Propane

What Is Propane?

Propane is an energy-rich gas that is included in raw petroleum and natural gas. Propane is found underground mixed with deposits of natural gas and petroleum. Propane is called a fossil fuel because it was formed hundreds of millions of years ago from the fossilized remains of tiny sea animals and plants.

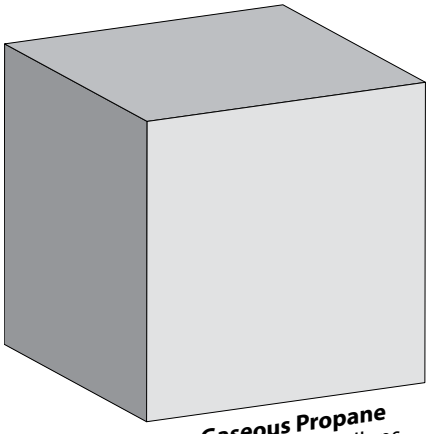
When the plants and animals died, they sank to the bottom of the oceans where they were buried by layers of sediment and sand that turned into sedimentary rock. Over time, the layers became thousands of feet thick. The layers were subjected to enormous heat and pressure, changing the remains into petroleum and natural gas deposits. Pockets of these fossil fuels became trapped in rocks like a sponge holds water.

Propane is one of the many fuels that are included in the **hydrocarbon gas liquids (HGL)** family. Propane is a special type of HGL called **liquefied petroleum gas (LPG)**. Propane is the most common LPG. Just as water can be a liquid or a gas (steam), so can propane. Under normal conditions, propane is a gas. Under pressure, propane becomes a liquid.

Propane is stored as a liquid fuel in pressurized tanks because it takes up much less space in that form. Gaseous propane takes up 270 times more space than liquid propane. A thousand-gallon tank holding gaseous propane would provide a family enough cooking fuel for one week. The same tank holding liquid propane would provide enough cooking fuel for over five years! Propane becomes a gas when it is released to fuel gas appliances.

Propane is very similar to natural gas. Like natural gas, propane is colorless and odorless. An odorant called mercaptan is added to propane so escaping gas can be detected. And like all fossil fuels—coal, petroleum, natural gas—propane is a nonrenewable energy source. That means we cannot renew our propane supplies in a short period of time.

Liquefied Propane



As a gas, propane occupies 270 times more space than when it is pressurized into a liquid.

Gaseous Propane
Volume = 270 gallons

Liquid Propane
Volume = 1 gallon

History of Propane

Propane has been around for millions of years, but it wasn't discovered until 1912. Scientists were trying to find a better way to store gasoline, which had a tendency to evaporate when it was stored.

An American scientist, Dr. Walter Snelling, discovered that propane gas could be changed into a liquid and stored at moderate pressure. Just one year later, the commercial propane industry began heating American homes with propane.

Producing Propane

Propane comes from natural gas and petroleum wells. About 77 percent of the propane used in the United States comes from raw natural gas. Raw natural gas is about 90 percent methane, five percent propane, and five percent other gases. The propane is separated from the other gases at a natural gas processing plant.

The remainder of our propane supply comes from petroleum refineries or is imported. Many gases are separated from petroleum at refineries. Since the U.S. imports 39 percent of the petroleum we use, much of the propane is separated from this imported oil. About 14 percent of the U.S. propane supply is imported.

Transporting Propane

How does propane get to consumers? It is usually moved through pipelines to **distribution terminals** across the nation. These distribution terminals are like warehouses that store goods before shipping them to stores. Sometimes in the summer, when people need less propane for heating, it is stored in large underground caverns.

From the distribution terminals, propane goes by railroad, trucks, barges, and supertankers to bulk plants. A **bulk plant** is where local propane dealers come to fill their small tank trucks. People who use very little propane—backyard barbecue cooks, for example—must take their propane tanks to dealers to be filled.

How Propane Is Used

Propane provides the U.S. with a small percentage of its energy. Propane is used by industry, homes, farms, and businesses—mostly for heating. It is also used as a transportation fuel.

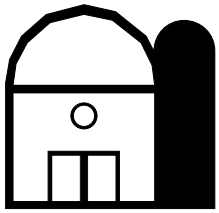
- **Industry**

About 41 percent of the propane we use is used by industry. Many industries find propane well suited for special needs. Metal workers use small propane tanks to fuel cutting torches. Portable propane heaters keep construction and road workers warm in cold weather.

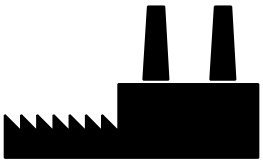
Propane is also used to heat asphalt for highway construction and repairs. And because propane burns so cleanly, forklift trucks powered by propane can operate safely inside factories and warehouses.

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How Propane Is Used



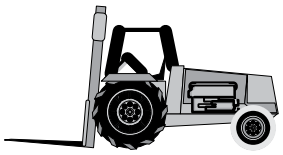
To heat barns and operate farm equipment



To make products and fuel industry



To fuel hot air balloons



To fuel machinery that is used indoors



To fuel backyard grills



To heat homes



To fuel fleet vehicles



To fuel appliances

▪ Homes

Propane is often used in rural areas that do not have access to natural gas service. Homes use propane for heating, hot water, cooking, and clothes drying. Propane is commonly used by people in rural, suburban, and urban areas to fuel barbecue grills. Some families have recreational vehicles equipped with propane appliances.

▪ Farms

Many of America's farms rely on propane. Farmers use propane to dry crops, power tractors, and heat greenhouses and chicken coops.

▪ Businesses

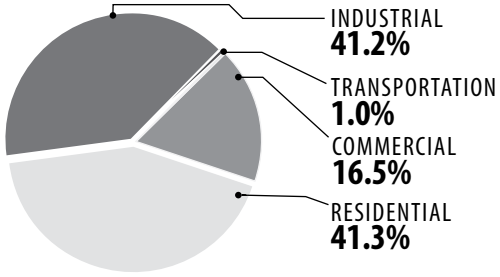
Businesses—office buildings, laundromats, fast-food restaurants, and grocery stores—use propane for heating and cooking.

▪ Transportation Fuel

Propane has been used as a transportation fuel for many years. Today, many taxicab companies, government agencies, and school districts use propane instead of gasoline to fuel their fleets of vehicles. Propane has several advantages over gasoline. First, propane is cleaner-burning and leaves engines free of deposits. Second, engines that use propane emit fewer pollutants into the air than engines that use gasoline.

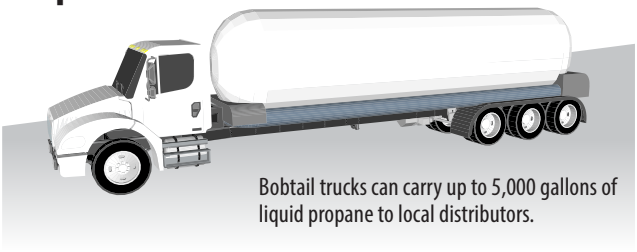
Why isn't propane used as a transportation fuel more often? For one reason, it's not as easy to find as gasoline. Have you ever seen a propane filling station? Second, automobile engines have to be adjusted to use propane fuel, and these adjustments can be costly. Third, there is a slight drop in miles traveled per gallon when propane is used to fuel vehicles.

U.S. Propane Consumption by Sector, 2025



Propane is used very little for electricity generation. If used for electric power, often it is in off-grid applications.
Data: Energy Information Administration
*Total may not equal 100% due to independent rounding.

Propane Truck



Bobtail trucks can carry up to 5,000 gallons of liquid propane to local distributors.

Propane and the Environment

Propane is a very clean-burning fossil fuel, which explains its use in indoor settings. It was approved as an alternative fuel under the Clean Air Act, as well as the National Energy Policy Act of 1992. However, burning propane still produces carbon dioxide, a greenhouse gas.