

## Federal Emissions and Fuel Efficiency Standards for Medium and Heavy Duty Vehicles

**Policy Summary:** In September 2011, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized a first phase of complementary programs to reduce GHG emissions and improve fuel efficiency, respectively, for medium- and heavy-duty vehicles, such as the largest pickup trucks and vans, combination tractors, and all types and sizes of work trucks and buses in between, for model years (MY) 2014-2018. In June 2015, EPA and NHTSA jointly announced a proposed second phase of GHG emissions and fuel efficiency standards for medium- and heavy-duty vehicles, building on the success of the Phase 1 standards. 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 CO<sub>2</sub> and fuel consumption standards for combination tractors and engines would start in 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<sub>2</sub> 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.

	Savings from full policy implementation	% of 1990 level
Economy-wide GHG reductions in 2020 from Phase 1	0.2 MMTCO <sub>2</sub> e	0.2%
Economy-wide GHG reductions in 2020 from Phase 2 for trailers	0.2-0.5 MMTCO <sub>2</sub> e	0.2-0.5%
Motor fuel savings in 2020 <sup>55</sup>	\$140 million	
Cumulative net benefits (discounted) 2011-lifetime of vehicles	\$240 million	
Jobs gained in 2020 (direct and indirect)	1,000 jobs	

**Clean Energy Economy Impacts:** Using commercially available technologies, a payback period of one to two years was estimated for the majority of vehicles for the Phase 1 standards. Vehicles with lower annual miles would have payback periods of four to five years. For example, an operator of a semi truck could pay for the technology upgrades in under a year, and have net savings up to \$74,000 over the truck's useful life. For the Phase 2 standards, payback periods for truck owners would continue to 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.

<sup>55</sup> At \$3.34/gallon gasoline, \$3.51/gallon diesel, in 2008\$. Energy Information Administration, Annual Energy Outlook 2010.

Large reductions in fuel use will improve air quality. Less spending on imported fuel will keep more money in the Massachusetts economy and thereby create jobs.

**Rationale:** Transportation accounted for 42 percent of total GHG emissions in Massachusetts in 2012, with medium- and heavy-duty vehicles accounting for 11 percent of total emissions. These vehicle standards will reduce fuel consumption and GHG emissions while providing regulatory certainty for manufacturers.

**GHG Impact:** The Phase 1 and Phase 2 standards are estimated to reduce 0.4–0.7 percent of statewide GHG emissions in 2020, based on a 3–8 percent improvement in CO<sub>2</sub> emissions and fuel consumption over the MY 2017 baseline from improved trailer aerodynamics.

**Equity Issues:** The federal regulations are carefully designed to set efficiency standards that are appropriate and cost-effective for different sizes and types of vehicles. There are no significant predicted equity issues with the promulgation of this second phase of federal regulation.

**Uncertainty:** Current projections of the impact of these standards by the EPA and NHTSA may not turn out to be correct, in terms of fuel savings and costs and benefits, as the regulation is not yet final. In addition, if manufacturers cannot meet the standard and pay penalties instead, then GHG and fuel consumption goals will not be met.