

Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025

Proposed Determination

Briefing for the NACAA Mobile Sources and Fuels Committee

December 12, 2016

Overview

- Background on Midterm Evaluation (MTE)
- Proposed Determination
 - Factors considered
 - Updates to our analysis
 - Assessment of the 2022-2025 standards
 - Proposed determination & comment period

Background: The MTE Process

- In the 2017-2025 rulemaking, Agencies committed to a midterm evaluation of 2022-2025 standards
 - Through the MTE, the EPA Administrator must determine the appropriateness of the 2022-2025 standards
 - Coordinated review with EPA, NHTSA, and California ARB
 - Holistic assessment of all the factors considered in setting standards
 - EPA regulations describe a 3 step process:
 - 1) Draft Technical Assessment Report (TAR) by Nov. 2017
 - 2) Proposed determination for public comment on whether the 2022-2025 standards are appropriate (no explicit deadline)
 - 3) Final Determination no later than April 2018
- Draft Technical Assessment Report (TAR) issued in July 2016
 - Issued jointly by EPA, NHTSA, California ARB for public comment
 - First step in MTE process; technical report, not a policy or decision document
 - Examined a wide range of factors affecting 2022-2025 standards

Background: Highlights of the Draft TAR

- A wider range of technologies exist for manufacturers to use to meet the MY2022-2025 standards, and at costs that are similar to or lower than, those projected in the 2012 rule
- The auto industry can meet the standards primarily with advanced gasoline vehicle technologies and with very low levels of strong hybridization and full electrification (plug-in vehicles)
- The updated 2025 projections of fuel prices, car/truck mix, and the fleet-target illustrate that the footprint-based standards will continue to accommodate consumer choice and achieve significant GHG reductions and fuel savings across all vehicle types

Overview of Comments on Draft TAR

- Total comments: ~220,000
 - Organization comments: ~90
 - Several organization-led letter writing campaigns, both support and oppose the 2025 standards
- Comments express two different viewpoints:
 - Auto industry largely believes 2025 standards remain challenging, requiring more technology, including more electrification, than Draft TAR suggests
 - Environmental organizations and many other NGOs, states, and consumer groups largely believe the Draft TAR makes a strong case for retaining or even strengthening the standards
- EPA fully reviewed the Draft TAR comments and updated our analysis for the Proposed Determination based on comments and other updated information

New EPA Reports on CO₂ Trends and Auto Manufacturer Performance

- Two reports released in November strongly support that the National Program is working and that the auto industry is thriving and meeting the standards more quickly than required, even at low fuel prices
- GHG Performance Report
 - Automakers over-complied with 2015 standards for 4th year in a row
 - By 7 grams/mile, equivalent to nearly 1 mpg
 - 2015 standard decreased by 13 grams/mile, biggest annual step yet
 - All large manufacturers (99% of market) have complied through 2015
- CO₂ and Fuel Economy Trends Report
 - 2015 fuel economy increased 0.5 mpg to record 24.8 mpg
 - Biggest recent improvements from large SUVs and pickups
 - Since National Program started in 2012, 2.4 mpg higher and 39 grams/mile lower

EPA Regulations on the Determination

- No later than April 1, 2018, the Administrator shall determine whether the standards for 2022 -2025 model years are appropriate under section 202(a) of the Clean Air Act, in light of the record then before the Administrator.
- The Administrator shall make the determination based upon a record that includes at minimum:
 - A draft Technical Assessment Report addressing issues relevant to the standard for the 2022-2025 model years;
 - Public comment on the draft Technical Assessment Report;
 - Public comment on whether the standards established for the 2022-2025 model years are appropriate under section 202(a) of the Clean Air Act

The Proposed Determination

Factors Considered in the Determination

- In making the determination, the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for MY2022-2025, including but not limited to:
 - The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
 - The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
 - The feasibility and practicability of the standards;
 - The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
 - The impact of the standards on the automobile industry;
 - The impacts of the standards on automobile safety;
 - The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program; and
 - The impact of the standards on other relevant factors.

Analyses Updates for the Proposed Determination

- Since the Draft TAR, EPA made a number of updates to its supporting analyses, based on public comments and other updated data:

- Updated fuel prices/vehicle sales volumes to AEO 2016
- Updated baseline to the latest final data (MY2015)
- Updated battery costs based on new data/literature
- Updated vehicle simulation model with latest EPA benchmarking data
- Updated technology effectiveness across vehicle types
- Added quality assurance checks of tech effectiveness assumptions
- Applied technology costs and effectiveness over a finer resolution of vehicle types (more precision)
- Better accounting for tire and aerodynamic improvements in the baseline

Proposed Assessment of the 2022-2025 Standards

Technology Penetrations and Per-Vehicle Costs

- The standards are feasible and cost-effective, with a wide range of technology pathways to meet the 2025 standards. The standards can be met largely through advancements in gasoline vehicle technologies with very low levels of strong hybrids or electric vehicles.

Per-Vehicle Costs & Technology Penetrations to Meet MY2025 GHG Standards

	Draft TAR	Proposed Determination	
		Primary Analysis	Range of Sensitivities Analyzed
Electric vehicles (EVs) + Plug-in hybrid electric vehicles (PHEVs)	4%	5%	4 - 6%
Hybrid electric vehicles (HEVs)	3%	2%	2 - 3%
Start/Stop + Mild Hybrids	39%	33%	32 - 57%
Advanced Transmissions	90%	93%	92 - 94%
Advanced Gasoline (Atkinson, Miller, Turbo/downsized)	81%	63%	44 - 88%
Per-vehicle Costs (2015\$)	\$920	\$875	\$800 – \$1,115

Proposed Assessment of the 2022-2025 Standards

CO₂ and Oil Reductions

- The Proposed Determination assessment, like the Draft TAR and the 2012 rule, shows the standards will achieve significant CO₂ and oil reductions

Cumulative GHG and Oil Reductions (Vehicle Lifetime Reductions)

	Draft TAR	Proposed Determination
GHG reduction (million metric tons, MMT CO ₂ e)	540	537
Oil reduction (billion barrels)	1.2	1.2

- The standards are projected to achieve an industry-wide fleet average CO₂ target of 173 grams/mile (g/mi) in MY2025, equivalent to 51.4 mpg (if all reductions achieved through fuel economy improvement)

Proposed Assessment of the 2022-2025 Standards

Program Costs, Benefits and Payback

- The net benefits far exceed the costs of the program, demonstrating that the standards will provide significant benefits to consumers and the public
- Consumers would save \$1,650 over the lifetime of their new vehicle. Consumers who finance their vehicle with a 5-year loan would see payback within the 1st year, and those who pay cash would see payback within the 5 years.

Lifetime Costs & Benefits (\$Billions, 3% Discount)

	Draft TAR	Proposed Determination
Vehicle Program	- \$34	-\$33
Maintenance	-\$2	-\$3
Fuel	\$89	\$92
Benefits	\$41	\$42
Net Benefits	\$94	\$98

Payback Period and Net Lifetime Consumer Savings for an Average MY2025 Vehicle (compared to the MY2021 GHG Standards)

	Draft TAR	Proposed Determination
5-year Loan Payback (years)	Not calculated	<1
Cash Payback (years)	5	5
Net Lifetime Consumer Savings (\$, discounted at 3%)	\$1,620	\$1,650

Beyond 2025: Continued reductions in GHG emissions are essential to help address the threat of climate change

- EPA recognizes that climate change is a long-term global environmental challenge
- Any meaningful plan to address the climate challenge must prioritize early GHG emissions reductions and make continual progress toward long-term goals
- Transportation is projected to be an increasingly significant contributor to U.S. (and global) GHG emissions well into the future
- Given that lead time issues are central to the automotive industry, beginning to identify appropriate GHG emissions targets for the light-duty sector beyond 2025 may facilitate more efficient investment planning strategies for both the pre-2025 and post-2025 time frame
- EPA believes it is important to have a dialog with stakeholders about future light-duty vehicle GHG emission reductions

Proposed Determination and Comment Period

- Based on the exhaustive technical record developed with significant input from the industry and other stakeholders, the Administrator is making a Proposed Determination that the MY2022-2025 standards remain appropriate
- The technical record could support a decision to adopt more stringent standards
 - However, the Administrator has preliminarily concluded that it is appropriate to provide the full measure of lead time for the 2022-2025 standards
 - Given the need to significantly reduce GHGs from the transportation sector, regulatory certainty is important to give automakers the time they need to for long-term planning and engineering that could lead to major advancements in technology, potentially leading to further emission reductions and benefits to consumers and the public
- A 30-day public comment period is now open and will close on December 30, 2016
- After consideration of the public input, the Administrator will decide whether she has enough information to make a final determination

Questions?

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EPA's MTE Web site:
<https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas-ghg>