Summary of Clean Fuel / Clean Technology Options for School Buses

This chart summarizes the benefits, costs and applicability of various technologies discussed in the Retrofit and Replacement Clean School Bus pages.

For a list of EPA's verified retrofit technology, please visit www.epa.gov/otaq/retrofit/retroverifiedlist.htm.

Clean Fuel / Clean Technology Options	Type of Engine	Percent Reduction in Emissions of Particulate Matter	Percent Reduction in Emissions of Nitrogen Oxides	Approximate Cost of Technology
Ultra-Low Sulfur Diesel(ULSD)	New or Used Diesel Engine	About 5 to 9% Enables the PM filter technology to work	N/A	8 to 25 cents per gallon more than regular diesel now In June 2006, when ULSD will be required nationwide, cost differential will be much less
Particulate Matter Filter	New or Used Diesel Engine - 1995 or newer models	60 to 90%	N/A	$5,000 to $10,000 Must use ULSD fuel
Oxidation Catalyst	New or Used Diesel Engine	20 to 30%	N/A	$600 to $2,000 and can be used with regular diesel
Compressed Natural Gas(with an oxidation catalyst)	New CNG Engines	70 to 90% if using catalyst technology to reduce ultra fine PM, formaldehyde, and methane - otherwise, methane and aldehydes will be much higher than diesel engines	About 60% reduction but are highly variable (sometimes increases occur)	$30,000 more than a diesel bus (cost of CNG fuel similar to regular diesel fuel) Very expensive special re-fueling infrastructure and maintenance facilities are required
Biodiesel Fuel B20: 20% biodiesel, 80% regular diesel B100: 100% biodiesel	New or Used Diesel Engine	B20 - 10% B100 - 40%	Biodiesel increases emissions of Nox slightly. B20 blend +2% B100 fuel +10%	B20 - 15 to 30 cents per gallon more than regular diesel B100 - 75 cents to $1.50 per gallon more than regular diesel (B100 may not be an option for cold climates)
Emulsified Diesel Fuel	New or Used Diesel Engine	About 50%	About 10%	20 cents per gallon more than regular diesel fuel