Regulatory Announcement

EPA and NHTSA Propose Standards to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond

The U.S. Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) are jointly proposing a national program that would establish a second phase of greenhouse gas (GHG) emissions and fuel efficiency standards for medium- and heavy-duty vehicles. Building on the success of the Phase 1 standards, this technology-advancing program would significantly reduce carbon emissions and fuel consumption from a wide range of on-road vehicles – from semi-trucks and their trailers to the largest pickup trucks and vans, and all types and sizes of work trucks and buses. The proposed Phase 2 program would cut GHG emissions by approximately 1 billion metric tons, conserve approximately 1.8 billion barrels of oil, and lower fuel costs by about $170 billion over the lifetime of the vehicles sold under the program. This new phase of the national program would also benefit consumers and businesses by reducing the costs for transporting goods while spurring innovation in the clean energy technology sector. These standards are:

Ambitious, achievable, affordable and flexible: In order to significantly reduce fuel consumption and carbon emissions while ensuring the heavy-duty vehicle industry will continue to meet the diverse needs of our transportation sector, the agencies have carefully designed a program that is ambitious yet achievable. The proposed performance-based standards provide multiple technological pathways to compliance and were informed by a comprehensive assessment of advanced technologies

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and extensive stakeholder outreach. The proposed standards would promote a new generation of cleaner, more fuel efficient trucks by encouraging the development and deployment of advanced cost-effective technologies that reduce GHG emissions and fuel consumption.

Cost effective for businesses and consumers: Payback periods for truck owners would be favorable: the typical buyer of a new long-haul truck in 2027 would recoup the extra cost of the technology in under two years through fuel savings. After that point, it's money in the owner's pocket. When these fuel savings bring down the costs of transporting goods, consumers can save money as well.

Forward-looking, with time for long-term planning: The Phase 2 proposal responds to the President's directive to develop new GHG and fuel efficiency standards for heavy-duty trucks that reach well into the next decade. The standards phase in over the long-term beginning in model year 2021 and culminate in standards for model year 2027. Standards for trailers would start in 2018 for EPA and in 2021 for NHTSA. The long phase in and incremental increases in stringency are designed to give industry time to ensure products are reliable and durable, and to provide long-term regulatory certainty.

Supportive of a single national program: This proposed program fully harmonizes EPA and NHTSA standards. Moreover, the agencies have worked closely with the State of California's Air Resources Board in developing these proposed standards. All three agencies are committed to the final goal of a single national program that would allow manufacturers to continue to build a single fleet of vehicles and engines.

Responsive to stakeholder input: The proposed Phase 2 standards carry forward the Administration's longstanding commitment to meaningful collaboration with stakeholders and the public, as they build on more than 300 meetings with manufacturers, suppliers, trucking fleets, dealerships, state air quality agencies, non-governmental organizations (NGOs), and other stakeholders to identify and understand the opportunities and challenges involved with this next level of fuel-saving technology. These meetings have been invaluable to the agencies, enabling the development of a proposal that appropriately balances potential impacts and effectively minimizes the possibility of unintended consequences. The proposed standards represent the next step in an on ongoing conversation with stakeholders, and the agencies look forward to further feedback during the comment period.

Proposed CO_2 and Fuel Consumption Standards

The agencies are proposing new, more stringent standards for the same classes of heavy-duty vehicles currently regulated through model 2018 and beyond under Phase 1. They are also proposing the first ever CO_2 and fuel efficiency standards for certain trailers used with heavy-duty combination tractors. Specifically, EPA's proposed CO_2 emissions standards and NHTSA's proposed fuel consumption standards are tailored to each of four regulatory categories of heavy-duty vehicles: (1) Combination Tractors; (2) Trailers Pulled by Combination Tractors; (3) Heavy-duty Pickup Trucks and Vans; and (4) Vocational Vehicles which include all other heavy-duty vehicles such as buses, refuse trucks, and concrete mixers. The proposal also includes separate standards for the engines that power combination tractors and vocational vehicles.

In addition to the proposed standards, EPA and NHTSA are seeking comment on alternative standards that would accelerate the program by 2-3 years as well as several other alternative sets of standards, including less stringent and more stringent options.

Combination Tractors

Class 7 and 8 combination tractors and their engines account for roughly two thirds of total GHG emissions and fuel consumption from the heavy-duty sector. This is due to their large payloads and high number of vehicle miles traveled. These combination tractors play a major role in freight transport in the United States. The proposed CO_2 and fuel consumption standards for combination tractors and engines would start in model year (MY) 2021, increase incrementally in MY 2024, and phase in completely by MY 2027. The proposed standards differ by vehicle weight class, roof height, and cab type (sleeper or day). The fully phased-in standards would achieve up to 24 percent lower CO_2 emissions and fuel consumption compared to the Phase 1 standards. The proposed tractor standards could be met through improvements in the engine, transmission, driveline, aerodynamic design, lower rolling resistance tires, extended idle reduction technologies, and other accessories of the tractor.

Trailers

Recognizing the trailer as an integral part of the tractor-trailer vehicle that significantly contributes to the emissions and fuel consumption of the tractor, the Phase 2 program includes proposed standards for trailers used with heavy-duty combination tractors. The proposed standards would apply to certain trailer types beginning in MY 2018 for EPA's standards, and would be voluntary for NHTSA from 2018 to 2020, with mandatory standard beginning in 2021. The proposed standards would extend to more trailer types in MY 2021. The fully-phased standards would apply to the following 5 categories of trailers:

- Long (longer than 50 feet) highway box trailers-dry vans;
- Long highway box trailers -refrigerated vans;
- Short (50 feet and shorter) highway box trailers - dry vans;
- Short highway box trailers -refrigerated vans; and
- Non-box highway trailers

The standards increase in stringency in MYs 2021 and 2024, with final standards in MY 2027. Some types of trailers would have reduced requirements or would be excluded from the trailer standards altogether, including those designed for logging and mining, as well as mobile homes. The fully phased-in trailer standards would achieve up to 8 percent lower CO_2 emissions and fuel consumption compared to an average MY 2017 trailer. Technologies that could be used to meet the proposed standards include: aerodynamic devices, lower rolling resistance tires, automatic tire inflation systems, and weight reduction.

Vocational Vehicles

Vocational vehicles consist of a wide variety of truck and bus types, including delivery trucks, refuse haulers, public utility trucks, transit, shuttle, and school buses. This segment also includes very specialized vehicles such as emergency vehicles, and cement and dump trucks. Vocational vehicles represent about one fifth of the total medium- and heavy-duty fuel consumption.

The agencies are proposing new CO_2 and fuel consumption standards for vocational vehicles starting in MY 2021, with increased stringency in MY 2024, and a fully phased-in stringency level in MY 2027. The proposed vocational vehicle standards are differentiated using three vehicle weights and three driving cycles. The agencies are also proposing separate standards for emergency vehicles. The fully phased-in standards would achieve up to 16 percent reduction in CO_2 emissions and fuel consumption relative to Phase 1. The agencies project that the proposed vocational vehicle standards could be met through improvements in the engine, transmission, driveline, lower rolling resistance tires, workday idle reduction technologies, and weight reduction.

Heavy-Duty Pickup Trucks and Vans

Heavy- and medium- duty pickup trucks and vans represent about 15 percent of the fuel consumption and GHG emissions from the heavy- and medium-duty vehicle sector. The agencies are proposing new CO_2 emission and fuel consumption standards for heavy-duty pickups and vans that would be applied in largely the same manner as the Phase 1 standards. Under this approach, all manufacturers face the same standards, but the average emission and fuel consumption rates applicable to each manufacturer depend on the manufacturer's sales mix, with higher capacity vehicles (payload and towing) having less stringent targets. The proposed standards for this segment take the form of a set of target standard curves, based on a "work factor" that, as in Phase 1, combines a vehicle's payload, towing capabilities, and whether or not it has 4-wheel drive. The proposed standards would become 2.5% more stringent every year from model years 2021 to 2027.

The proposed program would reduce CO_2 emissions and fuel consumption for these vehicles by about 16 percent beyond Phase 1 when fully phased in. We believe most manufacturers would choose to meet the performance standards through increased use of the same technologies already being used to meet the 2014-2018 standards. These technologies include improvements in engines, transmissions, and lower rolling resistance tire technologies. Under Phase 2, the agencies expect newer, advanced technologies such as engine stop start and powertrain hybridization will also become available in this segment of the market. These newer technologies are NOT mandated but some manufacturers may choose to use them to meet the standard.

Engine Standards

As with the Phase 1 program, the agencies are proposing separate standards and test cycles for tractor engines, vocational diesel engines, and vocational gasoline engines. For diesel engines, the proposed standards would begin in model year 2021 and phase in to MY 2027, with interim standards in MY 2024. We are also proposing a revised test cycle weighting for tractor engines to better reflect actual in-use operation. The proposed diesel engine standards would reduce CO_2 emissions and fuel consumption by up to 4 percent compared to Phase 1. Technologies that could be used to meet the standards include: combustion optimization; improved air handling; reduced friction within the engine; improved emissions after-treatment technologies; and waste heat recovery.

Standards for Other Greenhouse Gases

Because certain refrigerants are also extremely potent GHGs, the program includes EPA-proposed standards to control leakage of hydrofluorocarbons (HFCs) from air conditioning

systems in vocational vehicles. Similar HFC standards already apply under the Phase 1 program for combination tractors, and for pickup trucks and vans.

EPA is also proposing more stringent nitrous oxide (N2O) standards for heavy-duty engines.

Program Flexibilities

This rule includes averaging, banking, and trading (ABT) compliance provisions for the engine and vehicle standards in this program. These provisions would allow manufactures to trade credits, bank credits for future years, and average credits, which allows manufacturers to certify engines or vehicles that do not perform up to the standard and offset them with engines or vehicles that perform better than the standard. ABT provisions allow manufacturers to balance market fluctuations impacting their sales volumes and projected compliance plans. This program was established under Phase 1, and EPA and NHTSA are proposing to continue it with some minor revisions. The ABT flexibilities are designed to help increase the rate at which new technologies could be implemented, reduce the cost of compliance, and address potential lead time challenges in meeting the standards.

As with similar flexibilities in the light-duty Corporate Average Fuel Economy program and other mobile source pollution control programs, the Phase 2 ABT program includes rigorous compliance provisions to ensure that the energy savings and environmental goals of the program are met and the standards are applied equitably among all manufacturers.

We are not proposing to include a full ABT program for the trailer standards because the nature of the industry makes it a challenge for trailer manufacturers to benefit from this type of program. Instead, we are proposing limited averaging provisions for certain trailer manufacturers.

The agencies are also proposing flexibilities for small businesses including an extra year of lead time before meeting the standards, less stringent standards, and reduced compliance requirements.

Public Participation Opportunities

EPA and NHTSA welcome your comments on this proposed rule. Information on how to submit comments, the length of the public comment period, and where and when public hearings will be held may be found on both NHTSA's and EPA's websites (see For More Information below).

For NHTSA:
All comments should be identified by Docket ID No. NHTSA- 2014-0132 and submitted by one of the following methods:

Internet: www.regulations.gov
Mail or Hand Delivery:
Docket Management Facility, M-30
U.S. Department of Transportation, West Building

Ground Floor, Rm. W12-140
1200 New Jersey Avenue SE
Washington, DC 20590

For EPA:
All comments should be identified by Docket ID No. EPA-HQ-OAR-2014-0827 and submitted by one of the following methods:

Internet: www.regulations.gov
E-mail: A-and-R-Docket@epa.gov
Mail:
Environmental Protection Agency
Air and Radiation Docket and Information Center (6102T)
1200 Pennsylvania Avenue NW
Washington, DC 20460
Hand Delivery:
EPA West building
EPA Docket Center (Room 3340)
1301 Constitution Avenue NW
Washington, DC

For More Information

You can access the proposed joint rules and related documents on EPA's Office of Transportation and Air Quality (OTAQ) Web site at:

www.epa.gov/otaq/climate/regs-heavy-duty.htm

You can access the proposed joint rules and related documents, including the Draft Environmental Impact Statement, on NHTSA's Fuel Economy Web site at:

www.nhtsa.gov/fuel-economy

For more information on these and related rules, please contact EPA or NHTSA.

EPA OTAQ Public Inquiries

www.epa.gov/otaq/oms-cmt.htm

NHTSA Public Inquiries

www.nhtsa.gov/Contact