



PROPANE AUTOGAS SCHOOL BUSES

The Smart Choice for Schools

Greg Zilberfarb - Contractor
Propane Education & Research Council

Who or What is PERC?

- The Propane Education & Research Council receives 4.5/10 of a penny for each gallon of odorized propane sold in the USA.
- This amounts to ~40M annually.



Propane Autogas School Buses

- 12,500 buses
- 750,000 riders
- 700 school districts



Propane Autogas Buses Check All the Boxes for Schools

- Lower total cost-of-ownership than diesel technology.
- Scalable, affordable infrastructure options for convenient on-site refueling.
- Buses from all four major O.E.M.s.



Lower Total Cost-of-Ownership

- Going beyond decreased fuel expenses, propane autogas eliminates the additional costs associated with diesel engines over a vehicle's lifetime — AKA “The Three F’s:”

- Fuel



- Fluids



- Filters



Lower Total Cost-of-Ownership

The Three F's: Fluids

- Diesel engines require more oil by volume compared with propane autogas engines, increasing preventative maintenance costs.
- In cold temperatures, diesel engines require fuel conditioners (“anti-gelling agents”) to reduce the likelihood of fuel gelling, the primary cause of clogged fuel supply lines, fuel filters, and inoperable buses.

Lower Total Cost-of-Ownership

The Three F's: Filters

- Drivers must constantly monitor DPF status to ensure emissions regenerations are performed as required. Failure to conduct timely active or passive “regens” leads to DPF clogging or cracking.
- A clogged DPF slowly de-rates the engine, leaving transportation directors with an inoperable bus and a tow bill.
- Repeated short drive times that do not get up to highway speeds or stop-n-go routes that require excessive idling increase “regen” requirements and cleaning intervals.

Garaging and Maintenance Facilities

- Unlike other alternative fuels, switching to propane autogas **does not require** districts to modify their maintenance and repair facilities or construct new ones.*
 - Requirements for a propane autogas vehicle repair facility are generally the same as those of conventionally fueled buses.
 - Other alternative fuels may require different facility requirements like additional gas detection and ventilation equipment — more upfront costs for fleets adopting alternative fuels.

*Always contact your local Authority Having Jurisdiction.

Garaging and Maintenance Facilities

- Segregation of major and minor repair areas is not required if the structure is code compliant.
- Constructing new buildings or segregating existing buildings can lead to increased costs for electricity, air handling, cooling, and heating over time.





Emissions Profile

LIGHT-DUTY VEHICLES

GHG EMISSIONS

SIMILAR TO DIESEL,
14% BETTER THAN GASOLINE

NO_x EMISSIONS

57% BETTER THAN DIESEL,
6% BETTER THAN GASOLINE

MEDIUM-DUTY VEHICLES

GHG EMISSIONS

7% BETTER THAN DIESEL,
27% BETTER THAN GASOLINE

NO_x EMISSIONS

18% BETTER THAN DIESEL,
31% BETTER THAN GASOLINE



NOx Emissions - Propane Autogas vs. Diesel

MORE THAN

92%

REDUCTION

**WHEN REPLACING PRE-2007
DIESEL BUSES WITH
NEW PROPANE BUSES.**

MORE THAN

11%

REDUCTION

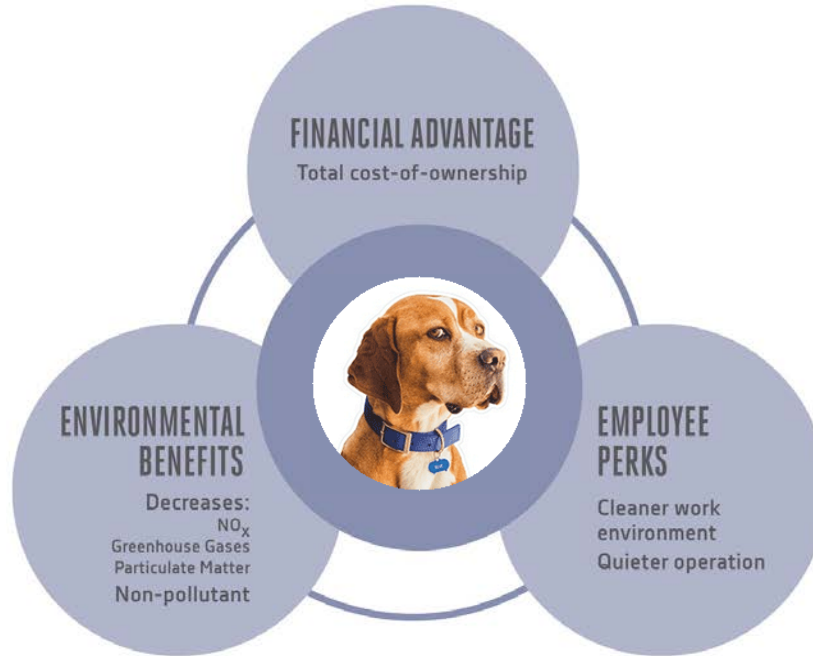
**WHEN PURCHASING A NEW
PROPANE BUS INSTEAD OF
A NEW DIESEL BUS.**

81%

REDUCTION

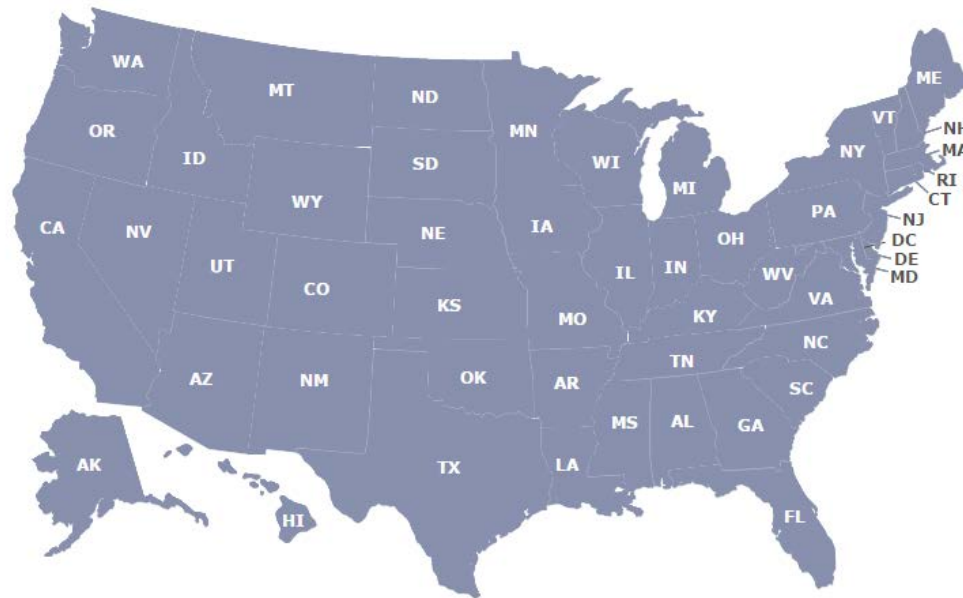
**WHEN PURCHASING A NEW,
BEST-IN-CLASS FOR NO_x EMISSIONS
PROPANE BUS INSTEAD OF A
NEW DIESEL BUS.**

Why Propane?



Propane Autogas Buses from Coast to Coast

Visit <http://www.propane.com/on-road-fleets/propane-buses-in-the-us/>

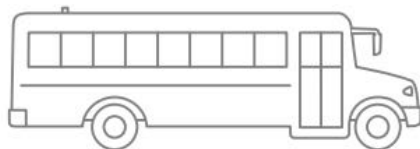


Propane Autogas Buses from Coast to Coast

Visit <http://www.propane.com/on-road-fleets/propane-buses-in-the-us/>



PROPANE BUS SNAPSHOT MARYLAND



WITH ITS **83** PROPANE BUSES,
MARYLAND ALREADY SAVES ON FLUIDS,
FILTERS, FUEL, AND REPAIRS FOR A
LOWER TOTAL COST-OF-OWNERSHIP.



1.8 MILLION
POUNDS OF NO_x EMISSIONS
A YEAR COULD BE REDUCED*

*By replacing the state's 5,087 diesel buses older than the model year 2007 with new propane buses.



PROPANE EDUCATION & RESEARCH COUNCIL

Investing in more propane buses is an important step to saving more money and cutting harmful emissions in your community. Learn more about propane buses at propaneschoolbuses.com.

Resources

- Visit **propane.com** to learn more and download free resources.
 - Brochure.
 - Case studies.
 - Video testimonials from school districts with propane autogas buses.
 - Safety and training resources. Topics include:
 - Repair and maintenance facility requirements.
 - Dispensing propane autogas.