

NATURAL GAS SCHOOL BUSES

Natural gas buses provide communities across the U.S. with a clean, reliable, and cost-effective transportation option for school children.

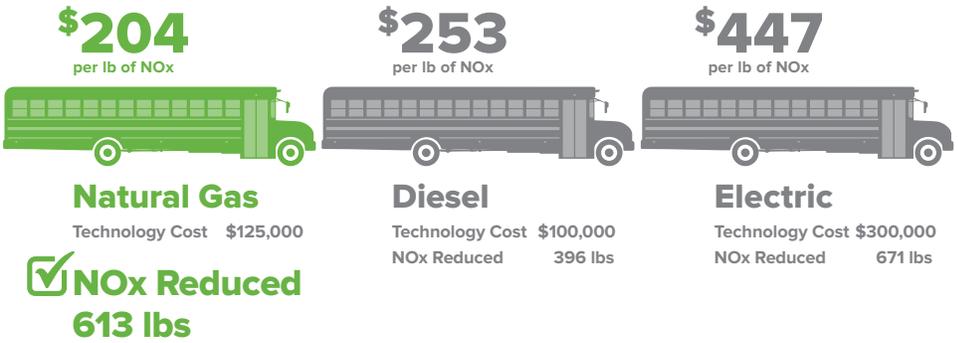
Most Cost Effective NOx Emissions Reductions

When comparing the cost of NOx reduction, Type C natural gas school buses are:

19% more cost effective than diesel

54% more cost effective than electric

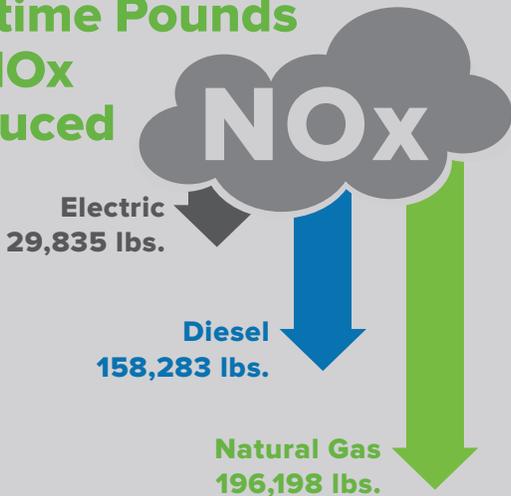
In 2016, a revolutionary natural gas engine was certified by the U.S. EPA and CARB to an optional low-NOx emission standard that is 50% cleaner than EPA's current heavy-duty exhaust standard. These calculations assume the full cost to deploy the cleanest commercially available Type C buses for each fuel type.



What would \$10 million in VW Settlement Funds buy?

The VW Settlement's Environmental Mitigation Trust (EMT) Fund provides millions in funding for states to replace older diesel vehicles with new cleaner trucks and Type C buses. Funds may be used to offset 25% of each new natural gas (\$31,250) and diesel (\$25,000) and 75% of the cost of a new electric (\$225,000) school bus. NGV America urges states to prioritize funding for the purchase of Type C natural gas school buses because they deliver the greatest amount of emission reductions and air quality benefit for each dollar spent. Figures below represent benefit of using \$10 million to purchase new cleaner Type C buses and include emission reductions associated with replacing older diesel buses and comparing lifetime emissions of new cleaner Type C buses.

Lifetime Pounds of NOx Reduced



Total Gallons of Diesel Displaced

Natural Gas
 >11 Million Gallons

Electric
 >1.5 Million Gallons



Natural Gas School Buses are Road-Tested and Ready to Deploy

School buses represent a great opportunity for natural gas use in the U.S., with thousands of buses in operation today.

Both Thomas Built and Blue Bird provide factory-built Type C and Type D natural gas powered school buses. These buses are available through the standard dealer network. There are also a number of options to retrofit new buses or repower buses already in use.



5,500+ natural gas school buses operate in the U.S.

Fast Return-on-Investment Due to Low Fuel and Maintenance Costs



Even with today's oil prices, natural gas prices can be \$0.75 to \$1 or more lower than diesel at the pump. The price differential quickly translates into substantial fuel savings for school buses, which typically consume around 2,300 diesel gallon equivalents (DGE) per year, and have tough-duty cycles, low miles per gallon, and high engine hours.



Natural gas trucks/buses are easier to maintain than diesel trucks/buses. Advantages include:

- No diesel particulate filter regeneration or waste
- No selective catalytic reduction
- No diesel emission fluid

Natural Gas School Bus Fleet Success Stories:



PASCO COUNTY SCHOOLS

Pasco County Schools in Land O' Lakes, Florida, recently opened the state's first school-district owned and operated CNG fast-fill station and began its conversion of a 90-vehicle school bus fleet to CNG. Manager for Transportation Services, Tad Kledzik, confirmed that Pasco initially ordered 30 Bluebird/Roush Vision CNG Type C school buses and has already taken delivery of their first 18. Pasco intends to purchase another 30 CNG buses in July to continue filling up its new CNG station. Pasco reports that these new CNG buses will displace older diesels, run approximately 19,000 miles per year, and will reduce NOx emissions by 95% and greenhouse gas emissions by 20,000 pounds annually.

The Bluebird Vision school bus uses Roush's new 6.8 liter CleanTech CNG engine that is certified to CARB and EPA's optional low-NOx emission standard.



LEE'S SUMMIT R-7 SCHOOL DISTRICT

Lee's Summit R-7 School District in Missouri recently purchased 20 new Thomas Built Saf-T-Liner C2 Type C school buses. Lee's Summit began converting its fleet to Thomas Built Type D CNG school buses in 2013 to reduce fuel costs and emissions. Keith Henry, Director of Transportation, was quoted in *School Bus Fleet* saying, "Since the district initiated the conversion, we have not only experienced fuel savings, but we have also seen a dramatic decrease in emissions and maintenance costs.

The Saf-T-Liner C2 uses the Cummins Westport ISB 6.7 G CNG engine that is certified to CARB and EPA's optional low-NOx emission standard.