AUTOGAS ANSWERS

Your Fleet Fueling Needs

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Propane Education & Research Council

• Authorized by the U.S. Congress.
• Funded by 5/10-cent per gallon assessment.
• Governed by 21-member industry board of directors.
  • 9 appointed by National Propane Gas Association.
  • 9 appointed by GPA Midstream.
  • 3 public members.
• 29 staff and 100+ Member Advisory Committee.
2018 Propane Sales

- OEM: 32%
- Aftermarket: 68%
New Propane Sales 2018

- Light Duty: 38%
- Medium & Heavy Duty: 62%
Everyday, propane buses transport almost 1 million students across the U.S.

Approximately 15,600 propane school buses are on the route daily.

Safely transporting approximately 1,000,000 students/day.

In the fleets of approximately 848 school districts, private schools, and bus contractors.
The Lowest Total Cost-of-Ownership

- Complete lifecycle analysis.
- 3 F’s: Fuel, Filters, and Fluids.
- Maintenance and repairs.
- Labor and wages.
- Fuel handling and storage.
- Garages and facilities
- Refueling infrastructure.
Non-toxic and a non-contaminant of air, soil, and water resources.
1980

- Diesel is a great fuel.
- Diesel engines last forever.
- No one cares about emissions.
- Propane buses are not available.
• Diesel is an endangered fuel.
• Diesel engines breakdown a lot.
• Everyone cares about emissions.
• Propane buses are available from all of the major OEMs.
Emissions Reduction

Light-Duty Trucks

*Assumed annual mileage: 11,400. Fuel economies based on 2016 AFLEET data.
Emissions Reduction

Medium-Duty Trucks

*Assumed annual mileage: 20,000. Fuel economy based on propane industry data.
Emissions Reduction

96% NOx REDUCTION
VERSUS CLEAN DIESEL BUS

Source: 2018 West Virginia University study, comparing 2015 LPG Blue Bird School bus (6.8L, 10 Cylinder) with 2014 ultra-low sulfur diesel Blue Bird school bus (6.7L 6 cylinder).
Why Propane Vehicles Work Great

• Propane is an excellent choice for Class 4-7 medium-duty trucks and buses.
• Propane provides the lowest NOx in these classes.
• Propane maintains NOx control under real-world conditions, even at low temperatures.
• Propane improves the performance of direct injection engines.
• The next generation of purpose-built propane engines will be class-leading.
Not-To-Exceed Control Area

- Diesels subject to Not-to-Exceed (NTE) limits during in-use testing.
- Outside the NTE Control Area, in-use emissions are essentially unregulated.
- Low engine speeds and loads are outside NTE area.
- NOx aftertreatment becomes ineffective when exhaust temperature is low.
Navigate Your Refueling Options

• Whether you have 10 fleet vehicles or 100, propane autogas has a refueling infrastructure option to fit your needs.
• Whichever setup you choose, you’re sure to save money on total cost-of-ownership and keep your fleet efficient.

Call your infrastructure provider for more information about any of these options, and your local propane retailer for information regarding fuel.
How Do We Make Renewable Propane?

Renewable propane is **hydrocarbons** made from biological oils and fats (**triglycerides**) by **hydrotreating**.
“Propane gives us the ability to buy a vehicle that performs almost exactly like all of our [conventionally fueled] technologies. It’s almost seamless for us.”

Bill Spraul
Chief Operating Officer
San Diego Metropolitan Transit System
Reduce Maintenance Costs

- No ethanol issues.
- Longer shelf life.
- Reduced damage to equipment due to tainted fuel.
- Remove opportunities for accidental fuel-mixing.
Be Green, Save Green

- Reduced labor costs
- Reduced emissions
- Reduced operating costs

SO\textsubscript{x} 16\% LESS VS. GASOLINE
NO\textsubscript{x} 19\% LESS VS. GASOLINE
GHG 17\% LESS VS. GASOLINE
Work When Other Contractors are Restricted

- Ozone Action Days affect contractors’ work in 35 states.
- Propane equipment is exempt from Ozone Action Days.

= Ozone Action State
Who’s Buying Propane?

• 40% of the contractors on Lawn & Landscape’s Top 100 list currently use propane in their mower fleets.
  • Companies range from $15M to $2B in annual revenue.
  • Regional and national footprints.
• Notable propane fleets on that Top 100 list.
FINANCIAL ADVANTAGE
Total cost-of-ownership

ENVIRONMENTAL BENEFITS
- Decreases: NOx, Greenhouse Gases, Particulate Matter, NON-Pollutant

COMPANY IMAGE
Driver recruitment and retention

EMPLOYEE PERKS
- Cleaner work environment
- Quieter operation
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