Congressional Research Service
Informing the legislative debate since 1914

IN FOCUS

July 18, 2018

Phase 2 Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

On October 25, 2016, the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) jointly published the second phase of greenhouse gas (GHG) emissions and fuel efficiency standards for medium- and heavy-duty vehicles and engines (81 *Federal Register* 73478) through their authorities under the Clean Air Act (CAA), as amended, and the Energy Independence and Security Act of 2007 (P.L. 110-140).

The Phase 2 rule sets emission standards for tractor-trailers, vocational vehicles, and heavy-duty pickup trucks and vans. The rule expands on the Phase 1 standards (promulgated on September 15, 2011, for model years [MYs] 2014 through 2018; 76 *Federal Register* 57106) and introduces first-ever controls on trailers (i.e., the part of the vehicle pulled by the tractor) and glider vehicles (i.e., a new chassis combined with an older engine). The standards phase in between MY 2021 and MY 2027 for engines and vehicles and between MY 2018 and MY 2027 for trailers and gliders. The agencies outline several benefits of the rule, including (1) reducing carbon dioxide (CO_2) emissions and fuel consumption from new on-road vehicles, (2) reducing the costs for transporting goods, and (3) spurring innovation in the clean energy technology sector.

> "Heavy-duty trucks account for just 4% of all the vehicles on the highway.... But they're responsible for about 20% of carbon pollution in the transportation sector.... And because they haul about 70% of all domestic freight—70% of the stuff we use, everything from flat-screen TVs to diapers to produce to you name it—every mile that we gain in fuel efficiency is worth thousands of dollars of savings every year."
>
> Remarks by President Obama, February 18, 2014.

The Phase 2 rule maintains the underlying regulatory structure developed in Phase 1, such as the general categorization of medium- and heavy-duty vehicles and the separate standards for engines and vehicles. It also retains the Phase 1 averaging, banking, and trading compliance provisions and its flexibilities for small businesses. However, unlike Phase 1, the rule puts forth "technology-advancing standards" (i.e., standards based "not only on currently available technologies but also on utilization of technologies now under development or not yet widely deployed"). These may include advancements in the engine, transmission, driveline, aerodynamic design, lower rolling resistance tires, and extended idle reduction technologies.

The agencies estimate that the Phase 2 standards will achieve vehicle fuel savings of up to 25% beyond Phase 1 when fully implemented and depending on the vehicle category (see **Figure 1**). Overall, the agencies estimate it could cut GHG emissions by 1.1 billion metric tons of CO_2 and conserve 2 billion barrels of oil over the lifetime of the vehicles sold in the regulatory time frame.

Under the agencies' cost modeling, the Phase 2 standards result in up to $260 billion in total benefits while costing the affected industry approximately $30 billion. Payback periods for truck owners were determined to be favorable—with the buyer of a new long-haul truck in 2027 recouping the extra cost of the technology through fuel savings in less than two years. Overall, vehicle owners could save an estimated $170 billion in fuel costs over the lifetime of the vehicles sold in the regulatory time frame.

Selected Issues

In general, reaction to the standards has been favorable. Many truck and engine manufacturers, drivers, fuel groups, and environmental organizations provided comments in support of the rule upon its proposal. Nevertheless, several issues may be of interest to Congress:

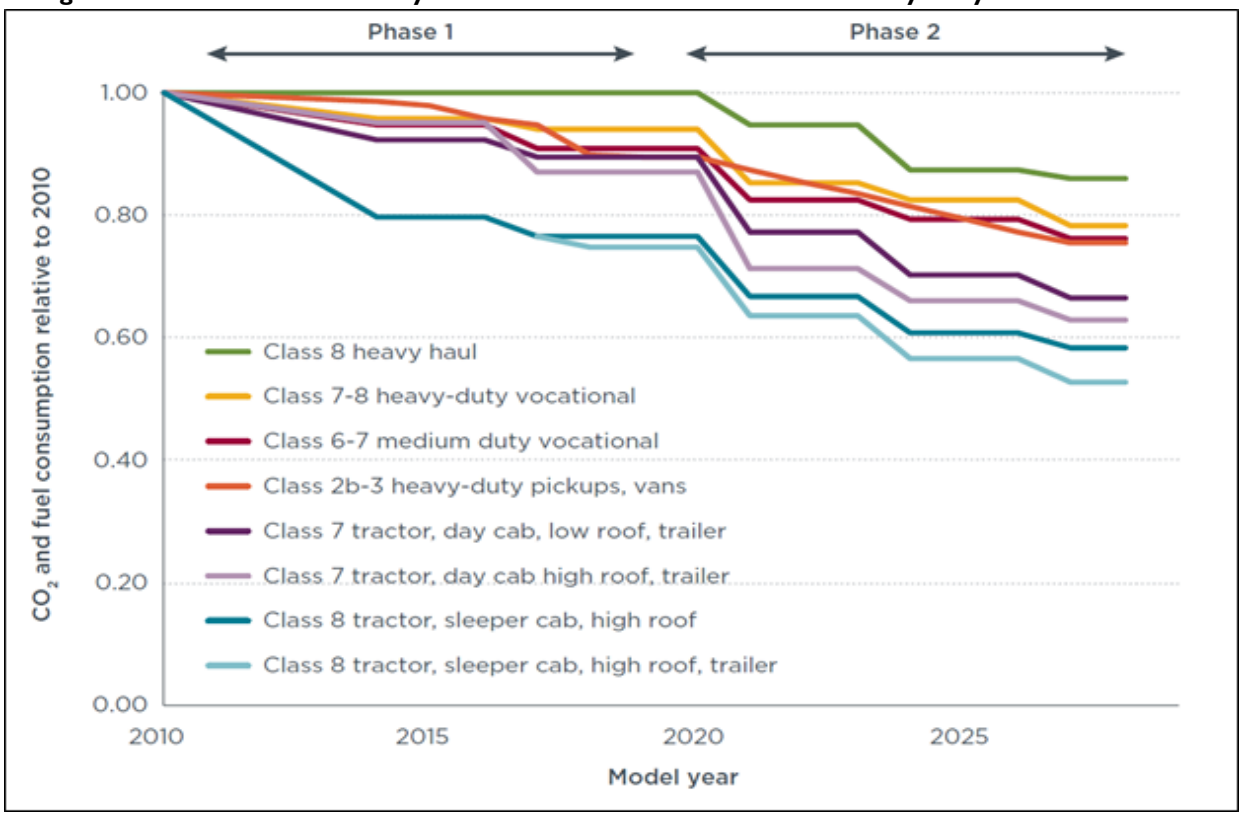
Emissions Reductions

The California Air Resources Board (CARB) and some health and environmental organizations say that the rule is not aggressive enough, and they have pushed for more stringent standards. On December 29, 2016, EPA approved California's waiver request under Section 209(b) of the CAA to adopt its own MY 2014-2018 Phase 1 standards. CARB expects to finalize its Phase 2 regulatory program by the end of 2018, which is similar to but distinct from the federal program.

Nitrogen Oxide (NO_x) Standards

Controls for NO_x emissions (a precursor to ground-level ozone) generally compete against fuel efficiency efforts. Air quality regulators from Southern California and 10 other local and state agencies across the nation filed a petition to EPA to promulgate more stringent NO_x standards subsequent to the Phase 2 rule. EPA issued a memorandum in response to the petition on December 20, 2016, stating that the agency would initiate rulemaking "for a new on-highway heavy-duty NO_x program with the intention of proposing standards that could begin in Model Year 2024." However, under the Trump Administration, sources are reporting the expectation of delays before EPA officials begin developing the standards.

Figure 1. CO_2 and Fuel Efficiency Reductions from the Medium- and Heavy-Duty Vehicle Standards



Source: Courtesy of International Council on Clean Transportation, under a Share Alike license of Creative Commons.
Notes: Classifications defined at 49 CFR 523.2 and 49 CFR 565.15.

Trailer Provisions

The Phase 2 rule includes standards for both engine emissions and the vehicle as a whole, including requirements for improvements to the aerodynamics of freight trailers. On September 22, 2016, the Truck Trailer Manufacturing Association (TTMA) filed petitions to EPA and the U.S. Court of Appeals for the D.C. Circuit, which contend that EPA lacks statutory authority under the CAA to regulate the non-engine parts of vehicles. The court granted EPA's and NHTSA's request to put the case on hold and stayed the trailer provisions as EPA reconsiders them. EPA is working to develop a proposal.

Racecar Provisions

In the Phase 2 proposal, EPA included language that was intended to clarify tampering provisions with respect to nonroad vehicles. However, industry groups claimed that the provisions would prevent owners from modifying motor vehicles used exclusively for racing. EPA removed the language from the final rule. Nevertheless, some argue that the underlying compliance uncertainty remains. Legislation to clarify it had been proposed in the 114th Congress (see H.R. 4715/S. 2659) and the 115th Congress (see H.R. 350/S. 203 and S.Hrg. 115-127). On December 27, 2016, the Racing Enthusiasts and Suppliers Coalition filed petitions with EPA and the D.C. Circuit to address the uncertainty. The petition was combined with TTMA's and others and the case was put on hold (see above).

Glider Kit and Glider Vehicle Provisions

The term *glider kit* is used in the vehicle industry to describe a chassis and cab assembly that is generally produced by a vehicle manufacturer without a new engine, transmission, or rear axle. A third party then typically installs used parts to complete the assembly. Historically, gliders have been used as a means to salvage valuable components from vehicles that were badly damaged in collisions. Prior to the Phase 2 rulemaking, EPA and NHTSA observed a sharp increase in glider sales, suggesting to them that gliders were being used to circumvent standards for safety and emissions (e.g. NO_x and particulates). For this reason, EPA moved to apply current emission standards to gliders under the Phase 2 rule.

On July 10, 2017, several glider kit manufacturers filed a petition to EPA arguing that gliders should not be considered "new motor vehicles" under the CAA, and thus EPA does not have the authority to regulate them. On November 16, 2017, EPA issued a proposed repeal of the requirements (82 *Federal Register* 53442). Upon review, the White House Office of Information and Regulatory Affairs reportedly informed EPA that it needs a regulatory impact analysis before a final repeal can take effect. On July 6, 2018, EPA announced an 18-month enforcement pause on the Phase 2 production limits for glider vehicles as it reconsiders the rule.

Richard K. Lattanzio, Specialist in Environmental Policy

IF10927

Disclaimer