



Summary of Cost and Emissions Benefits for Selected Strategies that Reduce Diesel Particulates

Reduction Strategy	Diesel PM Reduction	Cost/Unit (Parts + Installation)	Application
Particle Filter w/ ULSD	60%-90% ¹	\$5000-\$8000 ² + 3-5 cents/gallon ³	On-Highway
Oxidation Catalysts	20% ¹	\$1100-\$1800 ^{2,6}	On-Highway
Oxidation Catalysts	20% ¹	\$1500-\$3000 ³	Off-Highway
Crankcase Ventilation Filtration System	12% ¹	\$800-\$900 ⁶	On-Highway
On-Highway Diesel Fuel (< 500-ppm)	8%-9% ⁵	+ 2.5 cents/gallon relative to 3500-ppm ⁴	Off-Highway
Ultra-Low Sulfur Diesel (15 ULSD-ppm)	5%-9% ²	+ 3-5 cents/gallon relative to 350-ppm ³	On-Highway
Ultra-Low Sulfur Diesel (ULSD 15-ppm)	13%-28% ^{2,5}	+ 5.5-7.5 cents/gallon relative to 3500-ppm ³	Off-Highway
Bio-Diesel (B-20)	10% ²	+ 15-30 cents/gallon relative to 350-ppm ^{2,3}	On-Highway
Bio-Diesel (B-20)	10% ^{2,5}	+ 15-30 cents/gallon relative to 3500-ppm ^{2,3,4}	Off-Highway
ULSD/B-20	15%-19% ^{2,5}	+ 18-35 cents/gallon relative to 350-ppm ^{2,3}	On-Highway
ULSD/B-20	23%-28% ^{2,5}	+ 20.5-37.5 cents/gallon relative to 3500-ppm ^{2,3,4}	Off-Highway

1. EPA Verified Retrofit Technologies Table: <http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>
2. EPA Technologies Options Table: <http://www.epa.gov/otaq/schoolbus/technology.htm>
3. Assessment of Potential Strategies to Reduce Emissions from Diesel Engines in Washington State, December 31, 2003; Prepared by Kim Lyons Washington State University Cooperative Extension - Energy Program for Washington State Department of Ecology
4. Non-Road Diesel Emission Reduction Study, October 14, 2003; Prepared by Genesis Engineering Inc. & Levelton Engineering Ltd. for Puget Sound Clean Air Agency, Oregon Department of Environmental Quality, and U.S. Environmental Protection Agency
5. EPA NONROAD Emissions Model: Model run conducted by Dept of Ecology for calendar year 2003, WA, all counties, construction equipment only, diesel fuel only; off-highway diesel fuel estimated at 3500-ppm, on-highway fuel estimated at 350-ppm
6. Washington State Clean School Bus Program, October, 2003, Request for Proposal