



## **ISSUE UPDATE ON EPA/NHTSA PROPOSED GREENHOUSE GAS/FUEL EFFICIENCY STANDARDS FOR MEDIUM AND HEAVY-DUTY TRUCKS, ENGINES, AND TRAILERS**

*(August 2015)*

On June 19, 2015, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT) National Highway and Traffic Safety Administration (NHTSA) jointly proposed the second round of standards for medium and heavy-duty trucks and trailers (Phase II) to reduce greenhouse gas emissions and improve fuel efficiency. The standards apply to “new” semi-trucks, pick-up trucks, and all types and sizes of buses and work trucks, as well as designated “new” trailers. Milestones for engines and tractors must be achieved in model years 2021, 2024, and 2027. Trailer milestones are set for model years 2018, 2021, 2024, and 2027.

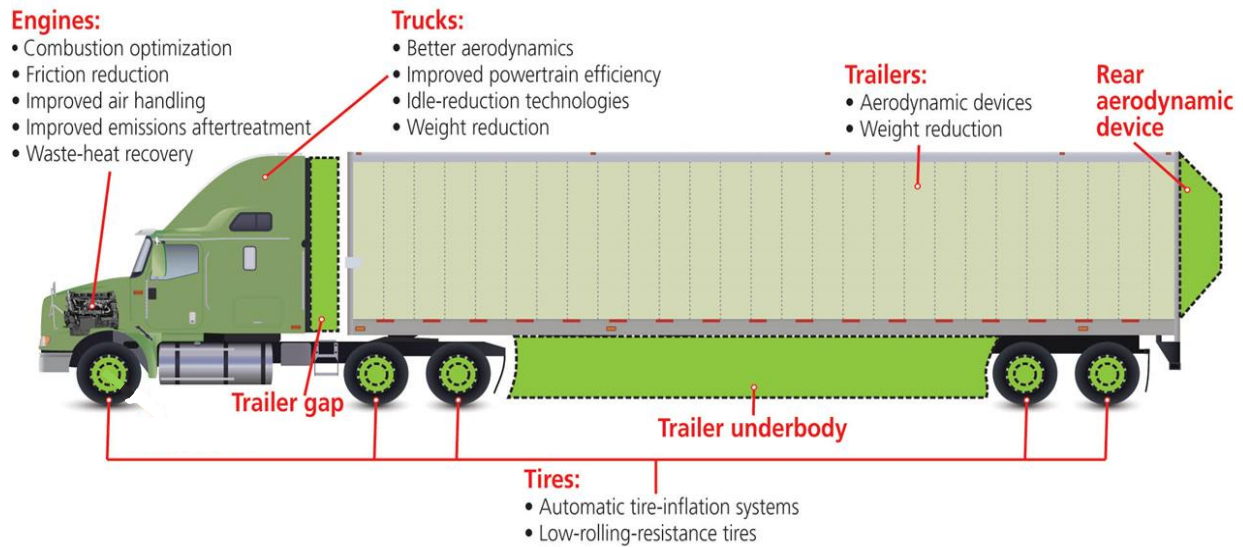
While fleet acceptance and purchases of fuel-efficient technologies under Phase II will directly determine the overall success of the Rule, compliance under the proposal is the responsibility of truck, engine, and trailer manufacturers. According to the agencies, the Rule will result a reduction of 1 billion metric tons of carbon emissions; save approximately 1.8 billion barrels of oil or 75 billion gallons of fuel; and save vehicle owners \$170 billion in fuel costs over the lifetime of the vehicles subject to the standards. In 2027, when the standards are fully implemented, heavy-duty vehicles across all classes are projected to achieve the following carbon emissions and fuel use reductions:

- 24% for combination tractors when compared to Phase I standards
- 8% for trailers when compared to an average model year 2017 trailer
- 16% for vocational vehicles when compared to Phase I standards
- 16% for pick-up trucks and light vans when compared to Phase I standards

In model year 2027, the buyer of a new vehicle is projected to recoup the extra cost of the purchased technologies within the following periods:

- 2 years for a tractor/trailer combination
- 6 years for a vocational vehicles such as garbage trucks, buses, and on-road construction trucks (e.g., cement mixers, dump trucks, etc.), which are typically used longer than vehicles in other heavy-duty sectors
- 3 years for pick-ups and vans

The Rule does not mandate specific technologies but rather sets carbon and fuel efficiency performance standards for manufacturers to meet using numerous technology choices. The following graphic presents a general overview regarding the menu of potential technologies aimed at complying with the Phase II standards:



## ENGINE OVERVIEW

Engine improvements under Phase II will focus on several key areas including combustion optimization; turbocharging systems; engine friction and parasitic losses; exhaust after-treatment; engine breathing systems; engine downsizing; waste heat recovery; and transient controls for vocational engines only. The following table breaks down estimated engine efficiency gains and costs by truck type and model year:

**Estimated Engine Incremental Cost Increases and Efficiency Targets\***

	MY 2021 (+1.5%)	MY 2024 (+3.7%)	MY 2027 (+4.2%)
MHD Diesel	\$314	\$904	\$1,698
HHD Diesel	\$314	\$904	\$1,698
LHD Vocational	\$293	\$437	\$471
MHD Vocational	\$270	\$405	\$437
HHD Vocational	\$270	\$405	\$437

\* Efficiency improvements compared to 2017 compliant engines.  
Monetary figures are in 2012 dollars.



## TRACTOR OVERVIEW

Tractor improvements under Phase II will likely be achieved through the use of: automatic, automated, and dual clutch transmissions; driveline improvements; automatic tire inflation systems; axles and axle lubricants; aerodynamics; tire rolling resistance; idle reduction; and other tractor accessories. The following table breaks down estimated tractor efficiency gains and costs by truck type and model year:

**Estimated Tractor Incremental Cost Increases and Efficiency Targets\***

	MY 2021 (+7.5-11.5%)	MY 2024 (+11.3-16.3%)	MY 2027 (+13.8-19.8%)
Class 7 Day Cab Low/Mid Roof	\$5,468	\$8,400	\$10,140
Class 7 Day Cab High Roof	\$5,252	\$8,304	\$10,099
Class 8 Day Cab Low/Mid Roof	\$5,520	\$8,467	\$10,204
Class 8 Day Cab High Roof	\$5,298	\$8,419	\$10,209
Class 8 Sleeper Cab Low Roof	\$7,916	\$11,102	\$12,744
Class 8 Sleeper Cab Mid Roof	\$7,916	\$11,102	\$12,744
Class 8 Sleeper Cab High Roof	\$7,771	\$11,145	\$12,842

\* Efficiency improvements compared to 2017 compliant tractors. Monetary figures are in 2012 dollars.

## TRAILER OVERVIEW

EPA and DOT have interpreted that trailers pulled by combination tractors are part of vehicles and are therefore within their respective authorities to regulate. While trailers were not included under the Phase I Rule which began implementation with model year 2014 equipment, they are being included under the Phase II proposal. Initial standards for trailers would apply beginning January 1, 2018. The standards would gradually increase in stringency in model years 2021 and 2024. The most stringent requirements would not apply until model year 2027. During these designated years, manufacturers would make incrementally greater improvements to their new trailers to increase fuel efficiency and reduce carbon emissions.



The proposed program is designed with separate performance-based standards for the following box trailer subcategories:

- Long-box dry vans
- Long-box refrigerated vans
- Short-box dry vans
- Short-box refrigerated vans

Box trailers with work-performing devices that inhibit the use or effectiveness of aerodynamic technologies may be eligible to meet reduced standards. Non-box trailers (including platform/flatbed, tank, container chassis, and other specialty trailers) would be required to use low-rolling resistance tires and automatic tire inflation systems. Certain specialized trailers, such as logging, mining, livestock trailers, and trailers intended for temporary or permanent residence or office space (e.g., mobile homes and campers) would not be subject to the standards.

Box trailer manufacturers will be able to choose from a combination of technologies to achieve their efficiency targets including: aerodynamic devices; low-rolling resistance tires; automatic tire inflation systems; and light-weight components. The following table breaks down estimated trailer efficiency improvements and costs by trailer type and model year:

**Estimated Trailer Incremental Cost Increases and Efficiency Targets\***

	MY 2018 (+2%)	MY 2021 (+4%)	MY 2024 (+6%)	MY 2027 (+8%)
53' Dry Vans	\$588	\$901	\$1,116	\$1,409
53' Refrigerated Vans	\$588	\$901	\$1,116	\$1,280
28' Dry Vans	\$514	\$974	\$1,097	\$1,253
Non-Box	\$868	\$807	\$739	\$704

\* Efficiency improvements compared to 2017 trailers. Monetary figures are in 2012 dollars.

Comments on the rule and supporting documents will be accepted through September 17, 2015. To learn more about the joint rule visiting either NHTSA's or EPA's web sites at <http://www.nhtsa.gov/fuel-economy> or <http://www.epa.gov/otaq/climate/regs-heavy-duty.htm> or search the rulemaking dockets (NHTSA-2014-0132; EPA-HQ-OAR-2014-0827) at [www.regulations.gov](http://www.regulations.gov). For more information from ATA contact Glen Kedzie at [gkedzie@trucking.org](mailto:gkedzie@trucking.org).