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Office of Transportation and Air Quality

Regulatory Announcement

Emission Standards for New Nonroad Engines and Highway Motorcycles

The U.S. Environmental Protection Agency (EPA) is publishing an Advance Notice of Proposed Rulemaking concerning emissions from new nonroad vehicles and engines that are currently unregulated, and highway motorcycles. Control of emissions from these engines will help reduce the harmful health effects of ozone, carbon monoxide, and particulate matter from these nonroad and highway engines.

Overview

Since 1994, EPA has established emissions control programs under the Clean Air Act for various classes and categories of nonroad engines, including those used in farm and construction, marine, locomotive, and lawn and garden applications. With the Advance Notice being released today, the Agency is seeking early input on our plan to propose a national program to control emissions from engines used in nonroad applications that remain unregulated. These include:

- industrial spark-ignition engines rated above 19 kW (25 hp) (e.g., forklifts and generators);
- recreational gasoline engines (e.g., snowmobiles and off-road motorcycles);
- and recreational marine diesel engines and all sterndrive and inboard gasoline engines.

In addition, we are requesting comment on possible emission reductions from highway motorcycles as part of this rulemaking. We are raising these questions because there may be opportunities to reduce emissions from these vehicles. There are also potential issues of consistency in standards between nonroad and highway motorcycles. Current EPA emission standards for highway motorcycles were established more than 20 years ago.

We are also announcing a final finding that nonroad spark-ignition (SI) engines (engines powered by gasoline, natural gas or liquified petroleum gas) rated above 19 kW and land-based recreational engines contribute to air pollution in more than one nonattainment area in the U.S. With this Final Finding, we are obligated under the Clean Air Act to set emission standards requiring the greatest degree of emission reduction achievable, considering several factors.

Health and Environmental Benefits

Emissions from these engines together account for about 11 percent of hydrocarbon (HC) emissions, 9 percent of carbon monoxide (CO) emissions, and 3 percent of oxides of nitrogen (NOx) emissions from mobile sources. The anticipated emission standards would significantly reduce emissions from engines that contribute to ozone formation and potentially expose people to high concentrations of poisonous CO exhaust and air toxics. Emission reductions will provide much-needed assistance to states facing ozone, CO, and particulate matter air quality problems that are causing a range of health problems for their citizens, especially respiratory impairment and related illnesses. In addition, personal exposure to high levels of CO, particulate matter (PM), and air toxics raises health concerns for many individuals.

Emission Standards for New Land-Based Recreational Engines and Highway Motorcycles

Recreational vehicles include snowmobiles, off-road motorcycles (dirt bikes), and all-terrain vehicles (ATVs). The program could also affect some motorized scooters, mini-bikes, and mopeds. The Advance Notice focuses on potential reductions in HC and CO. Many recreational vehicles are equipped with 2-stroke engines and have very high emissions of HC and CO. Recreational vehicles currently contribute about 8 percent of HC emissions and 5 percent of CO emissions from mobile sources. In addition, we expect some reduction in PM and air toxics emissions.

We are also interested in opportunities to reduce emissions from highway motorcycles along with off-road motorcycles. California's emission standards for highway motorcycles, which are more stringent than federal standards, are being considered internationally. There may be opportunities to harmonize with such programs to effectively reduce emissions nationwide.

In the Advance Notice, we request comment on several issues and areas of information, including:

- technologies that may be available to reduce emissions and the cost of those technologies
- the timing and level of new emission standards
- test procedures for measuring emissions from vehicles and engines
- compliance programs, including production-line and in-use testing by manufacturers

Emission Standards for New Recreational Marine Engines

We plan to propose a national program to control emissions from unregulated marine propulsion engines. Emission standards for recreational marine diesel engines will focus on NOx and PM. For sterndrive and inboard gasoline engines, we anticipate a significant reduction in NOx, CO, and HC emissions.

This Advance Notice anticipates a proposal containing three important sets of provisions. First, emission standards will establish the level of stringency that manufacturers must achieve when designing their engines. Emission-control technologies we will be evaluating for recreational marine diesel engines include established engine technologies such as seawater aftercooling, and high-pressure fuel injection, perhaps with electronic controls. For sterndrive and inboard engines we are considering emission standards based on the use of three-way catalytic converters, electronic fuel injection, and exhaust gas recirculation, all of which have become commonplace in automotive engines.

Second, we are seeking comment on testing provisions that would require engine manufacturers to show they can meet emission standards over a variety of operating conditions. These testing requirements may be very similar to those already adopted for commercial marine diesel engines.

Finally, we discuss certification and compliance provisions to help us ensure that each engine is able to control emissions over its full lifetime. Much of this will follow from other programs for similar engines, but it will also reflect the unique characteristics of these engines.

Emission Standards for New, Large Spark-ignition Nonroad Engines

We intend to propose a national program to control emissions of CO, NOx, and HC from large nonroad spark-ignition engines, which may operate on gasoline, natural gas or liquified petroleum gas. These engines are used in a variety of industrial equipment, including forklifts, airport ground-service equipment, generators, and compressors.

Even though these engines are very similar to, or are built from, base automotive engines, nonroad engine designs have changed little over the years. Adopting basic automotive emission-control technologies allows for dramatic improvements to engine performance and fuel economy in addition to the expected emission reductions.

Under the anticipated control program, manufacturers would use electronic fuel injection and catalytic converters to meet emission standards. The California Air Resources Board (California ARB) adopted emission standards for Large SI engines in October 1998. Further engine testing and a concern for off-cycle emissions has led us to consider several provisions not adopted by California ARB, most notably:

- A more stringent emission standard to more accurately reflect the in-use deterioration of emission controls
- A duty cycle that includes transient engine operation
- Not-to-exceed testing and emission standards
- Basic engine diagnostic requirements
- Measures to reduce evaporative emissions from gasoline-fueled equipment

Public Participation Opportunities

We are releasing the Advance Notice to encourage full public participation in the rulemaking development process. We especially encourage commenters to provide specific suggestions and data in the areas we identify.

For instructions on submitting written comments, please see the *Federal Register* notice, which is available from the EPA Air and Radiation Docket by calling 202-260-7548 (refer to Docket A-2000-01). We are also accepting comments via e-mail at "nranprm@epa.gov". In addition, you can access the Advance Notice and related documents electronically on the Office of Transportation and Air Quality (OTAQ) Web site at:

www.epa.gov/otaq

There will also be an opportunity for oral and written comment when we later publish a Notice of Proposed Rulemaking.

For More Information

You can access documents on this rulemaking electronically on the OTAQ Web site given above, or by contacting Margaret Borushko at:

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