BTU's of energy. This would be equivalent to 11.26 gallons of propane. At \$2.50 per gallon of propane, natural gas would be a more cost effective energy solution. Breaking it down even further, natural gas needs to be more than \$28.00 per 1,000 cubic feet for propane to be a more cost effective energy solution (provided the cost for propane is \$2.50 per gallon).

Environmental Impact of Propane Vs. Natural Gas

Natural gas, when discharged into the environment is a greenhouse gas whereas propane is not classified as such. Propane is not toxic or damaging and will not harm the environment if it is released into the atmosphere, which is why it is not labeled as a greenhouse gas. Therefore, while propane will not contribute to pollution in its unused state if released, natural gas will. Propane is a [green fuel](#) before combustion and remains environmentally friendly even after it is used, as described below.

The emissions comparison of propane vs. natural gas is a fairly insignificant due to the cleanliness of each fuel. Propane and natural gas are both classified as alternative fuels for vehicles and both exemplify clean burning characteristics with harmful emissions and toxins at minimal levels. As a primary energy source, natural gas is sometimes used as a source for electricity generation while propane is not. Propane vs. natural gas is a topic of little discussion where environmental impact is concerned as they are both environmentally friendly fuels.