PROPANE

Propane, also known as liquefied petroleum gas (LPG) or propane autogas, has been used worldwide as a vehicle fuel for decades. It is stored as a liquid, and propane fueling infrastructure is widespread. Using propane as a vehicle fuel increases energy security, can provide the convenience of onsite refueling economically, and reduces air pollution and the environmental impacts of vehicles.

PROPANE BASICS:

Also known as liquefied petroleum gas (LPG) or propane autogas, propane is a clean-burning alternative fuel that's been used for decades to power light-, medium-, and heavy-duty propane vehicles. Propane is a three-carbon alkane gas (C3H8). It is stored under pressure inside a tank as a colorless, odorless liquid. As pressure is released, the liquid propane vaporizes and turns into gas that is used in combustion.

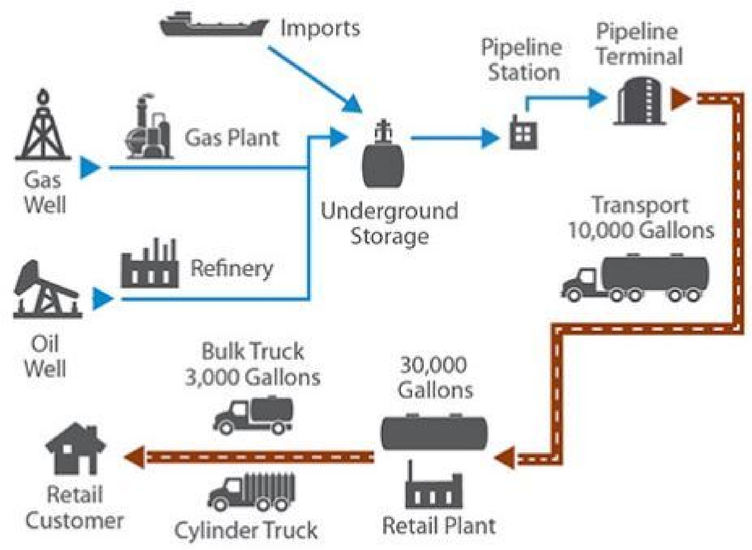
Propane has a high octane rating, making it an excellent choice for spark-ignited internal combustion engines and is more resistant to engine knocking. Propane is produced as a by-product of natural gas processing and crude oil refining.

Interest in propane as an alternative transportation fuel stems from its domestic availability, high-energy density, clean-burning qualities, and relatively low cost. It is the world's third most common transportation fuel, behind gasoline and diesel, and is considered an alternative fuel under the Energy Policy Act of 1992. Most of the propane consumed in the United States is produced in North America.

PRODUCTION AND DISTRIBUTION:

Production: Propane is produced from liquid components recovered during natural gas processing. These components include ethane, methane, propane, and butane, as well as heavier hydrocarbons. Propane and butane, along with other gases, are also produced during crude oil refining.

Distribution: Propane is shipped from its point of production to bulk distribution terminals via pipeline, railroad, barge, truck, or tanker ship. Propane marketers fill trucks at the terminals and distribute propane to end users, including retail fuel sites.



Schematic of a typical propane distribution route
(Source:https://www.eia.gov/)

PROPANE BENEFITS:

Energy Security

- The United States imported 11% of the approximately 20.45 million barrels of petroleum per day is consumed
- Helps diversify the U.S. transportation fleet and reduce the impact of international supply disruptions

Vehicle and Infrastructure Availability

- A variety of light-, medium-, and heavy-duty propane vehicle models are available through original equipment manufacturers (OEMs) and select dealerships
- Fleets and consumers also have the option of economically, safely, and reliably converting in-use light-, medium-, and heavy-duty gasoline vehicles for propane operation using qualified system retrofitters
- Fleets can use existing public infrastructure or work with local propane marketers to establish private infrastructure and a pricing structure, which can greatly reduce the end cost of the fuel

Lower Emission

Propane vehicles can produce lower amounts of some harmful air pollutants and greenhouse gases, depending on vehicle type, drive cycle, and engine calibration

Fuel Economy and Performance

- Propane at primary infrastructure sites typically costs less per gallon than gasoline and offers a comparable driving range to conventional fuel
- The potential for lower maintenance costs
- Improved engine life compared to conventional gasoline engines
- Cold-start problems can often be reduced as well

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