

**COMMENTS OF THE  
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION  
ON THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION'S NOTICE  
OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT FOR  
MODEL YEAR 2022–2025 CORPORATE AVERAGE FUEL ECONOMY STANDARDS**

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The Manufacturers of Emission Controls Association (MECA) is pleased to provide comments in response to the National Highway Traffic Safety Administration's notice of intent to prepare an environmental impact statement (EIS) for model year 2022-2025 Corporate Average Fuel Economy (CAFE) standards. We believe that the preferred alternative that NHTSA selected in its July 2012 final EIS is still valid as a minimum threshold, and all alternatives analyzed in the EIS could be strengthened based on demonstrated higher adoption rates and new technology penetration that has been observed over the 2012-2017 timeframe compared to what was originally predicted. Technology providers and vehicle manufacturers have made significant advances since the 2017-2025 light-duty GHG standards and 2017-2021 CAFE standards were finalized in 2012. The pace of efficiency technology introduction and the breadth of technology options available for compliance has grown beyond early projections. We maintain that fuel economy improvements out to 2025 are still achievable through the broader deployment of efficiency technologies in conventional internal combustion powertrains and vehicles. Our comments support NHTSA using the preferred alternative analyzed in the 2012 final EIS as a starting point and increasing the rate of annual increase of the fuel economy standards for all alternatives based on the rise in technology adoption rates that have been seen between 2012 and 2017. MECA's 40 years of experience in the automotive industry has repeatedly demonstrated that suppliers partnering with their OEM customers, have always exceeded emission targets at lower cost as economies of scale, production optimization and cost reductions were demanded by consumers of vehicles. The past seven years of experience with aligned GHG and fuel economy standards for light-duty vehicles continues to support that premise.

MECA is a non-profit association of the world's leading manufacturers of emission control, combustion efficiency and GHG reduction technology for mobile sources. Our members have over 40 years of experience and a proven track record in developing and manufacturing technologies for reducing criteria emissions and improving engine efficiency for a wide variety of on-road and off-road vehicles and equipment, including extensive experience in developing fuel efficiency technologies for gasoline and diesel light-duty vehicles in all world markets. Our industry has played an important role in the emissions success story associated with light-duty vehicles in the United States and has continually supported efforts to develop innovative, technology-forcing, emissions programs to mitigate air quality problems, minimize the impacts of climate change, and reduce fuel consumption that results in increased energy security.

Controlling greenhouse gas emissions from the transportation sector is essential to the overall efforts to alleviate long-term impacts on the environment. As detailed in NHTSA's and

EPA's ongoing Midterm Evaluation and draft TAR, there is a large set of technology combinations available to reduce greenhouse gas emissions from passenger vehicles and light-duty trucks, including fuel efficient, state-of-the-art and future advanced gasoline and diesel powertrains. The vast majority of technologies being deployed across the light-duty fleet represents technologies that have existed for decades. Enabled through advances in computing power on vehicles and in response to regulation, these technologies are now being applied to conventional internal combustion diesel and gasoline engines. As these familiar technologies were deployed in the early years of implementation, suppliers have been developing new technologies to continue to improve fuel economy to help their customers meet future standards. Numerous cost effective ways to improve fuel economy are already emerging, without the need for extensive use of strong hybridization or full electrification, with more under demonstration and testing in the next decade. We urge NHTSA to consider the current availability of fuel savings technologies as well as the pace of development and deployment between 2012-2017 when finalizing the alternatives and analyzing the benefits through the EIS process.

MECA and our members were engaged during the drafting of the TAR and midterm evaluation process by providing the most current cost and performance information for emission control and engine efficiency technologies that are in development or currently available for automakers to use to meet fuel economy standards. Our association provided input as EPA and NHTSA developed the original GHG and fuel economy standards for MY 2017-2025 and MY 2017-2021, respectively. Numerous studies have shown that the value of the health benefits from transportation-related regulations that reduce car and truck emissions is significantly higher than the cost of implementation. In fact, the Clean Air Act is estimated to result in \$2 trillion in benefits in 2020, which represents \$30 in benefits for every dollar spent. EPA and NHTSA policies have not only provided important health benefits stemming from large reductions in emissions from mobile sources but have also created an industry with significant numbers of highly skilled jobs and a global economic reach. MECA member companies accounted for over 70,000 jobs across North America in 2016. MECA estimates that the emission control technology market for new light-duty and heavy-duty vehicles in North America will reach approximately \$20 billion in 2017, rising to \$23 billion by 2020.

MECA recommends that NHTSA refer to its Final EIS for CAFE Standards, 2017-2025 published in July 2012 (see <https://one.nhtsa.gov/Laws-&Regulations/CAFE-%E2%80%93-Fuel-Economy/Environmental-Impact-Statement-for-CAFE-Standards,-2017%E2%80%932025>) as a starting point when developing the current EIS. In the July 2012 Final EIS, NHTSA stated that the "Preferred Alternative reflects a reasonable and appropriate balancing of the statutory factors in setting maximum feasible fuel economy standards." Many of the technological assumptions in the 2012 Final EIS and proposed rule can be revised based on the latest available information about technology acceptance that has been realized since 2012. U.S. efficiency standards have fostered the development and implementation of a myriad of efficiency technologies for light-duty vehicles including engine turbochargers, exhaust gas recirculation systems, advanced fuel systems, variable valve actuation technology, advanced cylinder deactivation, advanced transmissions, 48V hybrid powertrain components, and powertrain control modules. In fact, all indications over the first five years of implementation suggest that the pace of technology implementation into vehicles has been faster and at lower costs than originally projected in 2012, and technology costs have even declined since the draft Technical

Assessment Report (TAR) was published in 2016. In 2016 and 2017 MECA members contributed to a series of technology reports published by ICCT on a wide range of light-duty fuel efficiency technologies. The papers updated the cost and penetration rate of technologies, such as downsized boosted engines, transmissions, diesel powertrains, naturally aspirated engines, cylinder deactivation and light weighting. These reports, which can be found at [http://www.theicct.org/faceted-search?search\\_api\\_views\\_fulltext=Technology%20Brief&f\[0\]=type%3Aarticle&f\[1\]=taxonomy\\_vocabulary\\_1%3A19&f\[2\]=taxonomy\\_vocabulary\\_10%3A37](http://www.theicct.org/faceted-search?search_api_views_fulltext=Technology%20Brief&f[0]=type%3Aarticle&f[1]=taxonomy_vocabulary_1%3A19&f[2]=taxonomy_vocabulary_10%3A37), are a valuable resource of the latest information from the technology suppliers perspective of how technologies have evolved from 2012-2015 and the rate of technology penetration and cost they project to 2025. Furthermore, an analysis conducted by ICCT in 2017 summarized the individual technology assessment information in terms of the cost, performance, and market penetration, and the report included additional technologies available for vehicle manufactures to comply with the 2025 standards. That study concluded that the combined cost of compliance in 2025 could be as much as 40% lower than EPA estimated in their proposed determination. (see: [http://www.theicct.org/sites/default/files/publications/US-LDV-tech-potential\\_ICCT\\_white-paper\\_22032017.pdf](http://www.theicct.org/sites/default/files/publications/US-LDV-tech-potential_ICCT_white-paper_22032017.pdf)).

In the EIS process for CAFE standards concluded in 2012, NHTSA stated that it had “carefully considered information concerning environmental impacts and analyzed a broad range of currently available and soon-to-be in production fuel efficiency technologies, in developing alternatives (including a Preferred Alternative) based on the statutory factors.” A number of currently available vehicles are already meeting fuel economy standards years in advance of statutory requirements. The following cars are a few examples that are expected to meet the 2022 standard three to four years in advance: 2018 Toyota Camry (2.5L Dynamic Force engine, hybrid), 2019 Mazda 3 (Skyactiv-X spark-controlled HCCI engine), and 2018 Infiniti QX50 (200-kW Nissan VC-Turbo engine). Given the current state of technology available to meet the originally proposed CAFE standards for MY 2022-2025, MECA suggests that the alternatives considered in the 2012 Final EIS are still appropriate, and the Preferred Alternative could be made more aggressive.

NHTSA noted in 2012 that a midterm evaluation was appropriate to assess the new and innovative technologies that would likely make their way into the fleet but were not originally considered by the agencies. MECA recommends that NHTSA take the latest information into account to best inform the draft EIS alternatives as well as the upcoming proposed rule that sets CAFE standards for MY 2022-2025. Based upon information and analyses reported in the draft TAR, the agencies concluded that automakers have been adopting fuel economy technologies at unprecedented rates, including the development of far more innovative technologies to improve fuel economy than originally anticipated. Furthermore, the agencies reported that the original MY 2022-2025 standards can be met with conventional gasoline vehicles that use internal combustion engines with well-understood and proven technologies. The National Academies of Science corroborated this conclusion in their 2015 study (<https://www.nap.edu/catalog/21744/cost-effectiveness-and-deployment-of-fuel-economy-technologies-for-light-duty-vehicles>).

Besides the already mentioned ICCT white paper, a number of leading edge technologies have been announced for commercialization in the U.S. before 2021, including dynamic cylinder deactivation (<http://www.autonews.com/article/20150915/OEM04/150919888/delphi-gm-ready-advanced-cylinder-deactivation>), 48-volt mild hybrid systems (<http://www.greencarcongress.com/48v/>), new high-efficient engines (e.g., Skyactiv-D and Skyactiv-X), and others. Some of these technologies, like 48V systems, have been already introduced on vehicles in Europe, with several manufacturers projecting broad implementation across their fleet in the near future (<http://www.greencarcongress.com/48v/>). Our members expect announcements of 48V mild hybrid technology on vehicles for sale in the U.S. in the next few years, with significant penetration into the fleet by 2025 when the standards are fully implemented. The reason for such rapid acceptance of this technology, that was not even considered in NHTSA's 2012 analysis, is because it provides 50-70% of the fuel economy benefits of a full hybrid system at 30% of the cost. The simplest versions (P1, belt starter generator) can be easily integrated into a vehicle without a complete redesign, which would be needed for a full hybrid powertrain. MECA believes that light-duty diesel powertrains continue to provide a cost-effective, durable approach for vehicle manufacturers to improve the average fuel economy of their fleets, particularly in the larger power category that includes small pick-up trucks and SUVs. A 2016 analysis completed by the Martec Group provides an updated cost-benefit analysis for light-duty cars and trucks that details the costs and benefits of diesel powertrains as part of a more fuel efficient light-duty fleet (<http://www.martecgroup.com/wp-content/uploads/2016/05/The-Martec-Group-White-Paper-Diesel-Engine-Technology-and-the-Midterm-Evaluation-Summer-2016.pdf>). Furthermore, MECA has provided input on the cost analysis in the diesel teardown study funded by EPA and conducted by FEV.

The Consumer Federation of America (CFA) released a report in July 2017 that provides an analysis of fuel efficiency and increases in miles per gallon (MPGs) among newly introduced vehicles. The analysis looks only at "all-new" 2017 vehicles – those on which manufacturers have had a chance to make fuel economy improvements. CFA compared the price and fuel efficiency of these vehicles with their 2011 counterparts. The analysis found that 27% of the "all-new" vehicles introduced in 2017 actually cost less than their 2011 version and got 1-10 MPG better fuel economy. When considering five years of fuel costs, nearly half of these 2017 vehicles cost less to buy and fuel than their 2011 counterparts. The average added cost of fuel economy for all analyzed models was \$320 per vehicle but will save the buyer an average of \$946 (see: <http://consumerfed.org/wp-content/uploads/2017/07/on-the-road-to-2025-cafe-standards.pdf>).

When considering the environmental impacts in the scenarios evaluated in the EIS, MECA recommends NHTSA consider the impacts associated with the potential for two separate and distinct standards within the U.S. as California has already finalized its midterm review and plans to move forward with the current standards for MY 2022-2025 (see: [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)). Section 177 states have announced their intent to follow California when implementing standards in their own states. Environment and Climate Change Canada will conduct its own midterm evaluation after the conclusion of the U.S. EPA's final determination. Canadian officials may choose to maintain the original EPA GHG standards set in 2012. NHTSA should conduct an economic and

environmental analysis that determines how multiple fuel economy standards will influence the compliance decisions of automakers.

In summary, MECA supports NHTSA's efforts to develop an EIS to inform the rulemaking process for the next set of CAFE standards for MY 2022-2025. We believe that the assumptions related to technology adoption and costs can be revised with the most recent data, which suggests that efficiency technology adoption has increased at a more rapid rate than originally assumed while costs to employ efficiency technologies are less than originally assumed. Vehicle manufacturers can choose from a plethora of technologies to reduce emissions from the light-duty sector through the design of powertrains that include advanced exhaust emission controls along with advanced efficiency technology for meeting MY 2022-2025 CAFE standards that are consistent with EPA's current GHG requirements for the same model year vehicles. MECA believes that advanced efficiency and emission control systems have a critically important role in future policies that aim to reduce the entire emission footprint of light-duty vehicles. MECA members are developing the technologies that will allow advanced fuel-efficient powertrain designs to incorporate appropriate emission controls, in order to optimize the overall fuel consumption of the vehicle while achieving the tightest criteria pollutant standards in the world and minimizing the impact on the environment. MECA directs NHTSA to review the draft TAR, which is based on sound science and rigorous analysis, along with more recent publications like the ones listed above, to revise technology assumptions for development of the EIS. Fuel economy improvements out to 2025 are still achievable through the broader deployment of efficiency technologies in conventional internal combustion powertrains and vehicles, and MECA looks forward to working with our customers to reduce fuel consumption that leads to greater energy security, better air quality, and climate benefits.

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