



# Safe and Clean

*Summary of clean fuel/technology options for school buses*

Clean Fuel/Retrofit Option	Engine Type	Percent Reduction in Emissions of Particulate Matter (PM)	Percent Change in Nitrogen Oxides (NO <sub>x</sub> )	Approximate Cost of Technology
Ultra-Low Sulfur Diesel (ULSD)	New or used diesel engine best if used with a PM filter	About 5 - 9%  Enables the PM filter to work	N/A	8 - 25 cents per gallon more than regular diesel
Particulate Matter (PM) Filter	New or used diesel engine - 1995 or newer models	60 - 90%	N/A	\$5,000 - \$10,000
Oxidation Catalyst	New or used diesel engine	20 - 30%	N/A	\$1,000 - \$2,500  Can be used with regular diesel or ULSD
Compressed Natural Gas (CNG) (with an oxidation catalyst)	New CNG engine	70 - 90% if using catalyst technology	About 60% reduction but can be variable	\$30,000 more than a diesel bus  CNG cost similar to diesel fuel cost  Additional costs required for special re-fueling and maintenance facilities
Biodiesel Fuel  B20: 20% biofuel, 80% regular diesel  B100: 100% biofuel	New or used diesel engine	B20: 10%  B100: 40%	Slight increase in NO <sub>x</sub> emissions  B20: +2%  B100: +10%	B20: 15 - 30 cents per gallon more than regular diesel  B100: 75 cents to \$1.50 per gallon more than regular diesel
Emulsified Diesel Fuel	New or used diesel engine	20 - 50%	5 - 30%	20 cents per gallon more than regular diesel

Source: U.S. Environmental Protection Agency