United States
Environmental Protection
Agency

Air and Radiation

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Office of Mobile Sources

Environmental Fact Sheet

Heavy-Duty Engine Emission Standards for Highway Trucks and Buses

The United States Environmental Protection Agency (EPA) is proposing a new combined emission standard for oxides of nitrogen (NOx) and hydrocarbons (HC) from heavy-duty engines designed for highway trucks and buses. EPA estimates that the proposed standard would reduce NOx emissions by 50 percent which would significantly assist states in meeting and maintaining the ozone standard. The consultation and consensus building activities which EPA undertook in this initiative culminated in widespread support from the engine and trucking industries, states, and the environmental community.

How Did This Initiative Evolve?

In response to the need for additional pollution reduction measures at the national level, EPA held a series of discussions with the California Air Resources Board (CARB) and representatives of the heavy-duty engine (HDE) manufacturing industry to exchange views on the appropriateness and feasibility of new emission standards for HDEs. Based on these discussions, a historic Statement of Principles (SOP) regarding highway HDEs was signed by these parties in July 1995.

EPA issued an Advance Notice of Proposed Rulemaking (ANPRM) on August 31,1995, which requested comment on the SOP and the agency's plans to formally propose new HDE emission standards consistent with the SOP. A broad range of parties responded to the ANPRM, and EPA considered all of these comments in developing the Notice of Proposed Rulemaking (NPRM).

This initiative has enjoyed unprecedented support from stakeholders. Essentially every major manufacturer of HDEs signed the SOP, and letters of support have been received from related trade organizations and user groups. States and organizations representing air pollution control officials have also been strongly supportive. Comments from the environmental community have been positive on the major steps forward that this initiative takes.

What Are the Main Components of the Proposed Rule?

Emission Standards

The proposed standards are in the form of combined non methane hydrocarbons (NMHC) plus NOx and are presented in units of grams emitted per brake horsepower-hour (g/bhp-hr). They would apply to diesel and gasoline engines

and would become effective in model year 2004. Manufacturers would have the choice of certifying their engines to either of two optional sets of standards:

2.4 g/bhp-hr NMHC + NOx
or
2.5 g/bhp-hr NMHC + NOx
with a limit of 0.5 g/bhp-hr on NMHC

In-Use Emissions Controls

EPA is also proposing new initiatives to encourage engine manufacturers to use emissions controls that will have a high degree of durability, and will perform well in use without an unreasonable degree of owner involvement. EPA is also proposing other basic provisions to help encourage the maintenance and repair of emissions controls after the regulatory life is reached, especially during engine rebuild.

ABT Provisions

EPA is proposing changes to the averaging, banking, and trading (ABT) provisions to encourage the early introduction of cleaner engines, thus securing emissions benefits earlier than would otherwise be the case.

Technology Review

A technology review will be undertaken in 1999 to assess industry progress and propose changes in the standards if necessary. The potential role of fuels in achieving low HDE emissions is being evaluated now as part of a technical working group comprised of representatives from EPA, the engine manufacturers, the oil industry and other stakeholders. The results of these technical evaluations will be considered as a part of the 1999 technology review.

How Does The Proposed Rule Provide Flexibility to Industry?

The proposed rule provides flexibility to the industry in three main areas:

- manufacturers have the flexibility of choosing from two optional sets of standards;

- the time frame for these standards allows for the difficult technological hurdles to be addressed without large increases in engine costs, resulting in what EPA believes will be an extremely cost-effective way of making necessary air quality gains; and

- the flexibility provided by ABT lowers the costs to manufacturers and makes it easier to meet the technical challenges of lower standards.

In addition, engine manufacturers benefit from national emissions standards because a single set of emissions requirements applying to engines in trucks and buses used anywhere in the country allows mar.ufacturers to achieve economies of scale and to concentrate research and development resources most effectively.

How Much Will the Proposed Rule Cost?

EPA estimates a near term retail price increase of $200-$500 per vehicle, with costs decreasing to half that amount in five years. This represents less than one percent of the cost of most new heavy-duty vehicles.

How Will the Proposed Rule Assist States?

The significant reduction in NOx emissions expected from the proposed standard will assist the states in meeting the NAAQSs for ozone and PM. NOx emission inventories are projected to rise by the early 2000s due to continued industrial growth and expansion of motor vehicle usage. This is expected to result in a significant increase in PM and ground-level ozone. Without further controls, within the next 20 years, mobile sources will contribute to about half of all NOx emissions, with highway HDEs representing about a quarter of these mobile source Nox emissions. Therefore, further NOx control from HDEs on a regional scale is seen as a cost-effective strategy to control ozone levels especially where ozone is high over a large region (as in the Midwest and Northeast).

What Are the Health and Environmental Benefits?

The proposed standard is expected to reduce NOx emissions from highway HDEs by 50 percent over the 1998 standard. In 2020, EPA projects a reduction of 1,215,000 tons per year in ozone precursors and 50,000 tons per year of secondary nitrate PM.

This will benefit public health because ozone exposure causes a range of human pulmonary and respiratory health effects, including chest pain, coughing, and shortness of breath. In addition to ground-level ozone, the secondary impacts of NOx include the formation of nitrate PM, acid rain, and eutrophication of coastal waters. Therefore, reductions in NOx emissions will have considerable benefits to both public health and the environment.

What Opportunities Exist for Public Participation?

EPA invites comment on all aspects of the NPRM. In July, a public hearing will be held in Ann Arbor, Michigan, and a public meeting will be held in Los Angeles. To schedule a time to speak at the hearing or the meeting, please call Chris Lieske at 313-668-4584.

For instructions on submitting written comments, please see the Federal Register notice. It is available from the EPA Air and Radiation Docket by calling 202-260-7548; please refer to docket number A-95-27. In addition, the NPRM is available electronically via the EPA Internet server and via dial-up modem on the Technology Transfer Network (TTN), an electronic bulletin board system (BBS).

> World Wide Web: http://www.epa.gov/OMSWWW
>
> TTN BBS: 919-541-5742 (1200-14400 bps, no parity, 8 data bits, 1 stop bit); voice helpline: 919-541-5384

For further information on this rulemaking, please call the NOx/ PM Heavy-Duty Engine voice mailbox at 313-741-7887, or write to:

> U.S. Environmental Protection Agency National Vehicle and Fuel Emissions Laboratory Highway Heavy-Duty Team 2565 Plymouth Road Ann Arbor, Michigan 48105