About Propane

Propane, also known as liquefied petroleum gas (LPG), is one of the nation's most versatile energy sources. Propane is ideal for residential, business, industrial, and agricultural use because:

- **Propane is clean and efficient.** This colorless, odorless, non-toxic gas burns cleaner than gasoline, diesel and other fossil fuels because it emits no sulfur dioxide or particulates. If unintentionally released in its liquid form, it quickly evaporates and does not contaminate soil or groundwater.
- **Emergency Procedures.** Learn what to do in the event that you smell gas and about the dangers that carbon monoxide can pose.

How Propane Reaches You

Propane is a by-product of natural gas and crude oil refining. Since propane is odorless, a distinct odor is added so that leaks are easy to detect.

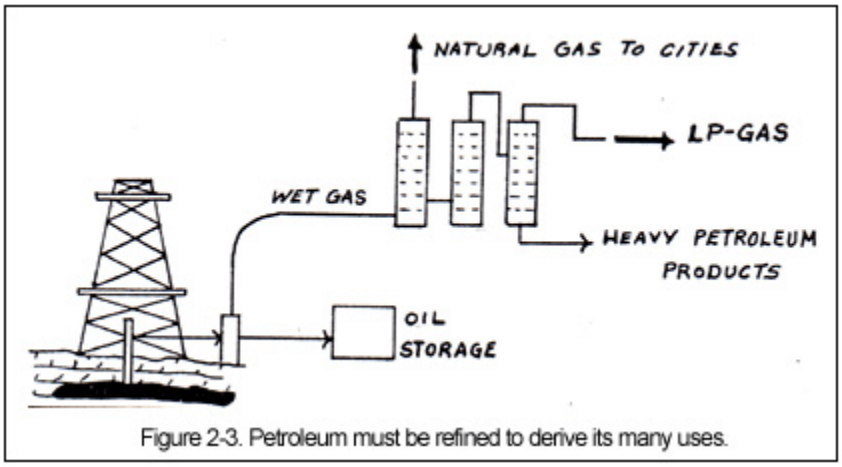
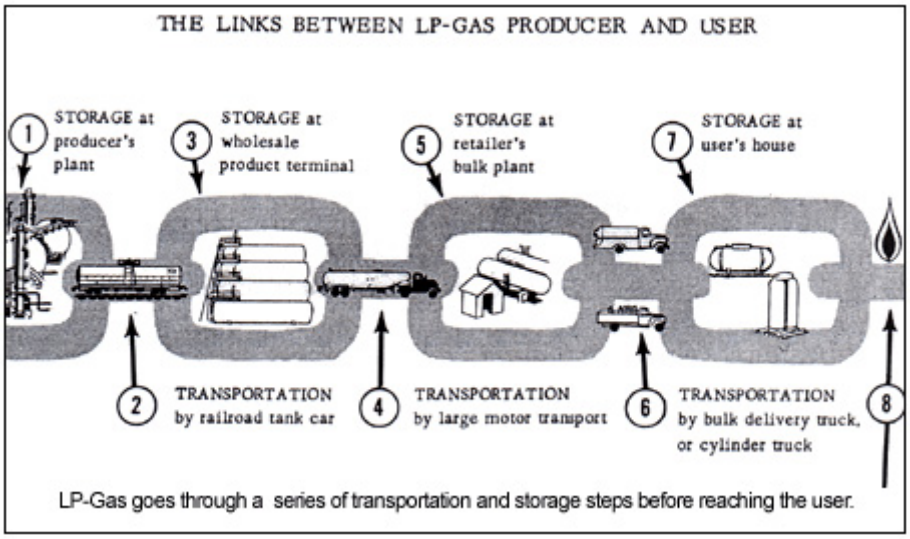


Figure 2-3. Petroleum must be refined to derive its many uses.

After refining, propane is liquefied and transported to company-owned bulk plants. Transportation methods include barge, tanker, rail, pipeline, and truck. On arrival at the bulk plant, the liquid propane is stored in tanks that typically hold 15,000 to 30,000 gallons. From there propane is delivered to the retail customer primarily by means of a bobtail or rack truck. Propane is also delivered to large-volume industrial and agricultural customers by means of larger trucks known as transports.



LP-Gas goes through a series of transportation and storage steps before reaching the user.

A chain of transportation and storage activities link the producer of LP-Gas to the user of the product. This drawing shows a typical set of such links. The number of times a product is stored and transported may vary, as may the type of transportation between any of the storage facilities. For instance, the link between producer's plant storage and producer's terminal might actually be a pipeline.

Who Uses Propane?

This remarkable fuel serves approximately 60 million people in the U.S. These statistics show how propane is used:

- Industrial sites and petrochemical industries account for 45% of propane usage
- Residential and commercial customers consume 37%
- Farms account for 13% of propane usage
- Propane is the most widely used alternative to gasoline and diesel, 4% of propane is used in vehicle engines nationwide
- The final 1% is consumed by the gas industry and utilities
-

Residential Uses of Propane

Propane gas heats more than 6 million American homes, according to the U.S. Department of Energy. It's easy to see why propane is the fuel of choice for so many residences:

- Cost. According to the U.S. Department of Energy electricity is, on average, nearly 2 1/2 times more expensive than propane. Propane gas furnaces and water heaters also consume considerably less energy than electric model.
- Availability. As a fuel, propane is virtually identical to natural gas. The difference is that propane can go anywhere... even beyond the natural gas mains.
- Versatility. Propane is ideal for a wide range of home uses, including ranges, clothes dryers, air conditioners, fireplaces, pool heaters, spas, and outdoor lights. It also fuels energy-efficient heat pumps, standby generators, and integrated appliances for heating, cooling and hot water.

Propane Storage Tanks

Tanks for residential use are available in a variety of sizes. Typical capacity ranges from 100 to 1000 gallons. A 500 gallon tank provides ample storage for the average four bed room home. Propane storage tanks are specially treated to prevent corrosion. As a result, they generally last much longer than fuel oil tanks. In some cases, tanks can be installed underground with only a small dome on the surface to house valves and connections.

Major Residential Applications Include:

- Home Heating
- Water Heating
- Cooking
- Clothes Drying
- Barbecuing
- Pool Heating
- Gas Fireplaces

Energy Savings Calculator

Comparative Fuel Costs for Home Heating

The comparison information provided here shows how electricity and propane gas rates compare to get equal BTU's. This chart shows why people everywhere are switching to propane gas for heating, cooking, hot water and other energy needs.

In order to present an accurate comparison, this chart rates electricity at a full 100% efficiency and propane gas at 80% efficiency.

For example, if electricity costs 4.0 cents per KWH, a homeowner can afford to pay $.85 per gallon for propane to get the same results.

Electricity Propane Cents per KWH	Dollars per Gallon
4.0	$0.85
4.5	$0.96
5.0	$1.06
5.5	$1.18
6.0	$1.28
6.5	$1.39
7.0	$1.45

See how your current home energy source compares to safe, affordable propane with our new Energy Savings Calculator. Click on: www.usepropane.com/homeowner/calculator/peinput.htm

Business Uses of Propane

Across America, propane goes to work every day in businesses, industries and on farms.

Here's why propane is the fuel of choice for so many energy-related tasks:

- It can be used at the same rate any time of the day or night. Unlike electricity, it isn't subject to load-balancing requirements.
- Propane can be supplied almost anywhere, freeing users from dependence on natural gas mains.
- Because it leaves no residue when burned, propane meets U.S. Environmental Protection Agency (EPA) clean air standards.
- Propane is easily transported, making it ideal for use in mobile as well as stationary applications.
- Where natural gas is used for heating, propane is an ideal reserve fuel source.
- Propane can be stored indefinitely, unlike gasoline or fuel oil which deteriorate over time.

Typical Business Applications Include:

Space Heating. Nearly 60% of U.S. commercial and industrial buildings depend on gas heat. Heating units include boilers (especially for large buildings), infrared heaters for large open spaces (such as transit stations and garage bays), make-up air systems that pass incoming air through heat exchangers, and unit heaters for retail stores, garages and other spaces that require large volumes of air.

Water Heating and Steam. Propane-fueled systems are especially efficient for cafeterias, commercial laundries, manufacturing processes and other uses.

Cooking. Propane is ideal for restaurants and cafeterias because it offers exceptional heat control, cleanliness and design flexibility. Uses include steam tables, barbecues, brazing pans, fryers, broilers, griddles, food and dish warmers, rotisseries, soup stations, and pizza ovens.

Clothes Drying. Commercial clothes drying units range from 5 cubic-foot coin- operated models to 100-lb units for laundromats, apartment buildings and institutional settings.

Temporary Portable Heat. Infrared and forced-air heaters at construction and other sites keep workers warm and can be used to dry concrete and other materials.

Forklifts. Propane-powered engines perform better and cost less to fuel than diesel or electric models. The initial purchase price is usually lower, too.

Furnaces, dryers, ovens and kilns. Propane-produced heat is clean and precise compared to other fuel sources. Industrial propane burners range from immersion heating to direct-contact flame heating units.

Propane in Agriculture

Half of all farms in the United States (about 1.5 million) rely on propane for a wide range of uses. These included flame weeding, pest control, crop drying, tobacco curing, poultry and pig brooding, stock tank heating, space heating in greenhouses, and frost protection in fields and orchards. Propane also fuels farm equipment such as tractors, trucks, standby generators and pumps.

Propane and the Environment

Concern for the environment has prompted a search for less polluting, more efficient energy sources. North Star Energy offers a simple solution: a superior fuel that provides abundant, clean energy for American homes and businesses.

Propane gas is cleaner burning than coal, heating oil or gasoline, and it often costs less than these fuels or electricity. Propane does not emit large amounts of carbon dioxide and produces no sulfur dioxide or particulates — primary causes of the greenhouse effect and acid rain. In fact, using propane instead of electricity produced by coal-fired plants can reduce a home's carbon dioxide emissions by as much as 75%.

An Environmentally Friendly Fuel

Propane also meets the standards set by the federal Clean Air Act Amendments (CAAA) for reducing acid rain and controlling air pollution in urban areas. In fact, the CAAA heralds propane as one of the solutions to a cleaner, healthier environment. And since propane vaporizes rapidly, it won't contaminate soil or groundwater.

Propane and Commercial Fleets

Environmentally friendly propane is the fuel of choice for many business and municipal fleets. Increasingly, park service vehicles, police cars, school buses and taxis are also converting to propane power.

One reason for this choice is that the federal government has classified propane as a safe motor fuel. A propane gas tank is 20 times more puncture-resistant than a typical gasoline or diesel tank. Propane protects the indoor environment, too. Its low pollution characteristics make propane the fuel of choice for more than 300,000 forklift truck operators and other indoor industrial vehicle operators in the U.S.

Caring for You and the Environment

North Star Energy is committed to maintaining the highest levels of safety for the wellbeing of our employees, customers and communities. We think it's comforting for you to know that the fuel you are using is safe for the environment too.
Smart Energy

The U.S. Dept. of Energy's National Energy Savings Program is dubbed the "Smart Energy Campaign". It is an outreach to homeowners, businesses, and other consumers to educate them on different ways to cut their energy bills and usage. The program's web site www.energysavers.gov includes valuable tips on how to reduce the average U.S. family utility bill, now averaging about $1300.00 per year. The site promotes the usage of a few inexpensive energy-efficient measures, such as better insulated doors and windows, which can reduce energy bill from 10% to 50%.