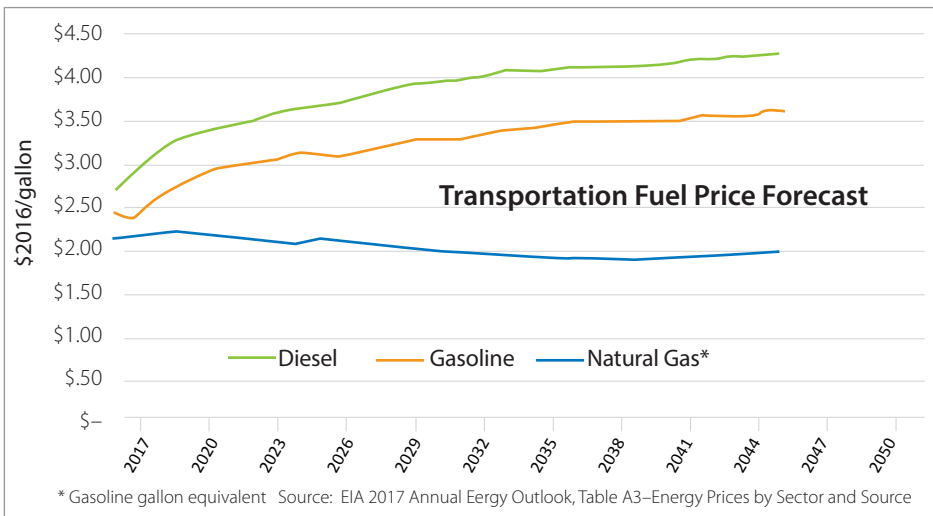
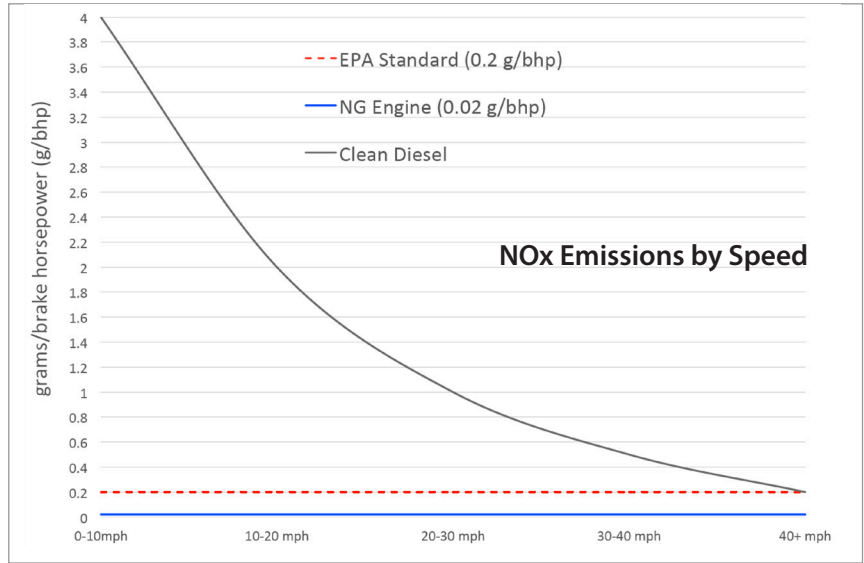


Natural Gas Vehicles' Emission Brief

- Unlike natural gas engines, the latest diesel engines only meet the "Near-Zero" standard of 0.2 grams/brake horsepower when traveling at constant speeds above forty miles per hour.
- NGVs produce two hundred times less NOx when accelerating than their diesel competitors.
- According to the California Air Resources Board (CARB), this means that the effective NOx emissions value for the newest diesel engines is actually twenty time more than that of their NGV counterpart.
- Emissions are more severe for vehicles that make regular stops, like drayage vehicles and school buses. Resultingly, NOx emissions from diesel engines are higher in larger cities, which tend to have lower air quality.



- At 2017 prices, natural gas costs \$2.06 per diesel gallon equivalent (DGE), compared to \$2.52/ gallon for diesel. Forecasts project that this price advantage will widen going forward.
- Based on fuel cost savings alone, NGV trucks have a much shorter payback period than NTDEs.
- Natural gas is a domestically produced product, and the large available supply is expected to keep prices low and stable going forward.

- Natural gas vehicles are the most efficient way to reduce NOx in the transportation sector on a per dollar basis.
- Electric-powered trucks do not provide the horsepower or fuel range necessary for anything more than light loads for short durations on flat surfaces.
- Even if range and horsepower concerns are discarded, natural gas vehicles still provide more NOx reduction per dollar spent than their electric counterparts.

Short/Regional Haul Trucks



Natural Gas
 Technology Cost \$150,000
 NOx Reduced 3,810 lbs

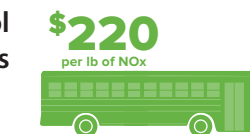


Diesel
 Technology Cost \$100,000
 NOx Reduced 1,858 lbs



Electric
 Technology Cost \$324,000
 NOx Reduced 3,810 lbs

School Buses



Natural Gas
 Technology Cost \$148,000
 NOx Reduced 671 lbs



Diesel
 Technology Cost \$115,000
 NOx Reduced 396 lbs



Electric

Courtesy of NGV America

Conclusions

- Replacing heavy duty diesel engines with NGVs is the most effective way to reduce NOx, SOx, and Particulate Matter from the transportation sector.
- NGVs offer significant CO2 emission reductions over diesel engines.
- Natural Gas Vehicles significantly outperform diesel engines in NOx emissions.
- NGVs offer short and long term cost savings.
- NGVs significantly reduce noise pollution.
- NGVs offer lower long-term maintenance costs than diesel engines.
- NGV technology already exists, and is ready to go.