Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards

Regulatory Update

United States Environmental Protection Agency

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Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards – Final Rule

The Environmental Protection Agency (EPA) is finalizing federal greenhouse gas (GHG) emissions standards for passenger cars and light trucks by setting ambitious but achievable requirements for emissions reductions for Model Years (MY) 2023 through 2026. The standards would achieve significant GHG emissions reductions along with reductions in other air pollutants. This rule will result in substantial public health and welfare benefits, while providing fuel savings to consumers. Today's action will set the U.S. on a course to achieve ambitious GHG emissions reductions from transportation over the long term. The final rule provides a foundation for building on rapidly developing trends toward zero-emission technologies and the substantial reductions in air pollution they will make possible.

As a follow on to this action, EPA plans to initiate a future rulemaking to establish multi-pollutant emission standards for MY 2027 and beyond. Consistent with the direction of Executive Order 14037, "Strengthening American Leadership in Clean Cars and Trucks," this subsequent rulemaking will set standards through at least MY 2030 and will apply to light-duty vehicles and medium-duty vehicles.[1]

Setting the Program on a Trajectory to Achieve Significant GHG Reductions

Today's rule puts EPA's clean cars program on track to achieve significant GHG emissions reductions over the long term. The final rule will prompt automakers to use clean technologies that are available today and help stimulate production of more electric vehicles. This rule is a critical step to setting the U.S. on a path to a zero-emissions transportation future.

The final rule revises current GHG standards beginning in MY 2023 and increases in stringency year over-year through MY 2026. The standards finalized for MYs 2025 and 2026 are the most stringent option considered in the proposed rule and the MY 2026 requirements establish the most stringent GHG standards ever set for the light-duty vehicle sector. The final rule significantly accelerates the rate of stringency increases to between 5 and 10 percent each year from 2023 through 2026. Under the previous standards stringency increased at a rate of roughly 1.5 percent per year. Today's final standards are expected to result in average fuel economy label values of 40 mpg, while the standards they replace (the SAFE rule standards) would achieve only 32 mpg in MY2026.

[1] Medium duty vehicles include commercial pickups and vans, also referred to as heavy-duty class 2b and 3 vehicles.

Table 1: Comparison of Fleet Average Target Projections for the Final Standards Compared to Updated Fleet Average Target Projections* for the Proposed Standards, SAFE Rule and 2012 Rule

	EPA Projected Fleet-wide CO2 Emissions Standards	EPA CO2 standards expressed as "MPG equivalent"**	EPA Estimated Real World Label Value***
MY 2026 Standard Projections: Final Rule	161 grams/mile	55 mpg	40 mpg
MY 2026 Standard Projections: Proposal	173 grams/mile	52 mpg	38 mpg
MY 2026 Standards: 2020 Final Rule (SAFE2)	208 grams/mile	43 mpg	32 mpg
MY 2025 Standards: 2012 Final Rule	180 grams/mile	50 mpg	36 mpg

*All values calculated using the final rule updated fleet mix of 47% cars and 53% trucks in MY2026.
**MPG equivalent is the MPG assuming the GHG standards are met exclusively by reducing tailpipe CO_2.

***This is a value that would be comparable to what a consumer would see on a fuel economy label and reflects real-world impacts on GHG emissions and fuel economy that are not captured by the compliance tests, including high speed driving, air conditioning usage, and cold temperatures.

Climate Urgency

Making cars cleaner is critical to address climate change. Transportation is the single largest source of GHG emissions in the United States, making up 29 percent of all emissions. Within the transportation sector, passenger cars and trucks are the largest contributor, at 58 percent of all transportation sources and 17 percent of total U.S. GHG emissions.

The final standards will contribute toward the goal of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and reducing the probability of severe climate change-related impacts, including heat waves, drought, sea level rise, extreme climate and weather events, coastal flooding, and wildfires. Reductions in GHG emissions from this rule will benefit populations that may be especially vulnerable to damages associated with climate change, such as the very young, the elderly, communities of color, low-income, disabled, and indigenous populations.

Benefits

This final rule would provide significant benefits with respect emission reductions, public health, and fuel savings.

- The benefits of this rule exceed the costs by $120 billion to $190 billion through 2050. Benefits include reduced impacts of climate change, improved public health from lower pollution, and cost savings for vehicle owners through improved fuel efficiency.

- Between $8 and $19 billion of the total benefits through 2050 result from improved public health due to reduced emissions of non-GHG pollutants, including NOx and other pollutants that contribute to fine particulates (PM2.5).
- Looking at fuel costs alone, American drivers will save between $210 billion and $420 billion through 2050.

Consumer Savings

Consumers will benefit from EPA's final standards due to savings from reduced fuel costs. EPA estimates that reduced fuel costs will outweigh the increase in vehicle costs by about $1,080 over the lifetime of a MY 2026 vehicle. In other words, lifetime fuel savings will outweigh the upfront vehicle cost, and fuel savings accumulate over time, with savings growing relative to costs.

Emissions Standards

As with EPA's previous light-duty GHG programs, EPA is finalizing standards expressed as "footprint based curves" for both passenger cars and trucks. Under this approach, each manufacturer has a unique standard for the passenger car and truck categories, for each model year, based on the sales-weighted footprint-based CO2 targets of the vehicles produced in each MY.

The graphic below (Figure 1) shows EPA's final standards, expressed as average fleetwide GHG emissions targets (cars and trucks combined), projected through MY 2026. For comparison, the figure also shows the corresponding targets for the proposal and the prior 2020 and 2012 rules. The projected fleet targets under the final rule increase in stringency in MY 2023 by about 10 percent (from the existing standards in MY 2022), followed by a stringency increase of about 5 percent in MY 2024, as proposed. For MYs 2025-2026 EPA is finalizing stringency increases more stringent than those proposed, about 7 and 10 percent year over year, respectively. EPA intends to initiate a subsequent rule to establish standards for MYs 2027 and beyond.

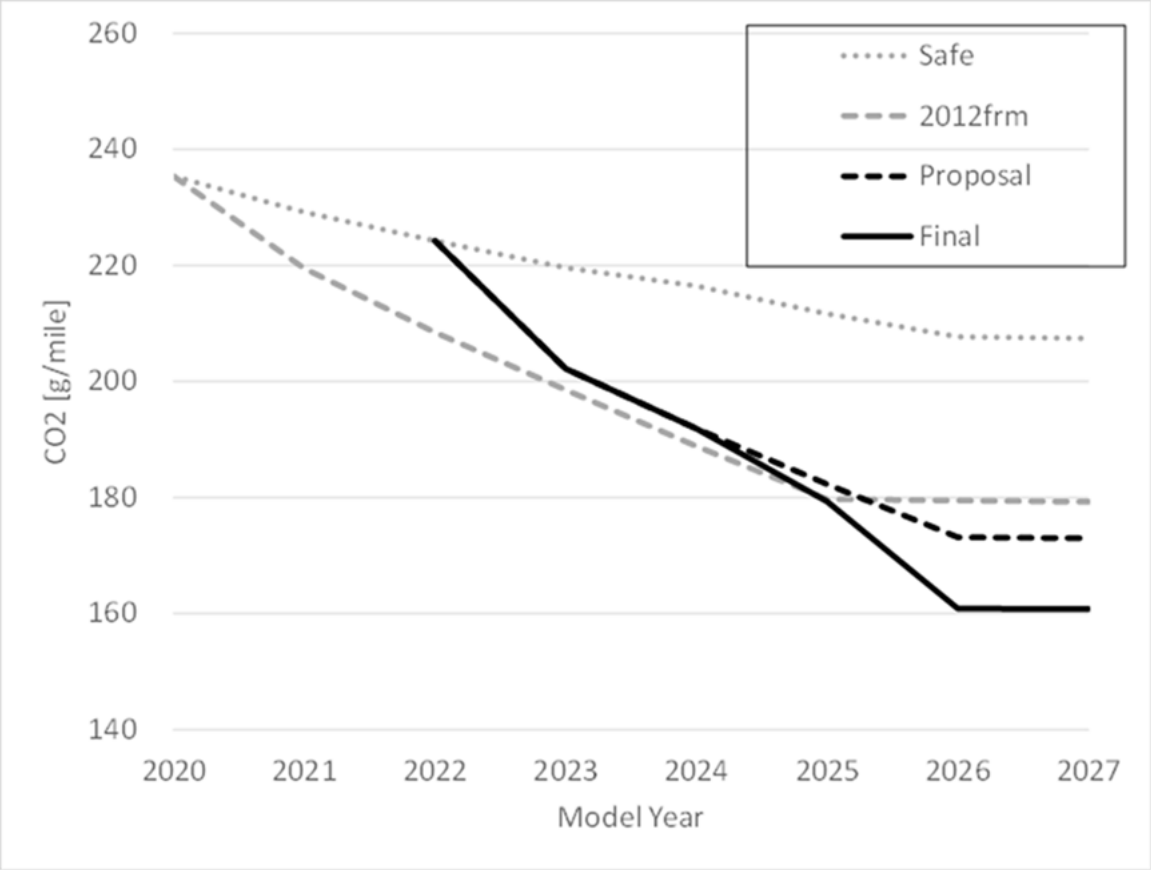

Figure 1: EPA Final Industry Fleet-Wide CO2 Compliance Targets, Compared to the Proposal and 2012 and 2020 Rules, grams/mile, 2021-2026

Table 1 (below) presents the estimates of EPA's final standards presented in Figure 1, in terms of the projected overall industry fleetwide CO2-equivalent emission compliance target levels. The industry fleet wide estimates in Table 1 are projections based on modeling EPA conducted for the final rule, taking into consideration projected fleet mix and footprints for each manufacturer's fleet in each model year. Table 2 presents projected industry fleet average year-over-year percent CO2 reductions for the final standards. Table 3 presents projected technology penetration levels in MY 2026 for several major technology categories.

Table 1: Projected Industry Fleet-wide CO2 Compliance Targets (CO2 grams/mi)

Model Year	Cars	Trucks	Combined Fleet
2022 (SAFE reference)	181	261	224
2023	166	234	202
2024	158	222	192
2025	149	207	179
2026 and later	132	187	161

Table 2: Projected Industry Fleet Average CO2 Target Year-Over-Year Percent Reductions

Model Year	Combined Fleet
2023	9.8%
2024	5.1%
2025	6.6%
2026	10.3%
Cumulative	28.3%

Table 3: Model Year 2026 Technology Penetrations Projected under the Final Rule

Technology	**New Light-duty Vehicle Fleet Penetration**
Advanced High-efficiency Engine Technology	59%
8-speed and other advanced transmissions	71%
Mild Hybrid	5%
Strong Hybrid	7%
Battery Electric Vehicles + Plug-in Hybrid Electric Vehicles	17%

Achievable Efficiency Gains, Building on Sector Trends

Automakers are in a strong position to meet these final standards. The auto industry supported EPA's proposal for the standards to begin in MY2023, and our final rule maintains the MY2023 start date for revised standards. From 2012 until last year, all the automakers were required to meet more stringent standards in 2023 than those being finalized today. Their technological progress over the years has been impressive. Although the 2020 SAFE rule standards were much less stringent, technological advancement over the past ten years has been significant and continues. Nearly all major automakers have announced plans to transition their vehicle fleets to zero-emissions, with many electric vehicle launches planned before 2026. The entry of so many new EV models over the next few years will put the auto industry in a strong position to meet the standards. Finally, the program includes averaging, credit banking and trading provisions to aid the industry in meeting standards through a multi-year planning process, and EPA also is finalizing additional targeted compliance flexibilities to help the industry manage its transition to more stringent standards.

Program Flexibilities and Incentives

EPA's regulatory programs for cars and trucks have traditionally offered automakers compliance options to help them meet standards in the ways that are most appropriate and cost effective for individual companies. EPA received many comments on the proposed flexibility provisions of this rule. After considering the comments along with our updated analyses, we are finalizing flexibility provisions that are narrower than proposed. The final rule focuses the available flexibilities in MYs 2023-2024 to help manufacturers manage the transition to more stringent standards in the longer term by providing some additional flexibility in the near-term. The flexibilities that EPA is adopting are:

- A limited extension of credits generated by overcompliance with the MYs 2017 and 2018 standards that can be carried forward for compliance with the MY 2023-2024 standards, respectively.

- Advanced technology vehicle multiplier credits for MYs 2023-2024 with a cumulative credit cap of 10 grams CO2 per mile. This incentive encourages manufacturers to accelerate introduction of zero and near-zero emissions vehicles.
- Full-size pickup truck incentives for strong hybrids or similar performance-based credit for MYs 2023-2024. Similar incentives were included in the 2012 rule but removed by the 2020 SAFE rule for MYs 2022-2025.
- "Off-cycle" credits of up to 15 g/mile. Off-cycle credits recognize and incentivize technologies that provide real-world emissions reductions but which are not captured on EPA's tailpipe emissions compliance tests. These include technologies such as high-efficiency headlamps or solar reflective paint that keeps the vehicle cabin cooler to reduce air conditioning needs.

Safety

This rule will not impact driving safety. EPA estimates that the risk of fatal and non-fatal injuries will remain virtually unchanged by this program.