


Medium & Heavy-Duty Vehicle Greenhouse Gas Rule Phase 2

MWAQC-TAC

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Context



- Supreme Court Ruling (2007)
 - Clean Air Act requirement to set air pollutant standards
 - EPA to regulate CO₂ and other greenhouse gases as pollutants
- Endangerment Finding (2009) 
 - EPA determines greenhouse gases endanger health and welfare



Background



- National program developed by the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA)
- Focuses on light and heavy-duty vehicles
- Reductions and standards implemented in 2 phases

National Regulations & Standards

Figure 1 CO₂ (g/mile) Car Standards Curves

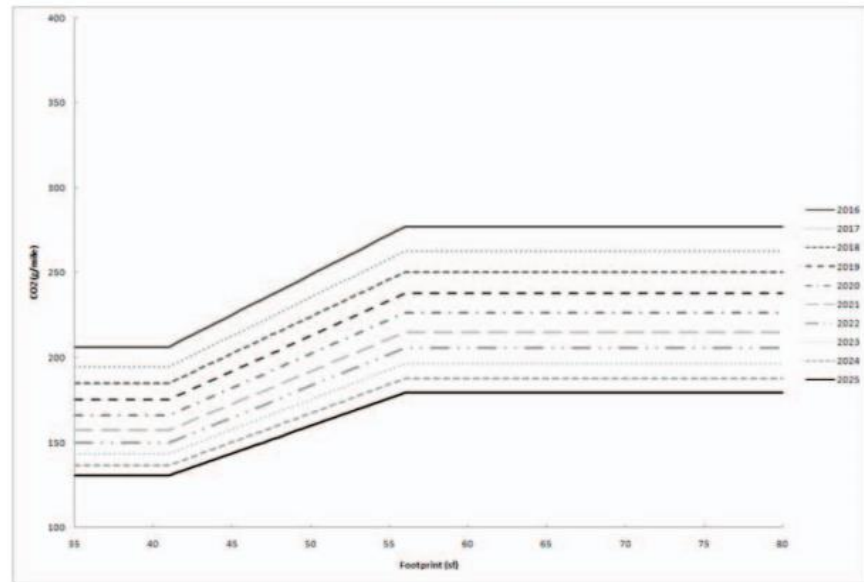
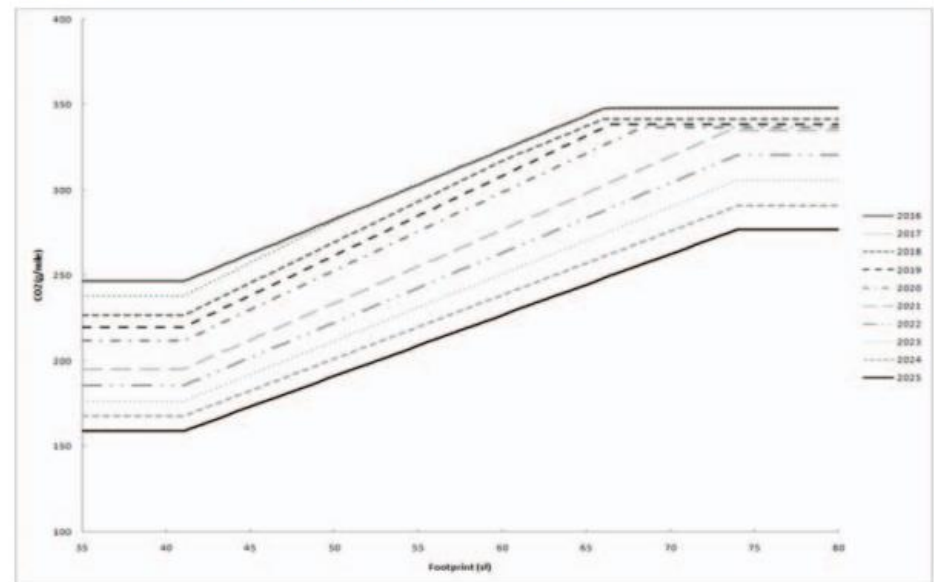


Figure 2 CO₂ (g/mile) Truck Standard Curves



- Includes both emissions rate requirements (g CO₂/mile) as well as fuel economy standards (Corporate Average Fuel Economy (CAFE) standards)



Light-Duty Vehicles

- Phase 1 (Model Years 2012-2016)
 - Combined average emissions: 250g CO₂/mile
 - Fuel economy: 35.5 mpg
- Phase 2 (Model Years 2017-2025)
 - Combined average emissions: 163g CO₂/mile
 - Fuel economy: 54.5 mpg



Medium & Heavy-Duty Rule: Phase 1

- Model Years 2014-2018
- First ever program to reduce GHG emissions and improve fuel efficiency
- Standards apply to complete vehicles, allowing greatest possible reductions
- Standards for CO₂, N₂O, CH₄, and HFC leakages

Fuel Consumption and CO2 Emissions Reductions Relative to 2010 Baseline

Vehicle Type	Percentage
Combination Tractors	9-23%
Heavy-Duty Pickup Trucks and Vans	15% (diesel) 10% (gasoline)
Vocational Vehicles	6-9%

Phase 1 Standards

Model Year 2017 Combination Tractor Standards

	EPA Emissions Standards (g CO ₂ /ton-mile)			NHTSA Fuel Consumption Standards (gal/1,000 ton-mile)		
	Low Roof	Mid Roof	High Roof	Low Roof	Mid Roof	High Roof
Day Cab Class 7	104	115	120	10.2	11.3	11.8
Day Cab Class 8	80	86	89	7.8	8.4	8.7
Sleeper Cab Class 8	66	73	72	6.5	7.2	7.1

Model Year 2017 Vocational Vehicle Standards

	EPA Full Useful Life Emissions Standards (g CO ₂ /ton-mile)	NHTSA Fuel Consumption Standards (gal/1,000 ton-mile)
Light Heavy Class 2b-5	373	36.7
Medium Heavy Class 6-7	225	22.1
Heavy Heavy Class 8	222	21.8

Model Year 2017 Heavy-Duty Pickup Truck and Van Standards

- Diesel
 - Combined average emissions: 520 g CO₂/mile
 - Fuel economy: 18.7 mpg
- Gasoline
 - Combined average emissions: 530 g CO₂/mile
 - Fuel economy: 17.0 mpg

Medium & Heavy-Duty Rule: Phase 2

- GHG emissions and fuel efficiency standards for medium and heavy-duty vehicles
 - First ever standards for trailers
- Building on success of Phase 1 standards
- Phase 2: model years 2018-2027

Fuel Consumption and CO₂ Emissions Reductions Relative to Phase 1

Vehicle Type	Percentage
Combination Tractors	24%
Heavy-Duty Pickup Trucks and Vans	16%
Trailers	8%
Vocational Vehicles	16%

Phase 2 Standards

Model Year 2027 Combination Tractor Standards

	EPA Emissions Standards (g CO ₂ /ton-mile)			NHTSA Fuel Consumption Standards (gal/1,000 ton-mile)		
	Low Roof	Mid Roof	High Roof	Low Roof	Mid Roof	High Roof
Day Cab Class 7	87	96	96	8.5	9.4	9.4
Day Cab Class 8	70	76	76	6.9	7.5	7.5
Sleeper Cab Class 8	62	69	67	6.1	6.8	6.6

Model Year 2027 Trailer Standards

	EPA Full Useful Life Emissions Standards (g CO ₂ /ton-mile)	NHTSA Fuel Consumption Standards (gal/1,000 ton-mile)
Long Dry Van	77	7.6
Short Dry Van	140	13.8
Long Refrigerated Van	80	7.9
Short Refrigerated Van	144	14.1

Phase 2 Standards

Model Year 2027 Vocational Vehicle Standards

	EPA Full Useful Life Emissions Standards (g CO ₂ /ton-mile)	NHTSA Fuel Consumption Standards (gal/1,000 ton-mile)
Light Heavy Class 2b-5	339	33.3
Medium Heavy Class 6-7	199	19.5
Heavy Heavy Class 8	203	19.9

- **Model Year 2027 Heavy-Duty Pickup Truck and Van Standards**
 - Diesel
 - Combined average emissions: 400 g CO₂/mile
 - Fuel economy: 25.4 mpg
 - Gasoline
 - Combined average emissions: 425 g CO₂/mile
 - Fuel economy: 21.3 mpg

Implementation Approaches

1. Combination Tractors

- Improvements in engine, transmission, driveline, aerodynamic design, efficient technologies



2. Trailers

- Aerodynamic devices, lower rolling resistance tires, automatic tire inflation, weight reduction

3. Heavy-Duty Pickup Trucks and Vans

- Improvements in engine, transmission, lower rolling resistance tires, advanced technologies and hybridization

4. Vocational Vehicles

- Improvements in engine, transmission, driveline, idle reduction technologies, weight reduction

Impacts

- Save industry \$170 billion worth of fuel
- Reduce GHG emissions by 1 billion MT
- Conserve 1.8 billion barrels of oil
- Reduce costs for transporting goods
- Spur innovation in clean energy technology



Regional Effects

- Improves NCR's ability to achieve regional GHG targets
- Medium and heavy-duty vehicles account for 23% of total transportation emissions in the region
 - Reductions will make a large impact on overall emissions



Next Steps

- Stakeholder input
 - Comment period open
 - Meetings with stakeholders to identify opportunities and challenges
- Feedback on Phase 2 proposal
 - Will inform policies and standards
 - Differentiated stakeholder impacts

