

EPA Final Rule for Amendments Related to Marine Diesel Engine Emission Standards

The Environmental Protection Agency (EPA) is amending the national marine diesel engine program to address concerns associated with obtaining and installing certified Tier 4 marine diesel engines in certain high-speed commercial vessels. The relief is in the form of additional lead time for qualifying engines and vessels. EPA is also modifying the marine diesel engine certification program by streamlining engine certification requirements. These changes will promote Tier 4 certification of engines with high power density.

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 providing additional lead time for implementing the Tier 4 standards for engines used in certain high-speed vessels. We are also streamlining certification requirements to facilitate or accelerate certification of Tier 4 marine engines with high power density.

Amended Program

EPA is adopting focused relief from the Tier 4 standards for qualifying engines and vessels in two phases. The first phase sets model year 2022 as the implementation deadline for engines installed in a wide range of high-speed vessels. This phase is limited

to propulsion engines with maximum power output up to 1,400 kW and power density of at least 27.0 kW per liter displacement. Additionally, the relief is limited to vessels up to 65 feet waterline 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 sets 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 for complying with Tier 4 standards. This phase is limited to vessels with a single propulsion engine with maximum power output up to 1,000 kW and power density of at least 35.0 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. For vessels meeting the phase two criteria, there is also a waiver provision that can be used, if necessary, after the new start date for the Tier 4 standards should suitable engines continue to be unavailable.

Program Health and Environmental Impacts

This action changes the implementation date of the Tier 4 standards for qualifying engines from 2017 to 2024, thus delaying the emission and air quality benefits of those standards. The estimated annual inventory impacts associated with this final rule are estimated to be about 108 and 2.3 short tons, respectively, in 2020, when both sets of engines are affected, decreasing to about 37 and 1 ton, respectively, in 2022 and 2023, when only those engines up to 1,000 kW are affected. The lifetime inventory increase is estimated to be about 3,764 tons of NO_x and 79 tons of PM₁₀, assuming a 13-year engine lifetime. 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 action imposes no additional economic costs above those included in our 2008 rulemaking. Instead, we estimate that this action will result in cost reduction of about \$4.3 million, using a behavioral modeling approach, or \$4.6 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 (2020 through 2023) and the associated operating cost reductions during the 13-year lifetime of those engines (2020 through 2035).

Consideration for Further Action

Several commenters responding to the proposed rule indicated that relief from Tier 4 standards is also needed for other vessel types, such as catamarans, hovercraft, some types of emergency response boats, and river push boats. The issues raised by these commenters are complex and will take time to carefully consider and, if necessary, develop appropriate relief provisions. Rather than delay the relief as described in the proposed rule, we will consider the issues raised by these stakeholders separately. As a result, we will continue to consider whether and how to formulate Tier 4 relief provisions for these vessels.

For More Information

You can access the Final 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

For more information, please contact the Assessment and Standards Division at:

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