



Updated October 11, 2018

Vehicle Fuel Economy and Greenhouse Gas Standards

The Trump Administration proposed on August 24, 2018, amendments to the federal standards that regulate fuel economy and greenhouse gas (GHG) emissions from new passenger cars and light trucks. These standards include the Corporate Average Fuel Economy (CAFE) standards promulgated by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA), and the Light-Duty Vehicle GHG Emission Standards promulgated by the U.S. Environmental Protection Agency (EPA).

CAFE Standards

The origin of federal fuel economy standards dates to the mid-1970s. The oil embargo of 1973-1974 imposed by Arab members of the Organization of the Petroleum Exporting Countries (OPEC) and the subsequent tripling in the price of crude oil brought the fuel economy of U.S. automobiles into sharp focus. The fleet-wide fuel economy of new passenger cars had declined from 15.9 miles per gallon (mpg) in model year (MY) 1965 to 13.0 mpg in MY 1973. In an effort to reduce dependence on imported oil, the Energy Policy and Conservation Act (EPCA; P.L. 94-163) established CAFE standards for passenger cars beginning in MY 1978 and for light trucks beginning in MY 1979. The standards required each auto manufacturer to meet a target for the sales-weighted fuel economy for its entire fleet of vehicles sold in the United States in each model year. CAFE standards, and new vehicle fuel economy, rose steadily through the late 1970s and early 1980s. After 1985, Congress did not revise the legislated standards for passenger cars, and they remained at 27.5 mpg until 2011. The light truck standards were increased to 20.7 mpg in 1996, where they remained until 2005. NHTSA promulgated two sets of standards in the mid-2000s for MYs 2005-2007 and MYs 2008-2011, increasing light truck standards to 24.0 mpg.

GHG Standards

Whether and how EPA could regulate GHGs through existing Clean Air Act (CAA) authority was debated for more than a decade before the agency took action. In the April 2007 decision *Massachusetts v. EPA*, the Supreme Court held that EPA has the authority to regulate GHGs as "air pollutants" under the CAA. In the 5-4 decision, the Court determined that GHGs fit within the CAA's "unambiguous" and "sweeping definition" of "air pollutant." The Court's majority concluded that EPA must, therefore, decide whether GHG emissions from new motor vehicles contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or provide a reasonable explanation why it cannot or will not make that decision. On December 15, 2009, EPA promulgated findings that GHGs endanger both public health and welfare, and that GHG emissions from new motor vehicles contribute to that endangerment.

One National Program

Based on EPA's 2009 findings, the Obama Administration brokered an agreement among major stakeholders in the automotive and truck industries, the states, and other interested parties to develop and implement vehicle GHG emission standards. Because carbon dioxide (CO₂) from vehicle fuel combustion is a major source of GHG emissions, President Obama directed EPA to work with NHTSA to align the GHG standards with the CAFE standards.

EPCA and CAA generally preempt states from adopting their own fuel economy and emission standards for new motor vehicles. However, CAA Section 209(b) allows the State of California to request a preemption waiver for its motor vehicle emission standards provided that they are at least as stringent as federal standards and, among other things, are necessary to meet "compelling and extraordinary conditions." EPA granted California a waiver for its state GHG standards in July 2009, and President Obama directed EPA and NHTSA to align the federal GHG and fuel efficiency standards with those developed by California. EPA and NHTSA finalized a joint rulemaking affecting MY 2012-2016 light-duty motor vehicles on April 1, 2010 (Phase 1 standards). The Obama Administration referred to the coordinated effort as the One National Program.

Current Standards

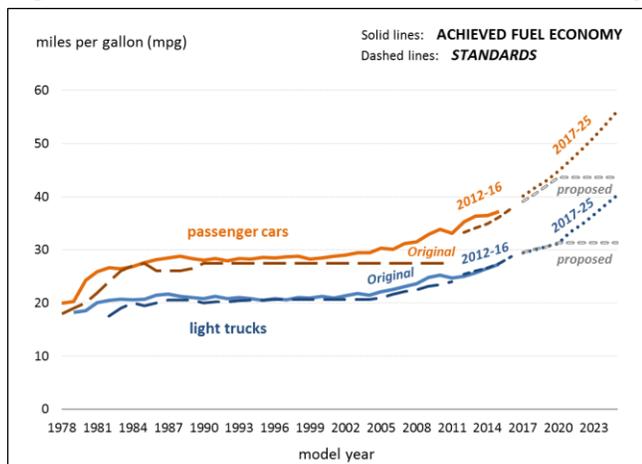
EPA and NHTSA promulgated a second (current) phase of CAFE and GHG emission standards for vehicle MYs 2017-2025 on October 15, 2012 (Phase 2 standards). As with the Phase 1 rulemaking, the Phase 2 standards were preceded by a multiparty agreement, brokered by the Obama Administration, including the State of California, 13 auto manufacturers, and the United Auto Workers union. The manufacturers agreed to reduce GHG emissions from their fleets by about 50% by 2025, compared to 2010, with fleet-wide fuel economy rising to nearly 50 miles per gallon.

The Phase 2 standards apply to the new fleet of passenger cars and light trucks—including most sport utility vehicles, vans, and pickup trucks—sold by a manufacturer within the United States during a given model year. As with the Phase 1 standards, the agencies used the concept of a vehicle's "footprint" to set differing targets for different-sized vehicles. These "attribute-based" standards differ structurally from the original CAFE standards, which grouped domestic passenger cars, imported passenger cars, and light trucks into three broad categories. Generally, the larger the vehicle footprint, the lower the corresponding vehicle fuel economy target and the higher the CO₂-equivalent emissions target. This allows auto manufacturers to produce a full range of vehicle sizes, as opposed to focusing on making the entire fleet lighter and smaller to meet categorical targets.

Manufacturers comply with the standards by reporting to the agencies annually with information regarding their MY fleet production and sales numbers, their MY fleet characteristics, and the fuel economy and emissions results from the EPA-approved test cycles. This information allows the agencies to calculate each manufacturer's CAFE and GHG standards given their specific fleets. The agencies compare the calculated standards against the manufacturer's fleet-wide adjusted test results to determine compliance.

To facilitate compliance, the agencies provide manufacturers various flexibilities under the standards. A manufacturer's fleet-wide performance (as measured on the test cycles) can be adjusted through the use of flex-fuel vehicles, air-conditioning efficiency improvements, and "off-cycle" technologies (e.g., active aerodynamics, thermal controls, and idle reduction). Further, manufacturers can generate credits for overcompliance with the standards in a given year. They can bank, borrow, trade, and transfer these credits, both within their own fleets and among other manufacturers. **Figure 1** compares CAFE standards for both passenger cars and light trucks against the U.S. fleets' adjusted performance data as reported by NHTSA.

Figure 1. CAFE Standards and Achieved Fuel Economy



Source: CRS, from EPA and NHTSA.

Midterm Evaluation

As part of the Phase 2 rulemaking, EPA and NHTSA committed to conduct a midterm evaluation of the standards that would apply in MYs 2022-2025. Through the evaluation, EPA was to determine whether these standards were still appropriate given the latest available data and information. The rulemaking required a final determination on these standards by April 1, 2018. The Obama Administration's EPA proceeded with the midterm evaluation, issuing a draft Technical Assessment Report in June 2016 and a final determination on January 12, 2017, stating that the MY 2022-2025 standards remained appropriate and that a rulemaking to change them was not warranted. Also, on March 24, 2017, the California Air Resources Board, after conducting its own midterm evaluation, voted to retain the state's Advanced Clean Car program—which includes MY 2017-2025 vehicle GHG standards in line with EPA's 2017 final determination and the 2012 rulemaking.

Some auto manufacturer associations and other industry groups criticized the results of the federal and California reviews and have sought to ease the MY 2022-2025 requirements and/or to better align NHTSA's and EPA's requirements.

Trump Administration

On March 15, 2017, EPA and NHTSA reopened the midterm evaluation process to reconsider the prior Administration's final determination. After receiving more than 290,000 comments, EPA released a revised final determination on April 2, 2018, stating that the MY 2022-2025 standards are "not appropriate and, therefore, should be revised" in a new rulemaking. Until a new rulemaking is completed, and any legal challenges resolved, the existing standards remain in effect.

Proposed Standards

On August 24, 2018, EPA and NHTSA proposed amendments to the existing CAFE and GHG emission standards. The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for MY 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicle Rule) offers eight alternatives. The agencies' preferred alternative, if finalized, is to retain the existing standards through MY 2020 and then to freeze the standards at this level for both programs through MY 2026. The preferred alternative also removes CO₂ equivalent air conditioning refrigerant leakage, nitrous oxide, and methane requirements after MY 2020. Further, EPA proposes to withdraw California's CAA preemption waiver for its vehicle GHG standards applicable to MYs 2021-2025. NHTSA contends that EPCA preempts California's standards because the statute preempts state laws related to federal fuel economy standards. NHTSA argues that state laws regulating or prohibiting tailpipe CO₂ emissions are related to fuel economy and can therefore be preempted. The agencies are accepting comments on the proposal through October 26, 2018.

Observers have had difficulty comparing the costs and benefits reported under the proposed SAFE Vehicle Rule to those reported under the existing standards because each set of standards employs different modeling, inputs, and underlying assumptions. For example, not only has the focus of the analysis changed (i.e., from GHG emission impacts under the existing standards to fuel use, vehicle miles traveled, and highway accidents under the proposal), but the primary computer model and the modeling agency has changed (i.e., from the ALPHA and OMEGA models at EPA to the VOLPE model at NHTSA). Further, certain modeling assumptions have been amended (e.g., the social cost of carbon, new technology costs) and others have been added (e.g., a dynamic stock model to estimate the effects of new vehicle sales and existing vehicle scrappage). These changes and their impacts may likely shape the debate during the proposal's comment period and beyond.

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