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.
Everyday, propane buses transport almost 1 million students across the U.S.

Over 18,300 propane school buses are on the road.

Carrying approximately 1,118,700 students/day.

In the fleets of approximately 930 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.
2019

- 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

A Georgia State study says diesel school bus fumes drive down test scores

Source: July 18, 2019 Atlanta Journal-Constitution)
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).
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.
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.
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.
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.
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