

# Sutton, Tia

**From:** Jutras, Nathaniel  
**Sent:** Thursday, March 22, 2018 6:02 PM  
**To:** Sutton, Tia; Maguire, Kelly; Owens, Nicole  
**Cc:** Hengst, Benjamin; Nickerson, William; Lewis, Josh; Scoville, Pat; VanLare, Paula  
**Subject:** OMB upload of Mid Term Evaluation for Model Year 2022-2025

MTE has been submitted via ROCIS

The screenshot shows the ROCIS.GOV website interface. The browser address bar displays the URL: <https://www.rocis.gov/rocis/AgencyEOReviewPackage.do>. The website header includes the ROCIS.GOV logo and navigation tabs for HOME, AGENDA/REGS, and ADMINISTRATION. Below the navigation, there are icons for INBOX, RULES, AGENDA, SEARCH, AGENCY EO REVIEW, and REPORTS. The main content area shows a breadcrumb trail: Home > Agenda/Regs > Agency EO Review > EO Package. A notification box at the top of the main content area states: "EO Review Package was successfully submitted at 03/22/2018 17:57:42 PM." Below this, the title "EO Review Package 2060-AT77" is displayed. The page lists various attributes for the package, including RIN (2060-AT77 (201804)), Stage of Rulemaking (Notice Stage), Title (Reconsideration of Final Determination, Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles), Agency/Sub Agency (2060 EPA/O), and Submitted By (Nathaniel Jutras). A table titled "Legal Deadline" is also present, with columns for Action, Source, Date, and Description. The table contains one row with "None" in the Action and Source columns. The overall description of the deadline is also listed.

RIN: 2060-AT77 (201804)  
Stage of Rulemaking: Notice Stage  
Title: Reconsideration of Final Determination, Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles  
Agency/Sub Agency: 2060 EPA/O  
Submitted By: Nathaniel Jutras

EO Review Package was successfully submitted at 03/22/2018 17:57:42 PM.

### EO Review Package 2060-AT77

**Unfunded Mandates**  
No

**Major**  
No

**Priority**  
Info /Admin /Other

**Legal Authority**  
[42 U.S.C. 7401 et seq. Clean Air Act](#)

**CFR Citation**  
[40 CFR 88](#)

**Legal Deadline**

Action	Source	Date	Description
None	None		

Overall Description of Deadline

**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Part 86****[EPA–HQ–OAR–2015–0827; FRL-nnnn-nn-OAR]****Revised Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-duty Vehicles****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice.

**SUMMARY:** In a March 22, 2017, *Federal Register* notice, the Environmental Protection Agency (EPA) announced its intention to reconsider the Final Determination of the Mid-term Evaluation of greenhouse gas emissions standards for model year 2022-2025 light-duty vehicles. EPA provided a public comment period on the reconsideration during August – October 2017 and held a public hearing in September 2017. In this notice, EPA is announcing that it is withdrawing the previous Final Determination issued by the agency in January 2017 and is making a new Final Determination that the standards are not appropriate in light of the record before EPA and, therefore, should be revised to be less stringent as appropriate. EPA in a forthcoming *Federal Register* notice will initiate a notice and comment rulemaking under section 202(a) of the Clean Air Act to further consider appropriate standards for model year 2022-2025 light-duty vehicles.

**FOR FURTHER INFORMATION CONTACT:** Christopher Lieske, Office of Transportation and Air Quality (OTAQ), Assessment and Standards Division (ASD), Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214-4584; email address: lieske.christopher@epa.gov; fax number: 734-214-4816.

**SUPPLEMENTARY INFORMATION:****Background**

The 2012 rulemaking establishing the National Program for federal greenhouse gas (GHG) emissions and corporate average fuel economy (CAFE) standards for model year (MY) 2017-2025 light-duty vehicles included a regulatory requirement for the Environmental Protection Agency (EPA) to conduct a Mid-term Evaluation (MTE) of the GHG standards established for MY 2022-2025.<sup>1</sup> EPA regulations on the Mid-term Evaluation process required EPA to issue a Final Determination no later than April 1, 2018, on whether the GHG standards for MY 2022-2025 light-duty vehicles remain appropriate under section 202(a) of the Clean Air Act.<sup>2</sup> The regulations also required the issuance of a Draft Technical Assessment Report (TAR) by November 15, 2017, providing an opportunity for public comment on the Draft TAR, and, before

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<sup>1</sup> 40 CFR 86.1818-12(h).

<sup>2</sup> *Id.*; see also 77 FR 62624 (October 15, 2012).

making a Final Determination, an opportunity for public comment on whether the GHG standards for MY 2022-2025 remained appropriate. In July 2016, a Draft TAR was issued for public comment jointly by EPA, the National Highway Traffic Safety Administration (NHTSA), and the California Air Resources Board (CARB).<sup>3</sup> Following the Draft TAR, EPA issued a Proposed Determination for public comment in November 2016.<sup>4</sup> Despite pleas from the public and the regulated community to extend the comment period in order to provide EPA with meaningful comments and new information, EPA went ahead and hastily rushed to issue a Final Determination in January 2017 finding that the MY 2022-2025 standards remained appropriate.<sup>5</sup>

On March 15, 2017, President Trump alongside U.S. EPA Administrator Pruitt and U.S. Department of Transportation Secretary Chao announced a restoration of the original mid-term review timeline in Detroit, Michigan. The president made clear in his remarks, “If the standards threatened auto jobs, then commonsense changes” would have to be made in order to protect the economic viability of the U.S. automotive industry. In response to the president’s direction, EPA announced in a March 22, 2017, *Federal Register* notice its intention to reconsider the Final Determination of the Mid-term Evaluation of greenhouse gas emissions standards for MY 2022-2025 light-duty vehicles.<sup>6</sup> The Administrator stated that EPA would coordinate its reconsideration with the rulemaking process to be undertaken by NHTSA regarding Corporate Average Fuel Economy (CAFE) standards for cars and light trucks for the same model years. EPA provided an opportunity for public comment on the reconsideration during August – October 2017<sup>7</sup> and held a public hearing in September 2017.<sup>8</sup> The comment period provided an opportunity for commenters to submit comments to EPA, including additional studies and newly available information. EPA’s regulations at 40 CFR 86.1818-12(h) state that in making the determination as to whether the existing standards are appropriate, the Administrator *shall consider the information available on several listed factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025.*<sup>9</sup>

## **Overview of Public Comments on MTE Reconsideration<sup>10</sup>**

On August 21, 2017, EPA published a notice in the *Federal Register* announcing the opening of a public comment period and inviting stakeholders to submit any additional comments, data, and information they believed were relevant to the Administrator’s reconsideration of the January 2017 Final Determination. EPA held a public hearing in Washington D.C. on September 6, 2017. EPA received more than 290,000 comments, with about 110 of those from organizations and the rest from individuals.

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<sup>3</sup> 81 FR 49217 (July 27, 2016).

<sup>4</sup> 81 FR 87927 (December 6, 2016).

<sup>5</sup> Docket item EPA-HQ-OAR-2015-0827-6270 (EPA-420-R-17-001).

<sup>6</sup> 82 FR 14671 (March 22, 2017).

<sup>7</sup> 82 FR 39551 (August 21, 2017).

<sup>8</sup> 82 FR 39976 (August 23, 2017).

<sup>9</sup> 40 CFR 86.1818-12(h)(1).

<sup>10</sup> The public comments, public hearing transcript, and other information relevant to the Mid-term Evaluation are available in docket EPA-HQ-OAR-2015-0827.

In the following sections, EPA discusses why the current standards for MY 2022-2025 are not appropriate based on an underestimation of costs, inadequate consideration of consumer acceptance, limited growth and consumer acceptance of electric vehicles and other advanced technology and high fuel economy vehicles, an unexpected consumer preference for light trucks over cars, continued low gas prices and a reinstated commitment to coordinate closely with NHTSA. The agency also discusses the commitment to establishing market parity and equal consideration for all advanced vehicle technologies, including natural gas vehicles alongside others. Finally, the determination summarizes key public comments on a range of issues, including the appropriateness of the standards, feasibility, technology and costs, consumer/market issues, and program flexibilities.

### **Level of the Standards, Feasibility, Technology and Cost**

The agency's prior determination was based on trends and data associated with MY 2012-2015 when all major companies were "over-complying" with their relative GHG compliance requirements and building up their relative credits. Limiting a review to these years was used to justify the aggressive increase in stringency starting in MY 2021 and carrying forward to MY 2022-2025. EPA's latest data<sup>11</sup> alongside new reports and data submitted by stakeholders indicate a new trend for MY 2016 vehicles whereby some companies, for the first time, had to rely on credits in order to comply with the program. While these companies did remain in compliance, they are having to rely on banked credits earlier than expected. Accordingly, the stringency curve dramatically increases at around the same time these credits could run out, complicating the feasibility of compliance for MY 2022-2025.

EPA received a broad range of new reports and data submitted by commenters during the MTE reconsideration comment period. The reports highlighted a range of concerns regarding the appropriateness of the MY 2022-2025 standards based on the feasibility and practicability of the standards, the effectiveness of technologies either currently available or expected to be commercially available to meet the standards, costs, lead time, and impacts on the auto industry and automobile safety.

The Auto Alliance (Alliance) and Global Automakers provided robust information indicating that the current standards are not appropriate and should be modified. The Alliance stated that "[i]nformation on compliance trends, including the feasibility of meeting the standards, projections on compliance, and the credit system are increasingly indicating that it is not feasible—taking all technology, cost, product cycle, and practical market factors into account—to meet the standards as they are currently set." For example, Figure 1 below was submitted by the Alliance to illustrate their comments that significant vehicle electrification, specifically strong hybrids, would be needed to meet the standards.

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<sup>11</sup> EPA, Greenhouse Gas Emission Standards for Light-Duty Vehicles—Manufacturer Performance Report for the 2016 Model Year, Office of Transportation and Air Quality, EPA-420-R-18-002, January 2018, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles>.

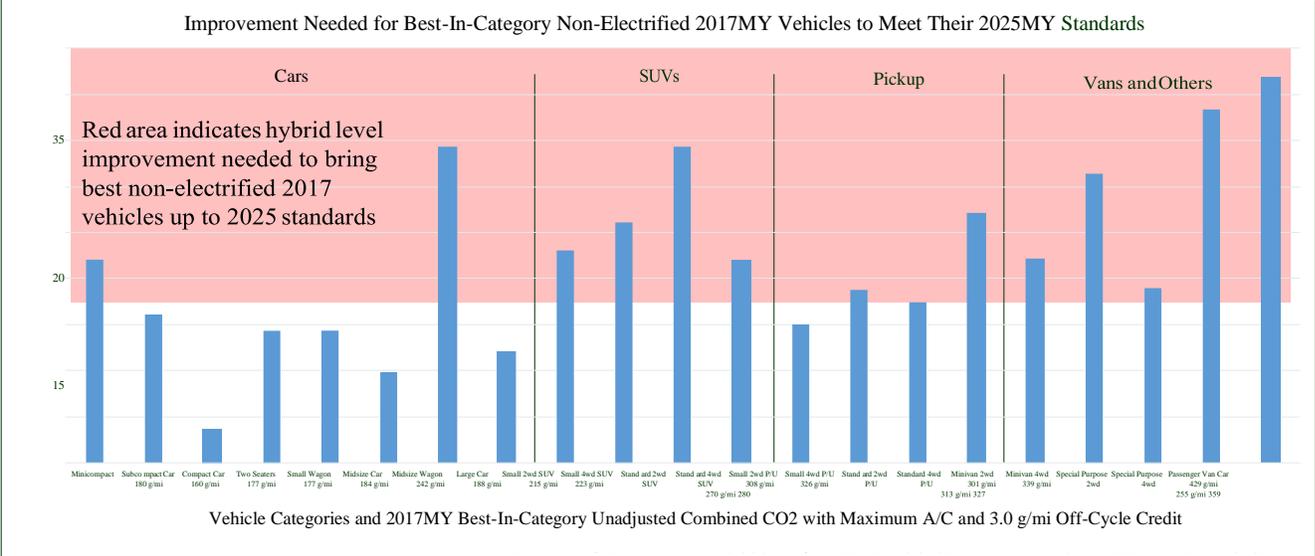


Figure 1: Figure submitted by the Alliance (p. 18) titled “Figure 5: Improvement in CO<sub>2</sub> Emissions Required in the Best MY 2017 Non-Electrified Vehicles to Meet MY 2025 Targets”

The Alliance further stated that the level of technology modeled by EPA is insufficient to meet the standards and that the actual level of technology needed is misaligned with market realities. Global Automakers similarly charged that “decline in vehicle sales, lower gas prices, an increased preference for light trucks over cars, and sluggish demand for high fuel economy vehicles – are taking place as the stringency of the standards increase at an unprecedented rate.... There is, simply put, a misalignment between the increasing stringency of the standards and the decreasing consumer demand for fuel efficiency” and that “revised findings would support the conclusion that adjustments to the regulations are needed.” Global Automakers submitted the figure below to show the “sluggish demand” for electrification in the U.S. market from 1999 through early 2016.

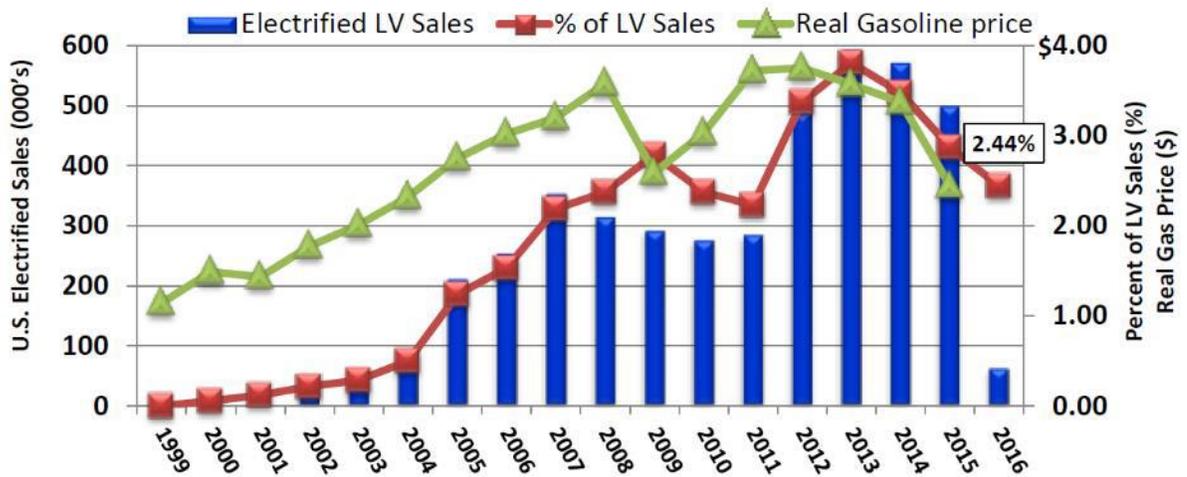


Figure 2: Figure Submitted by Global Automakers (p. 42) titled: “Figure 16: U.S. Electrified Light Vehicle Sales and Take Rate 1999 - 2016 YTD”

Global Automakers, the Alliance, and some individual automakers provided detailed information on a variety of technologies that EPA projected could be used to meet the MY 2022-2025 standards. Regarding the need for electrification, the Alliance asserted that advanced internal combustion engine technologies alone will not meet MY 2025 standards and that the need for greater electrification than EPA originally projected means that issues unique to electrification must be considered. The Alliance further provided that there is presently no non-electric vehicle (strong hybrid, plug-in hybrid (PHEV), or electric vehicle (EV)) that meets 2025 standards, even with credit assumptions, and that those vehicles make up a minimal amount of the market share indicating a less than adequate acceptance by consumers. Despite automakers continuing to offer an increasing amount of advance technology vehicles for sale, consumer adoption remains very low.

Toyota provided that “compliance with the current requirements through the 2025 MY require gasoline hybrid electric vehicles or more sophisticated forms of vehicle electrification at sales

volumes significantly higher than the agencies' estimates and at levels the market is unable or unwilling to support absent significant changes in market signals." Toyota further provided that they continue to disagree with EPA's past assessment that lighter, more aerodynamic vehicles powered by less expensive conventional gasoline powertrains will be sufficient to comply with the standards. Fiat Chrysler (FCA) similarly indicated, "FCA continues to provide data that shows more technology is necessary than the agencies have assumed for 2022-2025MY compliance. The advanced technologies needed, including higher levels of electrification will negatively affect affordability, lowering sales, and ultimately impacting jobs." Mercedes Benz estimated that it will need more than 25 percent battery-electric vehicles (BEVs) and around 5 percent PHEVs in its fleet to meet the standards in MY2025, noting that these estimates are significantly higher than the 7 percent BEV and 3 percent PHEV shares projected by EPA for the overall fleet.

Global Automakers provided information stating that EPA places heavy reliance on a small number of what it considers to be yet-to-be-proven technologies such as 48-volt mild hybrid systems and this reliance overlooks consumer acceptance, brand identity, and intellectual property considerations. Information from the Alliance reveals that dynamic cylinder deactivation and variable compression ratio engines remain in the early stages of development and have highly questionable effectiveness potentials. The Alliance further noted that EPA should exclude from its technology assessments dynamic skip fire, variable compression ratio engines, Mazda's SkyActiv X, and other technologies that are protected by intellectual property rights and have not been introduced and certified to Tier 3 emissions requirements. Toyota's information clarified that "[n]ot yet implemented technologies, such as advanced cylinder deactivation and 48V mild hybrid systems, can play a role in improving efficiency and reducing CO<sub>2</sub> emissions moving forward; however, we do not project these technologies as sufficient to meet the 2025 MY requirements." Regarding the use of Atkinson cycle engines, the Alliance commented that the EPA analysis oversimplified and did not consider the financial consequence of aggressive penetration. New information from Global Automakers provided that "it is difficult to maintain confidence in the agency's optimism about the wide consumer acceptance, supply availability, safety and learning for new, unproven technologies such as the broad application of naturally aspirated Atkinson cycle engines."

Both the Alliance and Global Automakers made clear that EPA underestimated costs. The Alliance identified three areas related to technology cost that it believes need further assessment: direct technology costs, indirect cost multipliers, and cost learning curves. Global Automakers asserted that EPA's modeling has consistently underestimated the costs associated with technologies and the amount of technology needed, commenting that a quality check at every step of the process needs to be done with real-world data that has been supplied by manufacturers.

In general, the Alliance, Global Automakers and others found that EPA's modeling overestimates the role conventional technologies can play in meeting future standards and that industry believes more strong hybrids and plug-in electric vehicles will be needed to meet current standards, raising concerns about cost and affordability. Both the Alliance and Global Automakers submitted detailed information regarding various aspects of EPA modeling, raising several technical issues, and submitted several new studies in support of their comments, including:

- Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments (Alliance Attachment 2).
- Evaluation of the Environmental Protection Agency’s Lumped Parameter Model Informed Projections from the Proposed Determination (Novation Analytics, September 2017) (Alliance Attachment 3).
- Critical Assessment of Certain Technical and Economic Assumptions Made in EPA’s Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).

The auto industry and auto industry trade associations made clear justifications for revising the standards and continue to develop more specific recommendations on what those revisions should entail. The Alliance stated that “[f]or now, EPA should reconsider the Prior Determination, conclude that the MY 2022-2025 standards are not appropriate, and as a result of that conclusion, immediately initiate a rulemaking process for the promulgation of revised MY 2022-2025 GHG standards. Through that rulemaking process EPA should determine the appropriate standards with input from all stakeholders, and at that time, the Alliance will present its thoughts on the rule changes necessary for EPA to achieve appropriate standards.” Global Automakers concurred with that assessment and suggested, “Adjustments could take numerous forms, including credit flexibilities,” while Toyota noted that “program adjustments are needed that either incentivize the technologies required for compliance or bring the standards in line with the conventional gasoline technologies the market will accept.”

Groups representing automotive technology suppliers also support revisiting the standards, but urged caution. The Alliance for Vehicle Efficiency (AVE) commented in support of the reconsideration but cautioned EPA that significantly changing and reducing the standards would impact investments suppliers have made for future growth. The Motor and Equipment Manufacturers Association (MEMA) similarly commented that major changes in the stringency of the standards would impact supplier jobs as well as long-term business and technology investments. Some suppliers asserted that a more stringent standard bodes well for long-term investment, including the Manufacturers of Emission Controls Association (MECA). MECA recommended that the latest suite of technology options should be included in EPA’s updated analysis to support its reconsideration.

Suppliers further provided comments about the technologies available to meet the standards. MEMA commented that suppliers continue to improve a myriad of technologies as industry pushes innovation – specifically, more capable 48 volt systems, higher efficiency turbo engines, various advances in thermal management and control technologies, and new composites and materials for improved light-weighting. MECA noted that automakers have announced plans to adopt 48V mild hybrids at a faster rate than originally planned and commented on new technologies that will be in production prior to 2021 but were not considered in the TAR, including dynamic cylinder deactivation, variable compression ratio and electric boost. MECA gave an example that dynamic cylinder deactivation combined with 48V systems has the potential to improve fuel economy by up to 20 percent. The Aluminum Association provided new studies regarding the use of aluminum in light-weighting, commenting that the aluminum industry continues to provide and improve light-weighting solutions to help meet rigorous GHG and fuel efficiency regulations.

Ethanol producers and agricultural organizations commented in support of high octane blends from clean sources as a way to enable GHG reducing technologies such as higher compression ratio engines. They provided information suggesting that mid-level (e.g., E30) high octane ethanol blends should be considered as part of the Mid-term Evaluation and that EPA should consider requiring that mid-level blends be made available at service stations. The petroleum industry noted that high octane fuel is available today for vehicles that require it and commented that EPA has no basis for including octane number as a factor in the Mid-term Evaluation because it was not considered in the prior rulemakings or the Draft TAR. The Alliance and Global Automakers commented that higher octane gasoline enables opportunities to use more energy-efficient technologies (e.g., higher compression ratio engines, improved turbocharging, optimized engine combustion) and that manufacturers would support a transition to higher octane gasoline, but do not advocate any sole pathway for producing increased octane.

### **Consumer and Market Issues**

Commenters provided views and information on a range of issues related to impacts on consumers and the vehicle market. Below we summarize information and comments for the following topics: 1) consumer acceptance of vehicles meeting the standards; 2) consumer willingness to pay for fuel economy and other attributes and consumer valuation of fuel savings; 3) affordability of vehicles meeting the standards; 4) effects of the standards on vehicle sales and fleet turnover; and 5) the impacts of the standards on jobs and the macroeconomy.

#### **Consumer Acceptance**

The Alliance and Global Automakers commented that the standards will be effective only if people buy vehicles subject to the standards, but that current trends do not indicate acceptance by consumers that is needed to comply with more stringent GHG standards going forward. The only vehicles that could comply with the MY 2025 standard have a very low consumer acceptance rate today and make up less than 5% of the total market share. Despite the auto industry providing an increasing amount of battery-electric vehicle models and plug-in hybrid electric vehicle models, combined national sales of these vehicles still account for just over one percent of the market. According to data submitted by the Global Automakers, sales of hybrids peaked in 2013 at 3.1%, but only accounted for 2% of the market in 2016.

The Alliance, Global Automakers, Mercedes-Benz, and National Corn Growers Association expressed concerns about low adoption rates of electrified vehicles (strong hybrids, PHEVs, and EVs). Global Automakers stated that customers are not buying electrified vehicles at a rate sufficient for compliance. Mitsubishi and Mercedes-Benz pointed to low gasoline prices and limited infrastructure for electric vehicle charging as an additional obstacle for electric vehicle adoption. Mitsubishi considered the standards unachievable if consumers are not willing to buy more electrification in their vehicles.

Also problematic is the growing preference for light-duty trucks over cars. In 2012, the car to truck split was projected to be 67% to 33% respectively for MY 2025. According to EPA's 2016 Fuel Economy Trends Report, the split in MY 2015 was 57% cars to 43% trucks. Regarding MY 2016 compliance, the Alliance commented that the large shift in consumer buying patterns toward the light-truck fleet has negatively impacted industry compliance because the light-truck standards were relatively more demanding during this period of time.

Several commenters expressed concern over potential adverse effects on other vehicle attributes due to the standards. The Alliance, Global Automakers, and Competitive Enterprise Institute (CEI) noted that consumers consider a wide range of features in their purchase decisions. Illinois Corn Growers Association expressed concern over its members' ability to purchase trucks and SUVs for their work as they become more expensive. Mercedes-Benz cited low sales of its S550E PHEV which, though more efficient than its internal combustion engine counterpart, had slower acceleration and reduced trunk space. The National Automobile Dealers Association (NADA) and UAW noted that consumer preferences vary with time and market conditions, such as fuel prices. The Alliance, Global Automakers, and Mitsubishi stated that current low gas prices make the standards more difficult to achieve. The Alliance and NADA pointed to a recent study from Resources for the Future that found greater willingness to pay for performance than for fuel economy, and the potential for misestimating willingness to pay if not taking into account other vehicle attributes. Global Automakers expressed concern that, if EPA cannot calculate consumers' willingness to pay for attributes, it may overestimate the probability of success for the standards.

### **Consumer Willingness to Pay and Consumer Valuation of Fuel Savings**

Global Automakers stated that consumers undervalue fuel-efficient technologies, and asked the agencies to be "clear-eyed and realistic" in considering consumers' willingness to pay for fuel-saving technologies. Mitsubishi stated that when consumer purchase decisions are not primarily about fuel economy, meeting the standards becomes more challenging. The Alliance suggested that EPA continue to study the role of fuel savings in consumer purchase decisions. The Alliance stated that significant discounts are needed to sell efficient vehicles, which could lead to economic hardship for automakers. The Trinity Consultants and NERA Economic Consulting (TC/NERA) study argued for using, in EPA's benefit-cost analysis, the value of fuel economy that vehicle buyers consider in their purchase decisions, which they argued is less than its full market value.

Some NGOs, including EDF, ELPC, and UCS, cited work sponsored by EPA that finds very wide ranges in estimates of willingness to pay (WTP) for vehicle attributes. They interpreted this variation as suggesting a lack of robustness in the models underlying the estimates. CFA and CU stated that studies using purchasing behavior are based on choices among existing vehicles, not necessarily consumers' preferences; because of this limitation, existing studies may not capture consumers' true WTP for attributes. Instead of using consumer WTP for fuel economy, ELPC recommended that EPA continue using its estimates of "real-world" fuel savings for benefit-cost analysis.

### **Affordability**

The Alliance, Mitsubishi, and Vermont Energy Investment Corporation (VEIC) recommended that EPA revisit affordability concerns. The Alliance and Global noted that average vehicle transactions prices have increased. The Alliance stated that consumers do not change the fraction of their budgets for transportation; if vehicles become more expensive, they will have to buy less expensive vehicles with fewer features. Global Automakers expected price increases to lead some low-income households to switch from buying new to used vehicles, and some to be forced out of the market entirely. The Alliance reiterated that the standards have a disproportionate negative impact on low-income households. Mitsubishi expressed concern that it would have to add electrification to already efficient low-priced vehicles and the increased price could drive

buyers to less efficient used vehicles. NADA and Graham expressed concerns that potential buyers will not be able to get loans large enough to cover the increased vehicle prices. Mercedes-Benz pointed out that up to half of its sales in some markets are leased; the payback period for technologies to meet the standards may exceed the typical three-year leasing period, and low residual values for advanced technologies could further increase lease payments.

### **Vehicle Sales and Fleet Turnover**

Commenters shared perspectives on the current and projected state of the vehicle market and demand. Global Automakers commented that overall vehicle sales have leveled off, and it believes that sales may decline in coming years.

Various comments raised questions about how to predict the impacts of the standards on vehicle sales. The Alliance and NADA argued that EPA has not yet conducted an “appropriate analysis” of the sales impacts of the standards, and NADA asks the agencies to “fully understand” consumer vehicle purchase decisions. The Alliance referenced work by Ford suggesting that the standards would reduce sales volumes by 4% using cost estimates from the Draft TAR. It also cited a study by TC/NERA,<sup>12</sup> which found that 1.3 million fewer vehicles will be sold in MY 2022-2025 due to higher vehicle prices. CEI considered EPA to have downplayed the effects of the standards on sales and employment.

Auto industry and dealer comments discussed implications for vehicle fleet turnover. The Alliance noted that low fleet turnover would reduce the effectiveness of the GHG program. NADA suggested that the GHG program should seek to maximize fleet turnover.

### **Employment and Macroeconomic Impacts**

Commenters expressed differing points of view on the potential effects of the standards on employment and the macroeconomy.

Some commenters pointed to negative effects on the economy and employment due to higher costs from the standards. The Alliance commented that each job in the auto sector creates 6.5 additional jobs, and stated that auto sector employment is generally related to vehicle sales, which it expected to decline. The Alliance, Global Automakers, and Fiat Chrysler expressed concern that cost increases associated with the MY 2022-2025 standards could reduce sales and employment, and put downward pressure on the macroeconomy. Clean Fuels Development Coalition believes that deregulating could stimulate the economy and create jobs. The Alliance and Global Automakers argued that reduced revenues from a sales drop due to the standards would reduce spending on research and development.

Some commenters stated there would be positive effects on employment from the standards through their effects on investments. The UAW commented that radically weakening standards will adversely impact investments in key technologies and put domestic manufacturers behind in the global marketplace. The UAW stated standards could be a win-win for environment, workers, manufacturing, and economy if set through consensus-building as in the past.

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<sup>12</sup> Trinity Consultants & NERA Economic Consulting, Critical Assessment of Certain Technical And Economic Assumptions Made in EPA’S Final Determination On the Appropriateness of the Model Year 2022-2025 Light-duty Vehicle Greenhouse Gas Emission Standards Under the Midterm Evaluation 2 (Oct. 2017).

BlueGreen Alliance (BGA) has identified 288,000 American workers who make fuel-saving technologies being used to meet the standards.<sup>13</sup> Tesla identified jobs it has created in battery cell production in the U.S., while the Alliance considers it likely that most battery pack jobs will be outside the U.S. Honeywell identified jobs associated with its new automotive refrigerant being used by auto manufacturers to generate air conditioning credits toward meeting the standards. AVE pointed to increasing jobs and rapid technological innovation in the auto sector in recent years. NYU IPI stated that the standards are likely to have a relatively small effect on employment in the auto sector, due to the flexibility and low costs of the standards, and any effects on employment may be offset by employment effects elsewhere in the economy.

Some commenters referred to a study from the Center for Automotive Research (CAR)<sup>14</sup> that estimated significant sales and employment losses due to the standards. Global Automakers cited that study for evidence of adverse effects of the standards on jobs.

A number of commenters cited Carley et al.<sup>15</sup>, which included a study of the macroeconomic impacts of the standards, conducted by researchers at Indiana University. The study found that the long-term effects of the standards are positive for employment, Gross Domestic Product, and disposable income, though the short-run effects are negative; the accumulated positive benefits will not overtake the negative effects until at least 2025.

### **Program Flexibilities**

EPA received numerous comments regarding various aspects of the light-duty GHG program flexibilities including off-cycle credits, advanced technology incentives, and averaging, banking, and trading provisions.

Many comments addressed the off-cycle credits program. Several automakers commented that the off-cycle program should be streamlined in ways that would give manufacturers more certainty and make it easier for manufacturers to earn credits. For example, Toyota commented that EPA should open the program to additional technologies without a cap on menu credits specified in EPA's regulations. Mercedes requested that the agencies increase the availability of credits to support the deployment of advanced technologies. The Alliance commented that process and other issues with the off-cycle credit technology program "have reduced its feasibility for inclusion as an available technology" and that the credits should not be included in EPA's technology projections. The Alliance commented further that manufacturers are encountering difficulty in obtaining approval of off-cycle technology credits under all available options and that unanticipated requirements or restrictions—such as performance testing, caveats, or narrow interpretations of technology definitions—have resulted in uncertainty regarding the off-cycle credit generation program. Global Automakers commented that EPA

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<sup>13</sup> Natural Resources Defense Council and Blue Green Alliance, *Supplying Ingenuity II: U.S. Suppliers of Key Clean, Fuel-Efficient Vehicle Technologies* (June 2017). <https://www.bluegreenalliance.org/resources/supplying-ingenuity-ii-u-s-suppliers-of-key-clean-fuel-efficient-vehicle-technologies/>

<sup>14</sup> McAlinden et al., Center for Automotive Research (2016). *The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy*. <http://www.cargroup.org/publication/the-potential-effects-of-the-2017-2025-epanhtsa-ghgfuel-economy-mandates-on-the-u-s-economy/>

<sup>15</sup> Sanjay Carley, Denvil Duncan, John D. Graham, Saba Siddiki, and Nikolaos Ziropiannis. "A Macroeconomic Study of Federal and State Automotive Regulations," Indiana University School of Public and Environmental Affairs, March 2017.

should provide for a default acceptance of petitions for off-cycle credits and that streamlining the process will further promote a more efficient and better harmonized National Program.

Suppliers also provided comments recommending changes to the off-cycle credits program. MEMA commented that the program “offers OEMs important flexibilities in meeting the standards and will be critical to compliance in MYs 2022–2025.” MEMA recommended expanding the current pre-defined off-cycle credit menu, eliminating the credit cap on the pre-defined list of off-cycle technologies, and allowing suppliers an independent process for allowing their technologies to be eligible for credits. MECA also recommended providing a parallel supplier pathway commenting “[w]e continue to believe that a parallel supplier pathway to contingent pre-certification would greatly expand the available technologies and resources for full demonstration across a fleet of integrated vehicles by the OEM to ultimately confirm the real world CO<sub>2</sub> reductions of a given technology.”

UCS referred to EPA’s off-cycle flexibility provisions and commented that “[t]his reasoning remains consistent with the intent of the off-cycle program, the principles of which have been previously laid out in comments directly responding to automaker requests to alter the off-cycle program.... Those principles, summarized, are: 1) demonstration of off-cycle benefits must be rigorous and fully documented; 2) off-cycle credits should be limited to new and innovative technologies; and 3) to be eligible for credit, a technology must reduce emissions from the vehicle receiving the credit. The program was established on these three principles, and they continue to remain prudent in order to ensure that real-world reductions in fuel use and emissions are achieved.”

ACEEE commented that “any relaxation of the off-cycle credit program’s requirements could undermine the credibility and effectiveness of the standards overall.” They also say that “[b]y ensuring that the credits are based on demonstrated real-world benefits, which we believe the current off-cycle regulatory framework does, EPA ensures that emissions reductions associated with the standards are maintained. The existing credits process in place today ensures that credits are legitimate and maintains the integrity of the program.”

Several commenters supported extending incentives for advanced technologies. The Alliance recommended that EPA extend the advanced technology multiplier incentives beyond MY 2021 and that manufacturers should not be held responsible for upstream power plant emissions (i.e., manufacturers should be allowed to use the 0 g/mile emissions factor for electric powered vehicles rather than having to account for upstream electricity generation emissions). Toyota similarly commented that EPA should extend the current advanced technology sales multiplier and 0 g/mi allowance through MY 2025. Mercedes Benz requested that EPA extend the multipliers through at least MY 2025 to support further commercialization of electric and hybrid vehicles. Jaguar Land Rover supported the reconsideration of the final determination as a way “to enable a future final determination that provides incentives for very clean technologies.”

NGV America urged the agency provide a level playing field for natural gas vehicles. As stated in their comments, “Regulatory incentives currently in place for vehicle manufacturers provide no benefit for renewable natural gas and include requirements that prevent automakers from realizing benefit from selling natural gas vehicles,” including the driving range requirement on alternative fuel that is not required for natural gas vehicles but no electric vehicles.

Several NGO and other commenters also supported flexibilities for advanced technology vehicles. Securing America's Future Energy (SAFE) commented in support of extending the advanced technology credits out to MY 2025 to help facilitate and accelerate the transition to energy sources other than oil. Edison Electric Institute commented in support of extending the advanced technology credits. NCAT commented that to the extent that EPA seeks to make adjustments to increase flexibility, it urges the agency to recognize and support the role of EVs and other advanced technology vehicles.

Whitefoot et al. from Carnegie Mellon University commented against extending the advanced technology incentives, stating that the advanced technology incentives should be phased out, and marginal electric power grid emissions from vehicle charging should be included in electric vehicle emissions estimates for compliance calculations. These commenters recommended using regional marginal emission factor estimates to compute electric vehicle charging emissions and regularly updating marginal emission factor estimates as the power grid changes.

The Alliance and Toyota commented that the current full-size pick-up truck incentives should be available to all light-duty trucks. They further commented that the program's sales volume thresholds should be removed because they discourage the application of technology, since manufacturers cannot be confident of achieving the sales thresholds.

The ELPC commented that the current program flexibilities are "enormously significant in making the standards even more feasible than the technology and cost assessments, by themselves, may suggest." They also noted that the industry is taking advantage of its many banked credits as a flexible compliance strategy.

Regarding credit banking and trading provisions, the Alliance commented that credits should not expire. The Alliance also commented that manufacturers should be able to trade credits across light-, medium- and heavy-duty vehicles.

## **Final Determination**

EPA appreciates the comments and information provided by commenters and recognizes that there is a diversity of views among stakeholders regarding the MY 2022-2025 light-duty vehicle GHG standards. Even with the range in perspectives, it is clear that many of the assumptions the Agency relied upon in its previous Final Determination, including gas prices, technology effectiveness and cost, and the consumer acceptance of advanced technology vehicles, have significantly changed. Also concerning is the apparent misalignment between increasing costs and either consumer willingness to pay or a miscalculation of affordability limitations. The reach and success of the program are significantly limited when consumers are priced out of buying new cars. New information and data provide by the automobile manufacturers and the auto dealers are of particular interest to the program because they have the most experience with the potential difficulties in implementing the standards and stand to bear the brunt of resulting consequences.

Based on our review of the comments and information submitted, EPA believes that the current GHG program for MY 2022-2025 vehicles presents difficult challenges for auto manufacturers and adverse impacts on consumers. The auto industry commenters stated that adjustments to the program were needed. EPA will further explore the appropriate degree and form of changes to the program through a notice and comment rulemaking process. In this notice, EPA is withdrawing the previous Final Determination issued by EPA in January 2017 and EPA is making a new Final Determination that the model year 2022-2025 standards are not

appropriate and, therefore, should be revised to be less stringent as appropriate. EPA in a forthcoming *Federal Register* notice will initiate a notice and comment rulemaking under section 202(a) of the Clean Air Act to further consider appropriate standards for model year 2022-2025 light-duty vehicles. This notice concludes EPA's Mid-term Evaluation under 40 CFR 86.1818-12(h).

**Revised Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions  
Standards for Model Year 2022-2025 Light-duty Vehicles**  
*Page 15 of 15*

Dated: \_\_\_\_\_

\_\_\_\_\_

E. Scott Pruitt,  
Administrator.

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 86

[EPA-HQ-OAR-2015-0827; FRL-nnnn-nn-OAR]

**Revised Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-duty Vehicles**

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

~~SUMMARY: In a March 22, 2017, Federal Register notice, the Environmental Protection Agency (EPA) announced~~  
SUMMARY: In this notice, the Environmental Protection Agency (EPA) Administrator has reconsidered the previous Final Determination of the Mid-term Evaluation of greenhouse gas emission standards for model year 2022-2025 light-duty vehicles. The Administrator determines that the current standards are based on outdated information, and that more recent information suggests that the current standards may be too stringent. The Administrator thus concludes that the standards are not appropriate in light of the record before EPA and, therefore, should be revised as appropriate. EPA is also withdrawing the previous Final Determination issued by the agency on January 12, 2017, with this notice. EPA, in partnership with the National Highway Traffic Safety Administration, will initiate a notice and comment rulemaking in a forthcoming Federal Register notice to further consider appropriate standards for model year 2022-2025 light-duty vehicles, as appropriate. On March 22, 2017, EPA published a Federal Register notice providing its intention to reconsider the Final Determination of the Mid-term Evaluation of greenhouse gas emissions standards for model year 2022-2025 light-duty vehicles. EPA provided a public comment period on the reconsideration during August–October 2017 and held a public hearing in September 2017. In this notice, EPA is announcing that it is withdrawing the previous Final Determination issued by the agency in

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January 2017 and is making a new Final Determination that the standards are not appropriate in light of the record before EPA and, therefore, should be revised to be less stringent as appropriate. EPA in a forthcoming Federal Register notice will initiate a notice and comment rulemaking under section 202(a) of the Clean Air Act to further consider appropriate standards for model year 2022-2025 light-duty vehicles., this notice was published jointly with the Department of Transportation (DOT). On August 21, 2017, EPA and DOT jointly published a Federal Register notice providing a 45-day public comment period on the reconsideration and EPA held a public hearing on September 6, 2017.

**FOR FURTHER INFORMATION CONTACT:** Christopher Lieske, Office of Transportation and Air Quality (OTAQ), Assessment and Standards Division (ASD), Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214-4584; email address: lieske.christopher@epa.gov; fax number: 734-214-4816.

**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

In this notice, the Administrator of the Environmental Protection Agency (EPA) is making a new determination of the Mid-term Evaluation (MTE) of greenhouse gas (GHG) emission standards for model year (MY) 2022-2025 light-duty vehicles. The Administrator determines that the standards are not appropriate in light of the record before EPA, and therefore, should be revised as appropriate. EPA is also withdrawing the January 12, 2017 Final Determination (January 2017 Determination) with this notice. EPA, in partnership with the National Highway Traffic Safety Administration (NHTSA), will initiate a notice and comment rulemaking in a forthcoming Federal Register notice to further consider appropriate standards for MY 2022-2025

light-duty vehicles, as appropriate.

The Administrator makes this finding due to the significant record that has been developed since the January 2017 Determination. Many of the key assumptions EPA relied upon in its January 2017 Determination, including gas prices and the consumer acceptance of advanced technology vehicles, were optimistic or have significantly changed and thus no longer represent realistic assumptions. For example, fuel price estimates used by EPA in the original rulemaking are very different from recent EIA forecasts. EPA needs to update these estimates in the analysis and more accurately reflect changes in US oil production. Economic inputs such as the social cost of carbon, the rebound effect, and energy security valuation should also be updated to be consistent with the literature and empirical evidence.

EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration.

In making this finding, the Administrator has also considered that the reach and success of the program established in the 2012 rulemaking is significantly limited when consumers cannot afford new cars. New information and data provided show the potential significant negative effects of higher vehicle costs.

Based on our review and analysis of the comments and information submitted, and EPA's own analysis, the Administrator believes that the current GHG emission standards for MY 2022-2025 light-duty vehicles presents challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers, especially low-income consumers. On the whole, the

Administrator believes the MY 2022-2025 GHG emission standards are not appropriate and, therefore, should be revised as appropriate. EPA, in partnership with NHTSA, will further explore the appropriate degree and form of changes to the program through a notice and comment rulemaking process. This Determination is not a final agency action. As EPA explained in the 2012 final rule establishing the MTE process, a determination to maintain the current standards would be a final agency action, but a determination that the standards are not appropriate would lead to the initiation of a rulemaking to adopt new standards, and it is the conclusion of that rulemaking that would constitute a final agency action and be judicially reviewable as such.<sup>1</sup>

## II. Background

The 2012 rulemaking establishing the National Program for federal ~~greenhouse gas (GHG)~~ emissions and corporate average fuel economy (CAFE) standards for ~~model year (MY)~~ 2017-2025 light-duty vehicles included a regulatory requirement for the ~~Environmental Protection Agency (EPA)~~ to conduct a Mid-term Evaluation (MTE) of the GHG standards established for MY 2022-2025.<sup>2</sup> ~~EPA~~EPA included this self-required reevaluation due to the long time frame at issue in setting standards for MYs 2022–2025, and given NHTSA’s obligation to conduct a de novo rulemaking in order to establish final standards for vehicles for those model years.<sup>3</sup> EPA’s regulations at 40 CFR 86.1818-12(h) state that “in making the determination as to whether the existing standards are appropriate, the Administrator shall consider the information available on

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<sup>1</sup> 77 FR 62784, (Federal Register, Vol 77, No 199, pp 62784-62785.)

<sup>2</sup> 40 CFR 86.1818-12(h).

<sup>3</sup> 77 FR 62784.

the ~~Mid-term Evaluation~~ factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 - 2025, including but not limited to:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
5. The impact of the standards on the automobile industry;
6. The impacts of the standards on automobile safety;
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program; and
8. The impact of standards on other relevant factors.”<sup>4</sup>

EPA regulations on the MTE process required EPA to issue a Final Determination no later than April 1, 2018, on whether the GHG standards for MY 2022-2025 light-duty vehicles remain appropriate under section 202(a) of the Clean Air Act.<sup>5</sup> The regulations also required the issuance of a ~~Draft~~ Technical Assessment Report (TAR) by November 15, 2017, providing an opportunity for public comment on the ~~Draft~~ TAR, and, before making a Final

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<sup>4</sup> 40 CFR 86.1818-12(h)(1).

<sup>5</sup> *Id.*; see also 77 FR 62624 (October 15, 2012).

Determination, an opportunity for public comment on whether the GHG standards for MY 2022-2025 ~~remained~~remain appropriate. In July 2016, a ~~Draft~~the draft TAR was issued for public comment jointly by the EPA, ~~the National Highway Traffic Safety Administration (NHTSA)~~, and the California Air Resources Board (CARB).<sup>6</sup> Following the ~~Draft~~draft TAR, EPA ~~issued~~published a Proposed Determination for public comment ~~in November~~on December 6, 2016.<sup>7</sup> ~~Despite pleas from the~~ and provided less than 30 days for public ~~and the regulated~~ community to extend the comment period in order to provide EPA with meaningful comments and new information, EPA went ahead and hastily rushed to issue a Final over major holidays.<sup>8</sup> EPA published the January 2017 Determination ~~in January 2017 on EPA's website and~~ regulations.gov finding that the MY 2022-2025 standards remained appropriate.<sup>9</sup>

On March 15, 2017, President Trump ~~alongside U.S. EPA Administrator Pruitt and U.S. Department of Transportation Secretary Chao~~ announced a restoration of the original mid-term review timeline ~~in Detroit, Michigan.~~ The ~~president~~President made clear in his remarks, “~~If~~if the standards threatened auto jobs, then commonsense changes” would ~~have to~~ be made in order to protect the economic viability of the U.S. automotive industry.<sup>10</sup> In response to the ~~president's~~President's direction, EPA announced in a March 22, 2017, *Federal Register* notice, its intention to reconsider the Final Determination of the ~~Mid-term Evaluation of greenhouse gas~~MTE of GHGs emissions standards for MY 2022-2025 light-duty vehicles.<sup>11</sup> The Administrator stated that EPA would coordinate its reconsideration with the rulemaking process

<sup>6</sup> 81 FR 49217 (July 27, 2016).

<sup>7</sup> ~~81 FR 87927 (December 6, 2016).~~

<sup>8</sup> 81 FR 87927 (December 6, 2016).

<sup>9</sup> Docket item EPA-HQ-OAR-2015-0827-6270 (EPA-420-R-17-001).

<sup>10</sup> See <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-american-center-mobility-detroit-mi/>.

<sup>11</sup> 82 FR 14671 (March 22, 2017).

to be undertaken by NHTSA regarding ~~Corporate Average Fuel Economy (CAFE)~~ standards for cars and light trucks for the same model years. ~~EPA provided an opportunity for public comment on the reconsideration during August—October 2017<sup>12</sup> and held a public hearing in September 2017.<sup>13</sup> The comment period provided an opportunity for commenters to submit comments to EPA, including additional studies and newly available information. EPA’s regulations at 40 CFR 86.1818-12(h) state that in making the determination as to whether the existing standards are appropriate, the Administrator shall consider the information available on several listed factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025.<sup>14</sup>~~

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#### ~~—Overview of Public Comments on MTE Reconsideration<sup>15</sup>~~

On August 21, 2017, EPA published a notice in the *Federal Register* announcing the opening of a 45-day public comment period and inviting stakeholders to submit any additional comments, data, and information they believed were relevant to the Administrator’s reconsideration of the January 2017 ~~Final~~ Determination.<sup>16</sup> EPA held a public hearing in Washington D.C. on September 6, 2017.<sup>17</sup> EPA received more than 290,000 comments, ~~with about 110 of those from organizations and in response to the rest from individuals.~~ August 21, 2017 notice.<sup>18</sup>

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<sup>12</sup> 82 FR 39551 (August 21, 2017).

<sup>13</sup> 82 FR 39976 (August 23, 2017).

<sup>14</sup> 40 CFR 86.1818-12(h)(1).

<sup>15</sup> The public comments, public hearing transcript, and other information relevant to the Mid-term Evaluation are available in docket EPA-HQ-OAR-2015-0827.

<sup>16</sup> 82 FR 39551 (August 21, 2017).

<sup>17</sup> 82 FR 39976 (August 23, 2017).

<sup>18</sup> The public comments, public hearing transcript, and other information relevant to the Mid-term Evaluation are available in docket EPA-HQ-OAR-2015-0827.

**III. The Administrator’s Assessment of Factors Relevant to the Appropriateness of the MY 2022-2025 GHG Emission Standards**

In the following sections, ~~EPA discusses the Administrator provides his assessment on why the current standards for MY 2022--2025 are not appropriate based on an underestimation of costs, inadequate consideration of consumer acceptance, limited growth and consumer acceptance of electric vehicles and other advanced technology and high fuel economy vehicles, an unexpected consumer preference for light trucks over cars, continued low gas prices and a reinstated commitment to coordinate closely with NHTSA. The agency also discusses the commitment to establishing market parity and equal consideration for all advanced vehicle technologies~~the regulatory provisions found in 40 CFR 86.1818-12(h). The Administrator considered the complete record, including natural gas vehicles alongside others. Finally, the ~~all comments provided on the reconsideration, in his determination summarizes key public comments on a range,~~

**Factor 1: The availability and effectiveness of technology, and the appropriate lead time for introduction of issues, including the appropriatenesstechnology; and Factor 3: The feasibility and practicability of the standards, feasibility, technology**

The Administrator finds, based on the record, including new data and information provided since January 2017, that the January 2017 Determination was optimistic in its assumptions and costs, consumer/market issues,projections with respect to the availability and program flexibilities, ~~effectiveness of technology and the feasibility and practicability of the standards.~~ Accordingly, the Administrator now determines that the MY 2022 – 2025 GHG emissions

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standards may not be feasible or practicable and there is greater uncertainty as to whether technology will be available to meet the standards on the timetable established in the regulations. This is a result of: (1) the changes in trends of electrification since the January 2017 Determination; (2) reliance on future technology advances; and (3) the acceptance rate of the necessary technology by consumers.

### **Level of the Standards, Feasibility, Technology and Cost**

#### **a. The changes in trends of electrification since the January 2017 Determination**

The agency's ~~prior determination was based on January 2017 Determination was completed at~~ a time when the trends and data associated with MY 2012--2015 ~~when all major~~ showed that the majority of the major car-manufacturing companies were “over-complying” with their relative GHG compliance requirements and building up ~~their relative~~ credits. ~~Limiting a review to these years was used to justify the aggressive increase in stringency starting in MY 2021 and carrying forward to MY 2022-2025.~~ EPA’s latest data<sup>19</sup> alongside new reports and data submitted by stakeholders ~~indicate a new trend for~~<sup>20</sup> show that starting in MY 2016 ~~vehicles whereby some~~ many companies, for the first time, had to rely on credits in order to comply with the program, ~~and predicts this will occur again for Model Year 2017.~~ While these companies did remain in compliance, they are ~~having to rely~~ relying on banked credits ~~earlier than expected.~~ ~~Accordingly, the~~ which suggests that it may be increasingly difficult for them to comply going

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<sup>19</sup> EPA, Greenhouse Gas Emission Standards for Light-Duty Vehicles—Manufacturer Performance Report for the 2016 Model Year, Office of Transportation and Air Quality, EPA-420-R-18-002, January 2018, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles>.

<sup>20</sup> *See e.g.*, Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments (Alliance Attachment 2); Evaluation of the Environmental Protection Agency’s Lumped Parameter Model Informed Projections from the Proposed Determination (Novation Analytics, September 2017) (Alliance Attachment 3); and Critical Assessment of Certain Technical and Economic Assumptions Made in EPA’s Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).

forward as they use up their supply of credits. Additionally, the stringency curve dramatically increases at around the same time these credits could run out, further complicating the feasibility of compliance for MY 2022–2025.

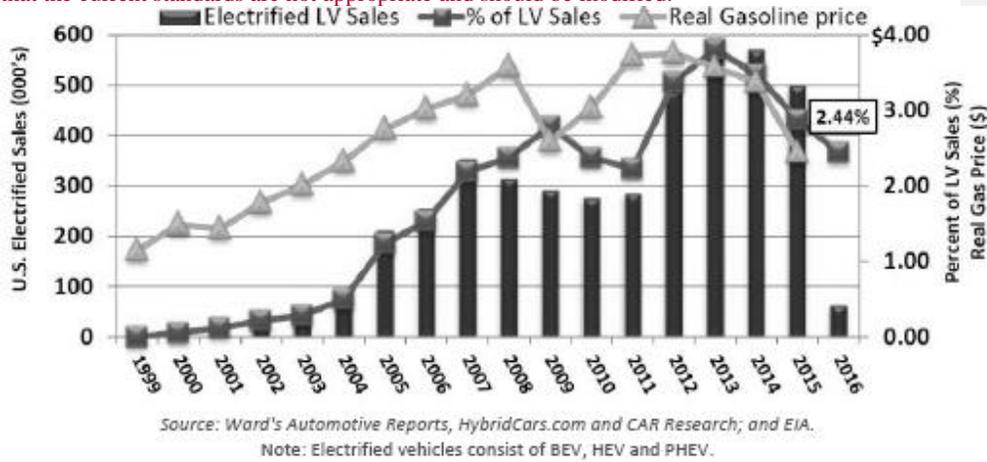
EPA receivedThe figure below shows that since a broad range of new reports peak in 2013, electrified light-vehicle (LV) sales have decreased both as a total and data submitted by commenters during as a percentage of all light-vehicle sales. This calls into question EPA assumptions for the MTE reconsideration comment period. The reports highlighted a range of concerns regarding 2012 rulemaking and the appropriateness of January 2017 Determination that sales of electrified LVs will be sufficient to support compliance with the MY 2022–2025 standards based on.

Multiple commenters also questioned the feasibility and practicability of the standards, due to flagging consumer demand for fuel-efficient vehicles including electric vehicles. The Alliance of Automobile Manufacturers (Alliance) stated that the effectiveness level of technologies either currently available or expected to be commercially available technology modeled by EPA is insufficient to meet the standards, costs, lead time, and impacts on that the actual level of technology needed is misaligned with market realities. Global Automakers similarly charged that “decline in vehicle sales, lower gas prices, an increased preference for light trucks over cars, and sluggish demand for high fuel economy vehicles – are taking place as the stringency of the standards increase at an unprecedented rate. There is, simply put, a misalignment between the increasing stringency of the standards and the decreasing consumer demand for fuel efficiency” and that “revised findings would support the conclusion that adjustments to the regulations are needed.” auto industry and automobile safety. Global Automakers submitted the figure below to show the sluggish demand for electrification in the U.S. market from 1999 through early 2016.

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Figure 1: Figure Submitted by Global Automakers (p. 42) titled: "Figure 16: U.S. Electrified Light Vehicle Sales and Take Rate 1999 - 2016 YTD"

The Auto Alliance (Alliance) and Global Automakers provided robust information indicating that the current standards are not appropriate and should be modified.



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The Alliance stated that “[i]nformation on compliance trends, including the feasibility of meeting the standards, projections on compliance, and the credit system are increasingly indicating that it is not feasible—taking all technology, cost, product cycle, and practical market factors into account—to meet the standards as they are currently set.” For example, Figure 42 below was submitted by the Alliance to illustrate their comments shows that significant vehicle electrification, specifically strong hybrids, would be needed to meet the standards, contrary to the agency’s assertion in the January 2017 Determination.

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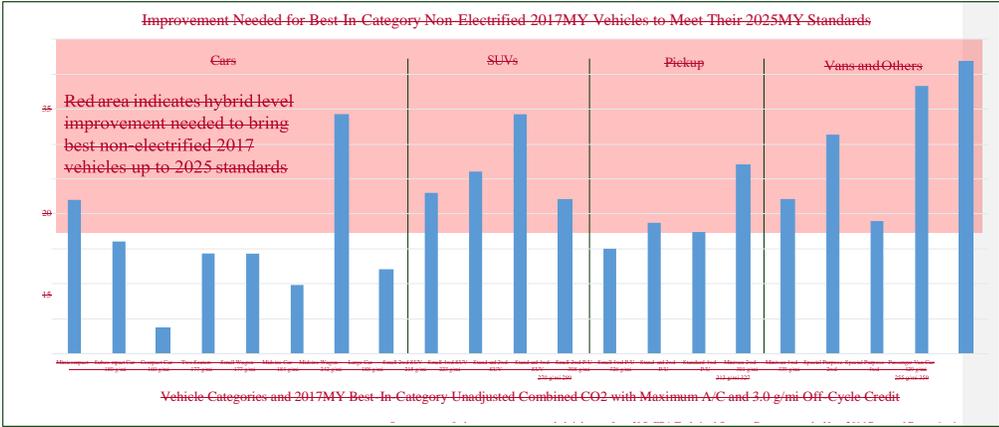
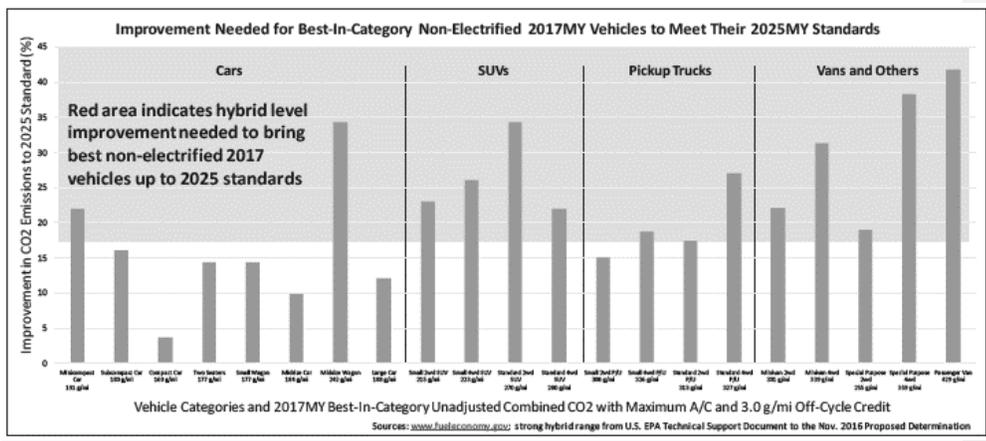


Figure 42: Figure submitted by the Alliance (p. 18) titled “Figure 5: Improvement in CO<sub>2</sub> Emissions Required in the Best MY 2017 Non-Electrified Vehicles to Meet MY 2025 Targets”<sup>21</sup>

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The Alliance further stated that the level of technology modeled by EPA is insufficient to meet the standards and that the actual level of technology needed is misaligned with market realities. Global Automakers similarly charged that “decline in vehicle sales, lower gas prices, an increased preference for light trucks over cars, and sluggish demand for high fuel economy vehicles—are taking place as the stringency of the standards increase at an unprecedented rate....”



Global Automakers, the Alliance, and There is, simply put, a misalignment between the increasing stringency of the standards and the decreasing consumer demand for fuel efficiency” and that “revised findings would support the conclusion that adjustments to the regulations are needed.” Global Automakers submitted the figure below to show the “sluggish demand” for electrification in the U.S. market from 1999 through early 2016.

<sup>21</sup> The Alliance submitted this figure in color with the upper shaded portion in red as indicated in the note in the figure.

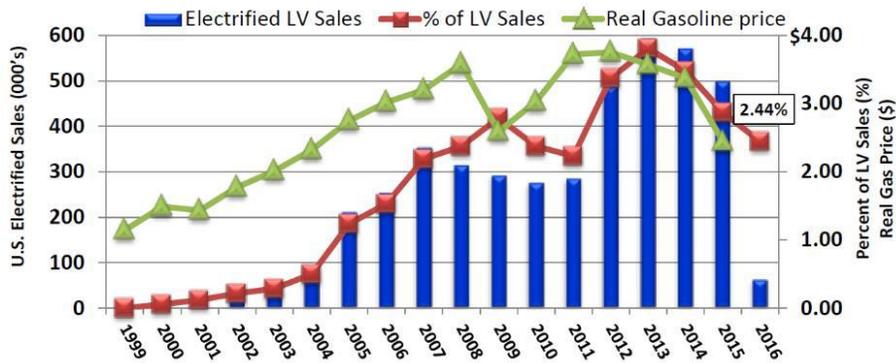


Figure 2: Figure Submitted by Global Automakers (p. 42) titled: "Figure 16: U.S. Electrified Light Vehicle Sales and Take Rate 1999 – 2016 YTD"

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Global Automakers, the Alliance, and some individual automakers provided detailed information on a variety of technologies that EPA projected could be used to meet the MY 2022-through 2025 standards. Regarding the need for electrification, the Alliance ~~asserted~~asserts that advanced internal combustion engine technologies alone will not meet MY 2025 standards and that the need for greater electrification than EPA originally projected means that issues unique to electrification must be considered. -The Alliance further provided that ~~there is~~ presently ~~no non-~~only electric ~~vehicle~~ (vehicles (e.g., strong hybrid, plug-in hybrid (PHEV), or electric vehicle (EV)) that meets meet MY 2025 standards, even with credit assumptions, and that those vehicles make up a minimal amount of the market share indicating a less than adequate acceptance by consumers. -Despite automakers continuing to offer an increasing amount of advance technology vehicles for sale, consumer adoption remains very low. These comments provide data that raises concerns about EPA's 2017 Determination

Toyota provided comment that "compliance with the current requirements through the 2025 MY require gasoline hybrid electric vehicles or more sophisticated forms of vehicle

electrification at sales volumes significantly higher than the agencies' estimates and at levels the market is unable or unwilling to support absent significant changes in market signals." Toyota further provided that they continue to disagree with EPA's past assessment that lighter, more aerodynamic vehicles powered by less expensive conventional gasoline powertrains will be sufficient to comply with the standards. Fiat Chrysler [Automobiles](#) (FCA) similarly indicated, "FCA continues to provide data that shows more technology is necessary than the agencies have assumed for 2022-2025MY compliance. The advanced technologies needed, including higher levels of electrification will negatively affect affordability, lowering sales, and ultimately impacting jobs." Mercedes Benz estimated that it will need more than 25 percent battery-electric vehicles (BEVs) and around 5 percent PHEVs in its fleet to meet the standards in [MY2025MY 2025](#), noting that these estimates are significantly higher than the 7 percent BEV and 3 percent PHEV shares projected by EPA for the overall fleet. [One commenter stated that they believe standards can be met with only small increases in the efficiency of fossil fuel engines.](#)

[Global Automakers](#) [EPA also received comments from several non-governmental organizations stating that the existing record supports the previous determination. Several commenters also provided technical information stating that EPA places heavy reliance on a small number and/or analysis. The Union of what it considers Concerned Scientists \(UCS\) provided that they do not believe the auto manufacturers are correct about the degree of electrification that they claim will be necessary to meet the standards.](#)

[Several commenters supported extending incentives for advanced technologies. The Alliance recommended that EPA extend the advanced technology multiplier incentives beyond MY 2021 and that manufacturers should not be held responsible for upstream power plant emissions \(i.e., manufacturers should be allowed to use the 0 g/mile emissions factor for electric powered](#)

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vehicles rather than having to account for upstream electricity generation emissions). Toyota similarly commented that EPA should extend the current advanced technology sales multiplier and 0 g/mi allowance through MY 2025. Mercedes Benz requested that EPA extend the multipliers through at least MY 2025 to support further commercialization of electric and hybrid vehicles. Jaguar Land Rover supported the reconsideration of the final determination as a way “to enable a future final determination that provides incentives for very clean technologies.”

NGV America urged the agency provide a level playing field for natural gas vehicles. As stated in their comments, “Regulatory incentives currently in place for vehicle manufacturers provide no benefit for renewable natural gas and include requirements that prevent automakers from realizing benefit from selling natural gas vehicles,” including the driving range requirement on alternative fuel that is ~~be yet to be proven technologies~~ required for natural gas vehicles but not for electric vehicles.

Several commenters also supported flexibilities for advanced technology vehicles. CALSTART stated that to spur the EV market, the agencies could consider maintaining the current credits for full zero emission vehicles, and delay the upstream emissions factors for such vehicles. Securing America’s Future Energy (SAFE) commented in support of extending the advanced technology credits out to MY 2025 to help facilitate and accelerate the transition to energy sources other than oil. Edison Electric Institute and California Electric Transportation Coalition also commented in support of extending the advanced technology credits. The National Coalition for Advanced Transportation (NCAT) commented that to the extent that EPA seeks to make adjustments to increase flexibility, it urges the agency to recognize and support the role of EVs and other advanced technology vehicles.

The Alliance and Toyota commented that the current full size pick-up truck incentives should be available to all light-duty trucks. They further commented that the program's sales volume thresholds should be removed because they discourage the application of technology, since manufacturers cannot be confident of achieving the sales thresholds.

as 48-volt mild hybrid systems and this reliance overlooksBased on consideration of the information provided, the Administrator believes that it would not be practicable to meet the MY 2022 – 2025 emission standards without significant electrification and other advanced vehicle technologies that lack a requisite level of consumer acceptance, brand identity, and

#### **b. Reliance on Future Technology**

EPA received comments from the auto manufacturers that EPA should exclude technologies that are protected by intellectual property considerations. Information from the Alliance reveals that dynamic cylinder deactivation and variable compression ratio engines remain in the early stages of developmentrights and have highly questionable effectiveness potentials. The Alliance further notednot been introduced and certified to Tier 3 emissions requirements. Specifically, the Alliance stated that EPA should exclude from its technology assessments dynamic skip fire, variable compression ratio engines, Mazda's SkyActiv X, and other technologies that are protected by intellectual property rights and have not been introduced and certified to Tier 3 emissions requirements. -Toyota's information clarifiedstated that "[n]ot yet implemented technologies, such as advanced cylinder deactivation and 48V mild hybrid systems, can play a role in improving efficiency and reducing CO<sub>2</sub> emissions moving forward; however, we do not project these technologies as sufficient to meet the 2025 MY requirements."

Regarding the use of Atkinson cycle engines, the Alliance commented that the EPA analysis oversimplified and did not consider the financial consequence of aggressive penetration. New information from Global Automakers provided that “it is difficult to maintain confidence in the agency’s optimism about the wide consumer acceptance, supply availability, safety and learning for new, unproven technologies such as the broad application of naturally aspirated Atkinson cycle engines.”

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~~Both the Alliance and Global Automakers made clear that EPA underestimated costs. The Alliance identified three areas related to technology cost that it believes need further assessment: direct technology costs, indirect cost multipliers, and cost learning curves. Global Automakers asserted that EPA’s modeling has consistently underestimated the costs associated with technologies and the amount of technology needed, commenting that a quality check at every step of the process needs to be done with real-world data that has been supplied by manufacturers.~~

In general, the Alliance, Global Automakers and others found that EPA’s modeling overestimates the role conventional technologies can play in meeting future standards and that industry believes more strong hybrids and plug-in electric vehicles will be needed to meet current standards, raising concerns about cost and affordability. Both the Alliance and Global Automakers submitted detailed information regarding various aspects of EPA modeling, raising several technical issues, and submitted several new studies in support of their comments, including:<sup>22</sup>

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<sup>22</sup> See “Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments” (Alliance Attachment 2), “Evaluation of the Environmental Protection Agency’s Lumped Parameter Model Informed Projections from the Proposed Determination” (Novation Analytics, September 2017) (Alliance

- ~~Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments (Alliance Attachment 2).~~
- ~~Evaluation of the Environmental Protection Agency’s Lumped Parameter Model Informed Projections from the Proposed Determination (Novation Analytics, September 2017) (Alliance Attachment 3).~~
- ~~Critical Assessment of Certain Technical and Economic Assumptions Made in EPA’s Final Determination on the Appropriateness of the Model Year 2022-2025 Light Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).~~

The auto industry and auto industry trade associations made clear justifications for revising the standards and continue to develop more specific recommendations on what those revisions should entail. The Alliance stated that “[f]or now, EPA should reconsider the Prior Determination, conclude that the MY 2022-2025 standards are not appropriate, and as a result of that conclusion, immediately initiate a rulemaking process for the promulgation of revised MY 2022-2025 GHG standards. Through that rulemaking process EPA should determine the appropriate standards with input from all stakeholders, and at that time, the Alliance will present its thoughts on the rule changes necessary for EPA to achieve appropriate standards.” Global Automakers concurred with that assessment and suggested, “Adjustments could take numerous forms, including credit flexibilities,” while Toyota noted that “program adjustments are needed that either incentivize the technologies required for compliance or bring the standards in line with the conventional gasoline technologies the market will accept.”

Groups representing automotive technology suppliers also support revisiting the standards, but urged caution. The Alliance for Vehicle Efficiency (AVE) commented in support of the reconsideration but cautioned EPA that significantly changing and reducing the standards would impact investments suppliers have made for future growth. The Motor and Equipment Manufacturers Association (MEMA) similarly commented that major changes in the stringency of the standards would impact supplier jobs as well as long-term business and technology investments. Some suppliers asserted that a more stringent standard bodes well for long-term investment, including the Manufacturers of Emission Controls Association (MECA). MECA recommended that the latest suite of technology options should be included in EPA’s updated analysis to support its reconsideration.

Suppliers further provided comments about the technologies available to meet the standards.

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~~MEMA~~Other commenters were more optimistic about the availability of advanced technologies.

~~Suppliers provided comments about specific technologies available to meet the standards. The~~

~~Motor and Equipment Manufacturers Association (MEMA) commented that suppliers continue~~

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~~Attachment 3), and “Critical Assessment of Certain Technical and Economic Assumptions Made in EPA’s Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation” (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6)~~

to improve a myriad of technologies as industry pushes innovation – specifically, more capable 48-volt systems, higher efficiency turbo engines, various advances in thermal management and control technologies, and new composites and materials for improved light-weighting.

Manufacturers of Emission Controls Association (MECA) noted that automakers have announced plans to adopt 48V48-volt mild hybrids at a faster rate than originally planned and commented on new technologies that will be in production prior to 2021 but were not considered in the draft TAR, including dynamic cylinder deactivation, variable compression ratio and electric boost. MECA gave an example that dynamic cylinder deactivation combined with 48V48-volt systems which they stated has the potential to improve fuel economy by up to 20 percent. ~~The Aluminum Association provided new studies regarding the use of aluminum in light-weighting, commenting~~One commenter stated that ~~the aluminum industry continues to provide~~they believe existing standards are achievable now without expensive or “boutique” technologies and improve light-weighting solutions to help meet rigorous GHG ~~are becoming even more cost-effective as time passes.~~<sup>23</sup> Other commenters performed analyses of the technical feasibility of meeting the MY2025 standards,<sup>24</sup> including analyses of a number of engine and ~~fuel efficiency regulations~~other technologies that they believe EPA did not fully consider.

~~Ethanol~~Based on EPA’s review of the comments and information received since the January 2017 Determination, technologies continue to develop. Some technologies, such as continuously variable transmissions, have been adopted in many more vehicle applications than originally anticipated by EPA in the 2012 rulemaking and have continued to demonstrate potential further improvements in efficiency. Other technologies such as the dual clutch transmissions EPA

<sup>23</sup> See comments in the docket from the Advanced Engine Systems Institute

<sup>24</sup> See “Efficiency Technology and Cost Assessment for the U.S. 2025-2030 Light-Duty Vehicles” (International Council on Clean Transportation, March 2017, Attachment 5 to ICCT comments), “Technical Assessment of CO2 Emission Reductions for Passenger Vehicles in the Post-2025 Timeframe” (Environmental Defense Fund).

projected in the 2012 rulemaking have not gained significant customer acceptance and as such, have proven difficult for manufacturers to deploy. A third category, of recently adopted technologies such as dynamic skip fire (2019 Chevrolet Silverado) and variable compression ratio engines (2019 Infiniti QX50), may have the potential to offer additional technology pathways to aid future compliance. As such, it is appropriate that the EPA continue to evaluate these and other technology developments in the forthcoming rulemaking.

Some commenters supported strengthening the standards in any future reconsideration and at a minimum retaining the standards due to certain new information and analysis available since the rule was adopted in 2012. For example, one commenter stated that they believe the costs of compliance are declining and believes that final compliance costs will be less than initially estimated.

To note, ethanol producers and agricultural organizations commented in support of high octane blends from clean sources as a way to enable GHG reducing technologies such as higher compression ratio engines. They provided information suggesting that mid-level (e.g., E30) high octane ethanol blends should be considered as part of the Mid-term Evaluation and that EPA should consider requiring that mid-level blends be made available at service stations. The petroleum industry noted that high octane fuel is available today for vehicles that require it and commented that EPA has no basis for including octane number as a factor in the Mid-term Evaluation because it was not considered in the prior rulemakings or the ~~Draft~~draft TAR. The Alliance and Global Automakers commented that higher octane gasoline enables opportunities ~~to~~for use of more energy-efficient technologies (e.g., higher compression ratio engines, improved turbocharging, optimized engine combustion) and that manufacturers would support a transition to higher octane gasoline, but do not advocate any sole pathway for producing increased octane.

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## **Consumer and Market Issues**

Commenters provided views and information on a range of issues related to impacts on consumers and the vehicle market. Below we summarize information and comments for the following topics: 1) consumer acceptance of vehicles meeting the standards; 2) consumer willingness to pay for fuel economy and other attributes and consumer valuation of fuel savings; 3) affordability of vehicles meeting the standards; 4) effects of the standards on vehicle sales and fleet turnover; and 5) the impacts of the standards on jobs and the macroeconomy.

### **Consumer Acceptance**

Several state and local governments commented on the appropriateness of the MY 2022-2025 standards. CARB referenced its independent midterm review completed in March 2017 where it found the MY 2022-2025 GHG emission standards to be appropriate and that the latest information continues to support maintain or strengthening the current standards.<sup>25</sup>

Other state government agencies stated that the standards are appropriate, continue to apply, and that they believe compliance will be even easier than expected with newer conventional technologies.

The Aluminum Association provided new studies regarding the use of aluminum in light-weighting and noted additional forthcoming studies which could inform EPA's reconsideration, commenting that the aluminum industry continues to provide and improve light-weighting solutions to help meet rigorous GHG and fuel efficiency regulations without sacrificing safety.

EPA has given careful consideration to these comments and agrees that these commenters have identified both current and promising technologies that may be able to deliver significant improvements in reducing GHG emissions once fully deployed. However, EPA also recognizes that there is significant uncertainty both in the pace of development of these technologies and in

<sup>25</sup> CARB, *Advanced Clean Cars Midterm Review, Resolution 17-3* (March 24, 2017), available at: <https://www.arb.ca.gov/msprog/acc/mtr/res17-3.pdf>; CARB, *California's Advanced Clean Cars Midterm Review, Summary Report for the Technical Analysis of the Light Duty Vehicle Standards* (January 18, 2017) (p. ES-3), available at: [https://www.arb.ca.gov/msprog/acc/mtr/acc\\_mtr\\_finalreport\\_full.pdf](https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf). See CARB comments at docket item EPA-HQ-OAR-2015-0827-9197.

the degree of efficiency improvements they will ultimately be able to deliver. EPA believes that this uncertainty further supports its determination to reconsider the current standards through a subsequent rulemaking.

**c. The acceptance of the necessary technologies by consumers**

In addition to the issues related to new technologies needing to be developed to meet the MY 2022 – 2025 emission standards, consumers’ preferences must change to ensure that the current standards can be met – that is, consumers will need to be willing to purchase vehicles with new technologies. However, as shown below, consumers’ preferences are not necessarily aligned to meet emission standards and there is uncertainty on this issue that merits further consideration. Consumers’ preferences are driven by many factors and fuel economy is merely one factor that increases and decreases based on the price of gasoline.

The Alliance and Global Automakers ~~commented~~state that the standards will be effective only if people buy a mix of vehicles ~~subject~~that is sufficiently fuel-efficient on average to meet the standards, but that current trends do not indicate an acceptance by consumers ~~that is~~of the increased costs and tradeoffs in other desirable vehicle attributes that are needed to comply with more stringent GHG standards going forward. The only MY 2017 vehicles that could comply with the MY 2025 standard have a very low consumer acceptance rate today and make up less than 5% percent of the total market share-(see Figure 2 above). Despite the auto industry providing an increasing ~~amount~~number of battery-electric vehicle models and plug-in hybrid electric vehicle models, combined national sales of these vehicles still account for just over one percent of the market. According to data submitted by the Global Automakers, sales of hybrids peaked in 2013 at 3.1% percent, but only accounted for 2% percent of the market in 2016-

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The Alliance, Global Automakers, Mercedes-Benz, and National Corn Growers Association expressed concerns about low adoption rates of electrified vehicles (strong hybrids, PHEVs, and EVs). Global Automakers stated that customers are not buying electrified vehicles at a rate sufficient for compliance. Mitsubishi and Mercedes-Benz pointed to low gasoline prices and limited infrastructure for electric vehicle charging as an additional obstacle for electric vehicle adoption. Mitsubishi considered the standards unachievable if consumers are not willing to buy more electrification in their vehicles.

Some commenters countered that consumers do prioritize fuel economy that sales numbers decreased because of the cyclical nature of the industry, and that there is enough flexibility in the market to meet consumer needs. Also problematic, a number of commenters asserted that there is a growing understanding and acceptance of electrification in vehicles, pointing to an increased percentage of EV sales and automakers announcing plans for electrification. Contrary to these comments, as shown in Figure 1, EV sales have decreased and when looking at very small numbers, percentage growth may be misleading.

A further issue is the growing preference for light-duty trucks over cars. In 2012, the car and light truck split was projected to be 67% percent to 33% percent respectively for MY 2025. According to EPA's 2016 Fuel Economy Trends Report, the split in MY 2015 was 57% percent cars to 43% and 45 percent trucks. Regarding With regard to MY 2016 compliance, the Alliance commented that the large shift in consumer buying patterns toward the light-truck fleet has negatively impacted industry compliance because the light-truck standards were relatively more demanding during this period of time.

Several commenters expressed concern over potential adverse effects on other vehicle attributes due to the standards. Several commenters expressed concern over potential adverse effects on other vehicle attributes due to the standards. The Alliance, Global Automakers, and

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Competitive Enterprise Institute (CEI) other stakeholders noted that consumers consider a wide range of features in their purchase decisions. Mercedes-Benz cited low sales of its S550E PHEV which, though more efficient than its internal combustion engine counterpart, had slower acceleration and reduced trunk space. ~~Illinois Corn Growers Association expressed concern over its members' ability to purchase trucks and SUVs for their work as they become more expensive.~~ Mercedes-Benz cited low sales of its S550E PHEV which, though more efficient than its internal combustion engine counterpart, had slower acceleration and reduced trunk space. The National Automobile Dealers Association (NADA) and International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) noted that ~~consumer~~ consumers' preferences vary with time and market conditions, such as fuel prices. The Alliance, Global Automakers, and Mitsubishi stated that current low gas prices make the standards more difficult to achieve. The Alliance and NADA pointed to a recent study from Resources for the Future that found greater willingness to pay for performance than for fuel economy, and the potential for misestimating willingness to pay if not taking into account other vehicle attributes. ~~The Alliance, Global Automakers, and Mitsubishi stated that current low gas prices make the standards more difficult to achieve. The Alliance and NADA pointed to a recent study from Resources for the Future that found greater willingness to pay for performance than for fuel economy, and the potential for misestimating willingness to pay if not taking into account other vehicle attributes.~~<sup>26</sup> Global Automakers expressed concern that, if EPA cannot calculate consumers' willingness to pay for attributes, it may overestimate the probability of success for the standards.

#### **Consumer Willingness to Pay and Consumer Valuation of Fuel Savings**

Global Automakers One commenter stated that consumers slightly undervalue fuel-efficient technologies, and asked the agencies or fully value future fuel savings while other commenters cited a poll in Ohio supporting achieving an average of 40 mpg in 2025. Consumers Union cited research that found that fuel economy is the top factor that consumers want to be "clear-eyed and realistic" in considering consumers' willingness to pay for fuel-saving technologies. Mitsubishi stated that when consumer purchase decisions are not primarily about fuel economy, meeting the standards becomes more challenging. The Alliance suggested that EPA continue to study the role of fuel savings in consumer purchase decisions. The Alliance stated that significant discounts are needed to sell efficient vehicles, which could lead to economic hardship for automakers. The Trinity Consultants and NERA Economic Consulting (TC/NERA) study argued for using, in

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<sup>26</sup> To note, there are numerous peer-reviewed studies related to this subject and many of them are available in the docket associated with this action. EPA intends to summarize and assess the studies on this topic as part of the forthcoming rulemaking.

EPA's benefit-cost analysis, the value of fuel economy that vehicle buyers consider in their purchase decisions, which they argued is less than its full market value improved in their next vehicle.

Commenters shared perspectives on the current and projected state of the vehicle market and demand. Global Automakers commented that overall vehicle sales have leveled off, and it believes that sales may decline in coming years. CFA noted that vehicle models with larger fuel economy improvements had larger sales increases while sales for those with lower improvements had lower increases. EPA intends to continue to consider vehicle sales and the potential impact of the EPA standards on vehicle sales as a relevant factor in the forthcoming rulemaking.

Various comments raised questions about how to predict the impacts of the standards on vehicle sales. The Alliance and NADA argued that EPA has not yet conducted an "appropriate analysis" of the sales impacts of the standards, and NADA asks the agencies to "fully understand" consumer vehicle purchase decisions. The Alliance referenced work by Ford suggesting that the standards would reduce sales volumes by four percent using cost estimates from the draft TAR. Other commenters provided that neither EPA nor NHTSA has found vehicle demand modeling methods robust enough to predict sales impacts; and EDF stated EPA and NHTSA could consider using a static forecast (that is, assuming market shares to be unaffected by the standards).

Auto industry and dealer comments discussed implications for vehicle fleet turnover. The Alliance noted that low fleet turnover would reduce the effectiveness of the GHG program. NADA suggested that the GHG program should seek to maximize fleet turnover.

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Several commenters discussed a study by researchers at Indiana University. The Indiana University’s ‘Total Cost of Ownership’ analysis found that the MY2017-2025 standards would decrease sales using a “2016 perspective” but that it would increase sales when using inputs from the 2012 final rulemaking. Some commenters raised concerns related to the study related to future benefits of improved fuel economy and different assumptions in consumer willingness to pay. Graham, a coauthor of the IU study, supported the assumptions of the report in a response to those comments.

EPA agrees that impacts on new vehicle sales and fleet turnover are important factors that were not adequately considered in the January 2017 Determination. As noted above, if new vehicle sales are lower than expected because of higher prices, or lack of consumer acceptance of advanced technologies, significant share of projected GHG reductions and fuel saving gains on a fleet-wide basis may not be realized. EPA intends to more fully consider these potential actions in the forthcoming rulemaking. EPA intends to explore new analytical tools to look at new vehicle sales and fleet turnover as part of its decision-making record for the new rule.

**Factor 2: The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines**

The cost on the producers (e.g., suppliers, auto manufacturers), intermediaries (e.g., auto dealers), and purchasers (e.g., consumers, car drivers) can be rather significant based on the standards set. For consumers, especially low-income consumers, moderate increases to the cost of cars can result in significant impacts to disposable income.

Both the Alliance and Global Automakers identified areas where EPA underestimated costs.

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The Alliance identified three areas related to technology cost that it believes need further assessment: direct technology costs, indirect cost multipliers, and cost learning curves.<sup>27</sup> Global Automakers asserted that EPA's modeling has consistently underestimated the costs associated with technologies and the amount of technology needed, commenting that a quality check at every step of the process needs to be done with real-world data that has been supplied by manufacturers.

~~Some NGOs, including EDF, ELPC, and UCS, cited work sponsored by EPA that finds very wide ranges in estimates of willingness to pay (WTP) for vehicle attributes. They interpreted this variation as suggesting a lack of robustness in the models underlying the estimates. CFA and CU stated that studies using purchasing behavior are based on choices among existing vehicles, not necessarily consumers' preferences; because of this limitation, existing studies may not capture consumers' true WTP for attributes. Instead of using consumer WTP for fuel economy, ELPC recommended that EPA continue using its estimates of "real-world" fuel savings for benefit-cost analysis.~~

#### Affordability

The January 2017 Determination did not give appropriate consideration to the effect on low-income consumers. The Administrator believes that affordability of new cars across the income spectrum, and especially among low-income consumers, is an important factor, both because of its equity impacts and because of its potential impacts on the total energy savings delivered by the standards. In its new rulemaking, EPA plans to thoroughly assess the impacts of the standards on affordability and reconsider the importance of this factor in selecting an appropriate level of the standard.

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<sup>27</sup> See "Critical Assessment of Certain Technical and Economic Assumptions Made in EPA's Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation" (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6)

The Alliance, Mitsubishi, and Vermont Energy Investment Corporation (VEIC) recommended that EPA revisit affordability concerns. The Alliance and Global noted that average vehicle transactions prices have increased. The Alliance stated that consumers do not change the fraction of their budgets for transportation; if vehicles become more expensive, they will have to buy less expensive vehicles with fewer features. Global Automakers expected price increases to lead some low-income households to switch from buying new to used vehicles, and some to be forced out of the market entirely. The Alliance reiterated that the standards have a disproportionate negative impact on low-income households. Mitsubishi expressed concern that it would have to add electrification to already efficient low-priced vehicles and the increased price could drive buyers to less efficient used vehicles. NADA and Graham expressed concerns that potential buyers will not be able to get loans large enough to cover the increased vehicle prices. Mercedes-Benz pointed out that up to half ~~of~~ its sales in some markets are leased; the payback period for technologies to meet the standards may exceed the typical three-year leasing period, and low residual values for advanced technologies could further increase lease payments.

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#### Vehicle Sales and Fleet Turnover

The Alliance stated that the standards have a disproportionate negative impact on low-income households. Other commenters stated that the standards will have a larger proportionate benefit for low-income households and referenced a Greene and Welch study<sup>28</sup>. VEIC requested that the agencies consider that relaxing the standards will increase ownership costs on lower-income drivers. EDF did not find adverse effects on affordability and note that the standards will lead to used vehicle purchasers having more fuel efficient choices.

On the issue of consumer affordability, some stakeholders commented that EPA standards are not making new vehicles less affordable, citing a Synapse Energy Economics report prepared for Consumers Union. The report noted a wider range for vehicle prices at the upper end, due to higher-end vehicles receiving more features, at the same time that the prices of entry-level vehicles have stayed roughly the same for the past 10 years.

EPA concludes that affordability concerns and their impact on new vehicle sales should be more thoroughly assessed, further supporting its determination to initiate a new rulemaking for the 2022-2025 standards.

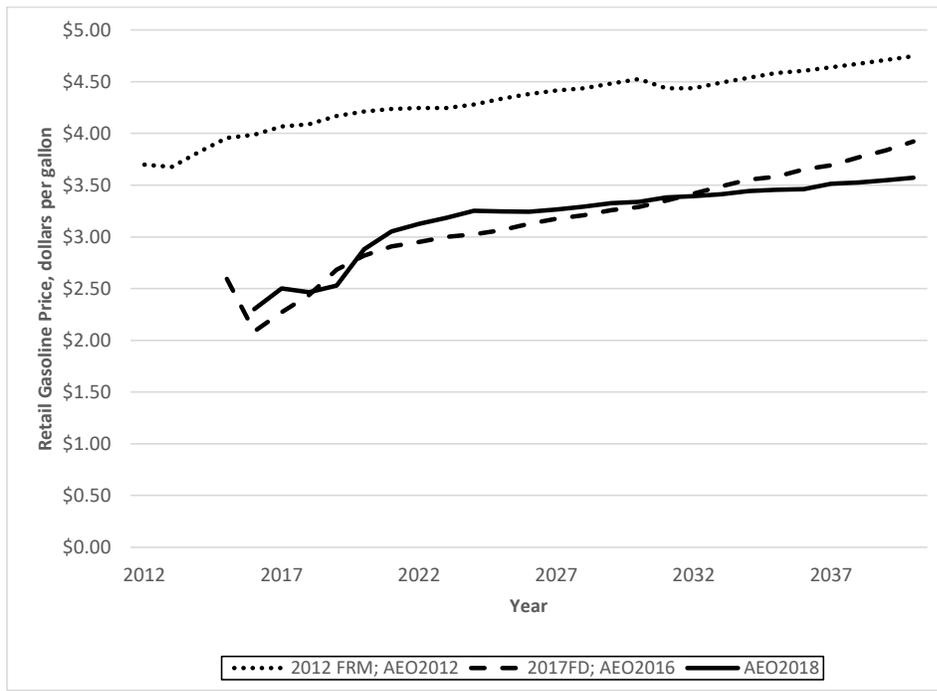
**Factor 4: The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers**

The impact of the standards on emissions, oil conservation, energy security, and fuel savings to consumers are significantly affected by many assumptions including but not limited to: (1) the consumer adoption of new lower emitting cars; (2) cost of fuel; and (3) the rebound effects.

Slower or decreased consumer adoption of new lower emitting cars, as mentioned above, would result in decreased effectiveness of the program. As consumer preference changes and/or the cost of new cars increases, consumers may be less willing to purchase new vehicles and thus phase out the higher-emitting older cars. Because of the potential decrease in adoption of newer cars the reduction of emissions from the standards may be less than originally thought. The same logic can be applied to oil conservation. EPA believes that this issue raises enough concern to warrant consideration in the future rulemaking.

With respect to cost of fuel, for example, the lifetime fuel savings to consumers can change by almost 200 percent per vehicle based on the assumption on gas prices according to the 2016 Proposed Determination (Table IV.12). This significant effect on consumer savings due to fuel prices can in turn affect both consumer demand for fuel-efficient vehicles and their driving behavior generally, both of which significantly affect impacts on emissions, oil conservation and energy security. Figure 3 below shows the fuel price projections EPA used in the 2012 final rule, the January 2017 Determination, and the current projections from the Energy Information Administration's Annual Energy Outlook (AEO). As can be seen from the figure, the 2012 rule projected significantly higher fuel prices than current EIA projections, while the 2017 Final Determination used similar projections to EIA. Lower fuel prices mean lower incentives for consumers to purchase fuel efficient vehicles, because the fuel cost savings they get from doing so are also lower. Thus, the projections for fuel cost savings in the 2012 rule may have been optimistic, which increases the challenge manufacturers face in making fuel-efficient vehicles attractive to consumers. This consideration supports EPA's determination that the current standards are inappropriate and should be reconsidered in a new rulemaking.

Figure 3: EIA Annual Energy Outlook Retail Gasoline Price Projections, \$/gallon (all values adjusted to 2017\$)



With respect to the rebound effect (the increase in driving resulting from a lower marginal cost of driving due to greater fuel efficiency), EPA received a range of views and assessments in the recent public comments. Higher rebound values mean that consumers are inherently driving more due to the increase in fuel efficiency of the vehicle and this impact will offset the reduction of emissions, oil conservation, energy security, and fuel savings by customers. EPA believes it is important to fully consider the effects of a rebound effect to project an accurate assessment of the projected fuel savings, and EPA intends to do so in its new rulemaking.

With respect to energy security, the situation of the United States is dramatically different than it was at the time the 2012 standards were promulgated, and even significantly different from its situation in 2016 when the draft TAR was developed.

Regarding emissions, some state and local government commenters pointed to the co-benefits of GHG standards as important criteria pollutant control measures. For example, NACAA commented that the standards would lead to oxides of nitrogen (NOx) reduction that contribute to attainment and maintenance of the 2008 and 2015 ozone and 2012 fine particulate matter National Ambient Air Quality Standards (NAAQS) and other air benefits. While EPA agrees that there are co-benefits from these standards, EPA notes that the standards are supposed to be based on GHG emissions and that while co-benefits exist with respect to emissions such as criteria pollutants, using GHG emission standards as criteria pollutant control measures is likely a less efficient mechanism to decrease criteria pollutants and those issues are already handled through the NAAQS implementation processes.

Based on the information provided above, the Administrator believes that there is strong basis for concern that the current emission standards from MY 2022 – 2025 may not produce the same level of benefits that was projected in the January 2017 Determination. This further supports the Administrator’s determination to withdraw the prior Determination and initiate a rulemaking to reconsider the current standards.

**Factor 5: The impact of the standards on the automobile industry**

The Administrator finds, based on the current record, that the standards potentially impose unreasonable per vehicle costs resulting in decreased sales and potentially significant impact to

both automakers and auto dealers. Trinity Consulting & NERA Economic Consulting (TC/NERA)<sup>29</sup> found that the MY 2022-2025 standards would reduce vehicle sales over those four model years from 65 million to 63.7 million, a reduction of 1.3 million vehicles, due to higher vehicle prices.

EPA also recognizes significant unresolved concerns regarding the impact of the current standards on United States auto industry employment. The Center for Automotive Research (CAR),<sup>30</sup> a nonprofit automotive research center, developed a cost-benefit study referenced by multiple commenters that estimated employment losses up to 1.13 million due to the standards if the standards increased prices by \$6,000 per vehicle. Other stakeholders submitted comments critical of the CAR report.

~~Commenters shared perspectives on the current and projected state of the vehicle market and demand. Global Automakers commented that overall vehicle sales have leveled off, and it believes that sales may decline in coming years.~~

~~Various comments raised questions about how to predict the impacts of the standards on vehicle sales. The Alliance and NADA argued that EPA has not yet conducted an “appropriate analysis” of the sales impacts of the standards, and NADA asks the agencies to “fully understand” consumer vehicle purchase decisions. The Alliance referenced work by Ford suggesting that the standards would reduce sales volumes by 4% using cost estimates from the Draft TAR. It also cited a study by TC/NERA,<sup>31</sup> which found that 1.3 million fewer vehicles will be sold in MY 2022-2025 due to higher vehicle prices. CEI considered EPA to have downplayed the effects of the standards on sales and employment.~~

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<sup>29</sup> Trinity Consultants & NERA Economic Consulting, Critical Assessment of Certain Technical And Economic Assumptions Made in EPA’S Final Determination On the Appropriateness of the Model Year 2022-2025 Light-duty Vehicle Greenhouse Gas Emission Standards Under the Midterm Evaluation 2 (Oct. 2017).

<sup>31</sup> Trinity Consultants & NERA Economic Consulting, Critical Assessment of Certain Technical And Economic Assumptions Made in EPA’S Final Determination On the Appropriateness of the Model Year 2022-2025 Light-duty Vehicle Greenhouse Gas Emission Standards Under the Midterm Evaluation 2 (Oct. 2017).

~~Auto industry and dealer comments discussed implications for vehicle fleet turnover. The Alliance noted that low fleet turnover would reduce the effectiveness of the GHG program. NADA suggested that the GHG program should seek to maximize fleet turnover.~~

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### Employment and Macroeconomic Impacts

Commenters expressed differing points of view on the potential effects of the standards on employment and the macroeconomy. ~~and predicting the exact effect of the GHG emission standards on the macroeconomy is rather difficult.~~

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Some commenters pointed to negative effects on the economy and employment due to higher costs from the standards. The Alliance commented that each job in the auto sector creates 6.5 additional jobs, and stated that auto sector employment is generally related to vehicle sales, which ~~it is~~ expected to decline. The Alliance, Global Automakers, and ~~Fiat Chrysler~~ FCA expressed concern that cost increases associated with the MY 2022-2025 standards could reduce sales and employment, and put downward pressure on the macroeconomy. ~~Clean Fuels Development Coalition believes that deregulating could stimulate the economy and create jobs.~~

The Alliance and Global Automakers argued that reduced revenues from a sales drop due to the standards would reduce spending on research and development.

~~Some commenters stated there would be positive effects on employment from the standards through their effects on investments. The UAW commented that radically weakening standards will adversely impact investments in key technologies and put domestic manufacturers behind in the global marketplace. The UAW stated standards could be a win-win for environment, workers, manufacturing, and economy if set through consensus building as in the past. BlueGreen Alliance (BGA) has identified 288,000 American workers who make fuel-saving technologies being used to meet the standards.<sup>32</sup> Tesla identified jobs it has created in battery cell production in the U.S., while the Alliance considers it likely that most battery pack jobs will be outside the U.S. Honeywell identified jobs associated with its new automotive refrigerant being used by auto manufacturers to generate air conditioning credits toward meeting the standards.~~

<sup>32</sup> Natural Resources Defense Council and Blue Green Alliance, Supplying Ingenuity II: U.S. Suppliers of Key Clean, Fuel-Efficient Vehicle Technologies (June 2017). <https://www.bluegreenalliance.org/resources/supplying-ingenuity-ii-u-s-suppliers-of-key-clean-fuel-efficient-vehicle-technologies/>

~~AVE pointed to increasing jobs and rapid technological innovation in the auto sector in recent years. NYU IPI stated that the standards are likely to have a relatively small effect on employment in the auto sector, due to the flexibility and low costs of the standards, and any effects on employment may be offset by employment effects elsewhere in the economy.~~

~~Some commenters referred to a study from the Center for Automotive Research (CAR)<sup>33</sup> that estimated significant sales and employment losses due to the standards. Global Automakers cited that study for evidence of adverse effects of the standards on jobs. Other commenters stated that the standards could lead to macroeconomic and employment benefits through their effects on innovation. Commenters also stated that innovation and investment resulting from the standards have contributed to the recovery of the auto industry and the wider economy. Some commenters stated that reopening the standards increases uncertainties that may reduce investments in advanced technologies.~~

~~The UAW, while not objecting to a reevaluation of the standards, stated that EPA should ensure that the regulations recognize the long-term importance of manufacturing a diverse fleet of motor vehicles in the United States by American workers and radically weakening the standards will adversely impact investments in key technologies and put domestic manufacturers behind in making fuel-saving technologies being used to meet the standards. Some commenters stated they believe there would be positive effects on employment from the standards through their effects on investments.~~

~~The automotive supplier commenters discussed their views on the importance of the standards in maintaining the competitive advantage U.S. companies currently have in the global marketplace. For example, MEMA commented that reducing the stringency of the standards in~~

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<sup>33</sup> McAlinden et al., Center for Automotive Research (2016). The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy. <http://www.cargroup.org/publication/the-potential-effects-of-the-2017-2025-epanhtsa-ghgfuel-economy-mandates-on-the-u-s-economy/>

the U.S. increases the likelihood that work on these emissions-reducing technologies would shift to other markets.

A number of commenters cited Carley et al.<sup>34</sup>, which included a study of the macroeconomic impacts of the standards, conducted by researchers at Indiana University. The study found that the short-term effects of the standards are negative, but the long-term effects of the standards are positive for employment, Gross Domestic Product, and disposable income, though the short-run effects are negative; the accumulated positive benefits but will not overtake the negative effects until at least 2025. Several commenters identified concerns in the Carley et.al. analysis that contributed to short-term negative effects. Graham, a coauthor of the report, responded to these comments by supporting the IU report assumptions.

#### **Program Flexibilities**

EPA received numerous comments regarding various aspects of the light-duty GHG program flexibilities including off-cycle credits, advanced technology incentives, and averaging, banking, and trading provisions.

Many comments addressed the off-cycle credits program. Several automakers commented that the off-cycle program should be streamlined in ways that would give manufacturers more certainty and make it easier for manufacturers to earn credits. For example, Toyota commented that EPA should open the program to additional technologies without a cap on menu credits specified in EPA's regulations. Mercedes requested that the agencies increase the availability of credits to support the deployment of advanced technologies. The Alliance commented that process and other issues with the off-cycle credit technology program "have reduced its feasibility for inclusion as an available technology" and that the credits should not be included in EPA's technology projections. The Alliance commented further that manufacturers are encountering difficulty in obtaining approval of off-cycle technology credits under all available options and that unanticipated requirements or restrictions—such as performance testing, caveats, or narrow interpretations of technology definitions—have resulted in uncertainty regarding the off-cycle credit generation program. Global Automakers commented that EPA should provide for a default acceptance of petitions for off-cycle credits and that streamlining the process will further promote a more efficient and better harmonized National Program.

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<sup>34</sup> Sanjay Carley, Denvil Duncan, John D. Graham, Saba Siddiki, and Nikolaos Ziropiannis. "A Macroeconomic Study of Federal and State Automotive Regulations," Indiana University School of Public and Environmental Affairs, March 2017.

Suppliers also provided comments recommending changes to the off-cycle credits program. MEMA commented that the program “offers OEMs important flexibilities in meeting the standards and will be critical to compliance in MYs 2022–2025.” MEMA recommended expanding the current pre-defined off-cycle credit menu, eliminating the credit cap on the pre-defined list of off-cycle technologies, and allowing suppliers an independent process for allowing their technologies to be eligible for credits. MECA also recommended providing a parallel supplier pathway commenting “[w]e continue to believe that a parallel supplier pathway to contingent pre-certification would greatly expand the available technologies and resources for full demonstration across a fleet of integrated vehicles by the OEM to ultimately confirm the real world CO2 reductions of a given technology.”

UCS referred to EPA’s off-cycle flexibility provisions and commented that “[t]his reasoning remains consistent with the intent of the off-cycle program, the principles of which have been previously laid-out in comments directly responding to automaker requests to alter the off-cycle program.... Those principles, summarized, are: 1) demonstration of off-cycle benefits must be rigorous and fully documented; 2) off-cycle credits should be limited to new and innovative technologies; and 3) to be eligible for credit, a technology must reduce emissions from the vehicle receiving the credit. The program was established on these three principles, and they continue to remain prudent in order to ensure that real-world reductions in fuel use and emissions are achieved.”

ACEEE commented that “any relaxation of the off-cycle credit program’s requirements could undermine the credibility and effectiveness of the standards overall.” They also say that “[b]y ensuring that the credits are based on demonstrated real-world benefits, which we believe the current off-cycle regulatory framework does, EPA ensures that emissions reductions associated with the standards are maintained. The existing credits process in place today ensures that credits are legitimate and maintains the integrity of the program.”

~~Several commenters supported extending incentives for advanced technologies. The Alliance recommended that EPA extend the advanced technology multiplier incentives beyond MY 2021 and that manufacturers should not be held responsible for upstream power plant emissions (i.e., manufacturers should be allowed to use the 0 g/mile emissions factor for electric-powered vehicles rather than having to account for upstream electricity generation emissions). Toyota similarly commented that EPA should extend the current advanced technology sales multiplier and 0 g/mi allowance through MY 2025. Mercedes-Benz requested that EPA extend the multipliers through at least MY 2025 to support further commercialization of electric and hybrid vehicles. Jaguar Land Rover supported the reconsideration of the final determination as a way “to enable a future final determination that provides incentives for very clean technologies.”~~

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~~NGV America urged the agency provide a level playing field for natural gas vehicles. As stated in their comments, “Regulatory incentives currently in place for vehicle manufacturers provide no benefit for renewable natural gas and include requirements that prevent automakers from realizing benefit from selling natural gas vehicles,” including the driving range requirement on alternative fuel that is not required for natural gas vehicles but no electric vehicles.~~

~~Several NGO and other commenters also supported flexibilities for advanced technology vehicles. Securing America’s Future Energy (SAFE) commented in support of extending the advanced technology credits out to MY 2025 to help facilitate and accelerate the transition to energy sources other than oil. Edison Electric Institute commented in support~~EPA finds that a more rigorous analysis of extending job gains and losses is needed to determine the advanced net effects of alternate levels of the standards on employment and believes this is an important factor to consider in adopting appropriate standards. EPA intends to include such an analysis as part of the basis for the new rule.

**Factor 6: The impacts of the standards on automobile safety**

EPA and NHTSA considered some potential safety impacts in the 2012 rulemaking, and EPA considers safety to be an important factor in the reconsideration of the MY 2022-2025 standards. For example, fleet turnover is important to an overall safety analysis, as newer cars tend to be safer and more efficient than older cars due to safety technology credits. NCAT innovation and regulatory requirements. EPA intends to further assess the scope of its safety analysis in the upcoming rulemaking to examine the possible impacts of fleet turnover on safety. The Administrator finds that this safety analysis is an additional reason to undertake the forthcoming rulemaking.

**Factor 7: The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program**

Many stakeholders commented on the importance of maintaining a National Program for GHG emissions and CAFE standards, and stakeholders urged EPA and NHTSA to continue coordinating with the California Air Resources Board. For example, Global Automakers commented that to the extent that EPA seeks, “Harmonization between the federal and California programs must be maintained. EPA, NHTSA and California need to work together to maintain the One National Program as all parties committed to at its inception.” Toyota commented that its ultimate objective “remains a true, single national standard governing fuel economy and greenhouse gas emissions in the future.” Nissan and Mitsubishi similarly commented that harmonization between federal and California programs must be maintained, urging California, EPA and NHTSA to work together.

Automotive suppliers also commented on the importance of maintaining the National Program. For example, the MEMA stated “[t]he One National Program provides industry stakeholders with economies of scale and increases domestic investment in emissions-reducing and fuel-efficiency technologies and jobs. Anything that falls short of a National Program will fail to provide the long-term planning certainty the industry needs to make adjustments to increase flexibility, it urges the agency to recognize and support the role of EVs and other advanced the long-term business and technology vehicles. investment decisions to meet MYs 2022-2025 standards and beyond.” The International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) commented that all stakeholders should work towards a single National Program and that “California and non-governmental organizations must have a seat at the table along with manufacturers and workers.”

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Whitefoot et al. from Carnegie Mellon University commented against extending the advanced technology incentives, stating that the advanced technology incentives should be phased out, and marginal electric power grid emissions from vehicle charging should be included in electric vehicle emissions estimates for compliance calculations. These commenters recommended using regional marginal emission factor estimates to compute electric vehicle charging emissions and regularly updating marginal emission factor estimates as the power grid changes.

The Alliance and Toyota commented that the current full size pick up truck incentives should be available to all light duty trucks. They further commented that the program's sales volume thresholds should be removed because they discourage the application of technology, since manufacturers cannot be confident of achieving the sales thresholds.

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The ELPC commented that the current program flexibilities are “enormously significant in making the standards even more feasible than the technology and cost assessments, by themselves, may suggest.” They also noted that the industry is taking advantage of its many banked credits as a flexible compliance strategy.

Regarding credit banking and trading provisions, the Alliance commented that credits should not expire. The Alliance also commented that manufacturers should be able to trade credits across light, medium and heavy duty vehicles.

#### — Final Determination

EPA appreciates the comments and information provided by commenters and recognizes that there is a diversity of views among stakeholders regarding the MY 2022-2025 light duty vehicle GHG standards. EPA believes that a national harmonized program is very important and will continue to work toward maintaining a national harmonized program through MY 2025 and beyond. To that end, EPA, in collaboration with NHTSA, will initiate a notice and comment rulemaking in a forthcoming *Federal Register* notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles, as appropriate. This coordination will ensure that GHG emission standards and CAFE standards are as aligned as much as possible given EPA and NHTSA's different statutory authorities.

EPA and NHTSA have been communicating with stakeholders, including CARB and automobile manufacturers, to try and ensure that a national harmonized program remains intact

to minimize unnecessary cost and burdens in the development of the notice and comment rulemaking.

**Factor 8: The impact of standards on other relevant factors**

The January 2017 Determination also identified regulatory certainty as an additional relevant factor that was considered as part of the determination. EPA understands that automakers and suppliers plan many years in advance.<sup>35</sup> Given such long lead times, regulatory certainty can increase the efficiency of business planning and investment cycles. The Administrator agrees that regulatory certainty is extremely important, but is reconsidering its conclusion that maintaining the current standards is the best way to provide such certainty.

Furthermore, industry cannot effectively plan for compliance with the current MY 2022-2025 GHG standards until it knows the outcome of the upcoming NHTSA rulemaking for MY 2022-2025 CAFE standards. Any regulatory certainty potentially provided by the January 2017 Determination is not supported by the fact that NHTSA had not yet begun their statutorily required rulemaking process, and EPA did not know at that time whether NHTSA would establish coordinated requirements. EPA now believes that the greatest potential regulatory certainty is provided in the long run by undertaking a new rulemaking, in partnership with NHTSA, and ensuring that the resulting standards are harmonized to the greatest degree possible.

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<sup>35</sup> To note, some commenters raised concerns that reevaluating the standards increases uncertainty that might reduce investment in advanced technologies that could hurt jobs and United States competitiveness. As mentioned below, EPA disagrees with this concern as NHTSA must still complete a rulemaking for MY 2022-2025.

**IV. Revised Determination**

Even with the wide range in perspectives, it is clear that many of the key assumptions ~~the Agency~~EPA relied upon in its ~~previous Final~~January 2017 Determination, including gas prices, technology effectiveness and cost, and the consumer acceptance of advanced technology vehicles, were optimistic or have significantly changed. ~~Also concerning is~~EPA has also both developed and received additional data and assessments since the apparent misalignment between increasingJanuary 2017 Determination regarding technology effectiveness and technology costs and either consumer willingness to pay or a miscalculation of affordability limitations. Thewhich warrant additional consideration. In addition, the reach and success of the program areis significantly limited when consumers are priced out of buying new cars. New information and data provide by the automobile manufacturers and the auto dealers are of particular interest to the program because they have the most experience with the potential difficulties in implementing the standards and stand to bear the brunt of resulting consequences. do not purchase new vehicles with low GHG emissions, either because they are priced out of them or are unwilling to spend additional money on advanced fuel-saving technologies,

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Based on our review and analysis of the comments and information submitted, ~~EPA~~the Administrator believes that the current GHG program for MY 2022-2025 vehicles presents difficult challenges for auto manufacturers and adverse impacts on consumers. ~~The auto industry commenters stated that adjustments to~~On the program were needed. whole, the Administrator believes the MY 2022-2025 GHG emission standards are not appropriate and, therefore, should be revised as appropriate. EPA, in partnership with NHTSA, will further explore the appropriate degree and form of changes to the program through a notice and comment rulemaking process. In this notice, EPA is withdrawing the previous Final Determination issued by EPA in January

~~2017 and EPA is making a new Final Determination that the model year 2022-2025 standards are not appropriate and, therefore, should be revised to be less stringent as appropriate. EPA in a forthcoming *Federal Register* notice will initiate a notice and comment rulemaking under section 202(a) of the Clean Air Act to further consider appropriate standards for model year 2022-2025 light-duty vehicles. This notice concludes EPA's Mid-term Evaluation under 40 CFR 86.1818-12(h).~~

~~Revised Final Determination of the~~ As stated above, in this notice, the Administrator has determined that the standards are not appropriate in light of the record before EPA, and therefore, should be revised as appropriate. EPA is also withdrawing the January 2017 Determination with this notice. EPA, in partnership with NHTSA, will initiate a notice and comment rulemaking in a forthcoming *Federal Register* notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles. This notice concludes EPA's MTE under 40 CFR 86.1818-12(h). Finally, EPA notes, as discussed above, that this revised determination is not a final agency action, as explained in the 2012 final rule. The effect of this action is rather to initiate a rulemaking process whose outcome will be a final agency action. Until that rulemaking has been completed, the current standards remain in effect and there is no change in the legal rights and obligations of any stakeholders.

*Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025*  
*Light-duty Vehicles*  
*Page 46 of 46*

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Dated: \_\_\_\_\_

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E. Scott Pruitt,  
Administrator.

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