

EPA Proposal for Amendments Related to Marine Diesel Engine Emission Standards

The Environmental Protection Agency (EPA) is proposing to amend the national marine diesel engine program to provide relief provisions to address concerns associated with finding and installing certified Tier 4 marine diesel engines in certain high-speed commercial vessels. The proposed relief is in the form of additional lead time for qualifying engines. EPA is also proposing to modify the marine diesel engine certification program by simplifying engine durability requirements. These changes will promote certification of engines with high power density.

Background

In 2008, EPA adopted Tier 4 emission standards for commercial marine diesel engines at or above 600 kW (see Final Rule for Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less than 30 Liters per Cylinder, 73 FR 37096, June 30, 2008). These Tier 4 standards, which were expected to require the use of aftertreatment technology, phased in from 2014 to 2017, depending on engine power. Some boat builders have informed EPA that there are no certified Tier 4 engines with suitable performance characteristics for the vessels they need to build, specifically for high-speed commercial vessels that rely on engines with rated power between 600 and 1,400 kW that have high power density. To address these concerns, EPA is proposing to provide additional lead time for implementing the Tier 4 standards for engines used in certain high-speed vessels. We are also proposing to streamline certification requirements to facilitate or accelerate certification of Tier 4 marine engines with high power density.

Proposed Engine Program Changes

EPA is proposing that implementation of the Tier 4 standards for qualifying engines and vessels would occur in two phases. The first phase would set model year 2022 as the implementation deadline for engines installed in a wide range of high-speed vessels. This phase would be limited to propulsion engines with maximum power output up to 1,400 kW and power density of at least 35.0 kW per liter displacement. Additionally, the relief would be limited to vessels up to 65 feet in length with total nameplate propulsion power at or below 2,800 kW. This includes vessels such as lobster fishing boats, pilot boats, and some research boats. The second phase would set model year 2024 as the implementation deadline for engines installed in a narrower set of high-speed vessels that are expected to require additional lead time. This phase would be limited to vessels with a single propulsion engine with maximum power output up to 1,000 kW and power density of at least 40.0 kW per liter displacement, where the vessel is made with a nonmetal hull and has a maximum length of 50 feet. These are expected to be primarily lobster or other fishing boats.

Program Health and Environmental Impacts

The proposed amendment rule to change the implementation date of the Tier 4 standards for qualifying engines from 2017 to 2024 would delay the emission and air quality benefits of those standards. The estimated annual increase in NO_x and PM₁₀ emissions associated with the proposed relief is about 108 and 2.3 short tons, respectively, in 2019, when both sets of engines are affected, decreasing to about 37 and 1 ton, respectively, in 2022 and 2003, when only those engines up to 1,000 kW are affected. The lifetime inventory increase is estimated to be about 5,098 tons of NO_x and 107 tons of PM₁₀, assuming a 13-year lifetime for affected engines. This represents less than one-tenth of one percent of the national annual emissions for these pollutants from commercial Category 1 marine diesel emissions (i.e., engines below 7.0 liters per cylinder displacement).

Program Costs

This proposal would impose no additional economic costs above those included in our 2008 rulemaking. Instead, we estimate that this proposal would result in cost reduction of about \$5.4 million, using a behavioral modeling approach, or \$5.8 million, using a full-cost pass-through approach (2018\$). These are the estimated cost reductions from installing less expensive Tier 3 engines in new vessels during the relief period (2019 through 2023) and the associated operating cost reductions during the 13-year lifetime of those engines (2019 through 2035).

Public Participation Opportunities

Comments will be accepted beginning when this Proposed Rule is published in the Federal Register. Additionally, a public hearing is planned, at which additional comments will be accepted. For information on how to submit written comments or how to sign up to speak at a hearing, please see the Federal Register Notice. All comments should be identified by Docket ID No. EPA-HQ-OAR-2018-0638 and submitted by one of the following methods:

Internet: www.regulations.gov

E-mail: A-and-R-Docket@epa.gov

Mail:

Air and Radiation Docket and Information Center
U.S. Environmental Protection Agency
Mailcode 6102T
1200 Pennsylvania Ave., NW
Washington, DC 20460

Hand Delivery:

EPA Docket Center
3334 EPA West Building
1301 Constitution Ave., NW
Washington, DC

For More Information

You can access the Notice of Proposed Rulemaking and other documents related to marine diesel engines on the EPA's Office of Transportation and Air Quality web site at:

www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression

You can also contact the National Vehicle and Fuel Emissions Laboratory (NVFEL) library for document information by email at AALibrary@epa.gov or by phone at 734-214-4311.