United States Environmental Protection Agency Air and Radiation

EPA420-D-00-001 May 2000



Draft Regulatory Impact Analysis for the Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements Rule



Draft Regulatory Impact Analysis for the Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements Rule

Assessment and Standards Division Office of Transportation and Air Quality U.S. Environmental Protection Agency

NOTICE

This technical report does not necessarily represent final EPA decisions or positions. It is intended to present technical analysis of issues using data which are currently available. The purpose in the release of such reports is to facilitate the exchange of technical information and to inform the public of technical developments which may form the basis for a final EPA decision, position, or regulatory action.

Executive Summary

Key results of this draft regulatory impact analysis are discussed below.

Health and Welfare Concerns

When revising emissions standards for heavy-duty vehicles, the Agency considers the effects of air pollutants emitted from heavy-duty vehicles on public health and welfare. As discussed in more detail in Chapter II, the outdoor air quality in many areas of the country is expected to violate federal health-based ambient air quality standards for ground level ozone and particulate matter during the time when this rule will take effect. In addition, studies have associated diesel exhaust with a variety of cancer and noncancer health effects. Emissions from heavy-duty vehicles contribute to these air pollution problems, and the standards proposed in this rulemaking will result in significant improvement in ambient air quality and public health and welfare.

Air Quality Benefits

The following table presents the total NOx, PM, and NMHC benefits from heavy-duty engines that we anticipate from this proposed rule. Evaporative emission reductions are included in the NMHC benefits.

Calendar Year	NOx	РМ	NMHC
2007	35	13	12
2010	465	36	71
2015	1400	64	165
2020	2,020	83	230
2030	2,760	111	305

Total Reductions from Heavy-Duty Engines for this Proposed Rule (thousand short tons per year)

Costs

Total annual costs are estimated to reach about \$3 billion in 2010 (the year that the phase-in of standards is completed). These costs increase gradually in subsequent years due to projected growth in vehicle sales and fuel consumption.

Heavy-Duty Standards / Diesel Fuel Draft RIA - May 2000

Lifetime per-vehicle cost impacts have also been estimated. These costs include the incremental cost for new engine hardware, operating costs for closed crankcase filtration systems, the incremental cost for low sulfur diesel fuel, and maintenance savings realized through the use of low sulfur fuel.

	-		-		
Vehicle Weight Class	Emission Control Technologies		Low Sulfur Fuel		Total
	Hardware Costs	Operating Costs	Lifetime Cost	Maintenance Savings	Lifetime Cost for Control
Light Heavy-Duty	\$982	\$31	\$536	(\$153)	\$1,396
Medium Heavy-Duty	\$1,188	\$46	\$1,004	(\$249)	\$1,989
Heavy Heavy-Duty	\$1,572	\$172	\$3,704	(\$610)	\$4,838
Urban Bus	\$1,252	\$120	\$4,364	(\$610)	\$5,126

Estimated Long Term Incremental Costs for Emission Control (per vehicle costs, 1999 dollars)

Cost-Effectiveness

A comparison of the costs of our proposed program with the emission reductions it is estimated to achieve leads us to conclude that it is a cost-effective means of reducing pollution. As shown in Chapter VI, the cost-effectiveness of our proposed program falls within the range of costeffectiveness of other mobile and stationary source controls. For example, our recently promulgated standards for Tier 2 vehicles and gasoline sulfur had similar cost-effectiveness to the standards we are proposing today.