



Motor & Equipment Manufacturers Association
Comments to the
California Environmental Protection Agency Air Resources Board on
“California’s Advanced Clean Cars Midterm Review: Summary Report for
the Technical Analysis of the Light Duty Vehicle Standards”
March 20, 2016

Introduction

The Motor & Equipment Manufacturers Association (MEMA)¹ submits these comments to the California Environmental Protection Agency Air Resources Board (ARB) on “California’s Advanced Clean Cars (ACC) Midterm Review: Summary Report for the Technical Analysis of the Light Duty Vehicle Standards” (Summary Report).

MEMA represents more than 1,000 companies that supply systems and components for use in the light- and heavy-duty vehicle original equipment and aftermarket industries. The motor vehicle components manufacturing industry is the nation’s largest direct employer of manufacturing jobs – employing over 871,000 workers in all 50 states – 31,190 of those jobs are in the State of California. Our members develop a multitude of technologies and manufacture a wide-range of products, components and systems.

Motor vehicle suppliers play a significant role in developing innovative materials and technologies that improve vehicle performance, fuel efficiency and emissions and are committed to environmental policies that enable the introduction of new technologies. Suppliers anticipate the needs of vehicle manufacturers (original equipment manufacturers (OEMs)) by developing, offering and deploying emissions-reducing technology solutions. While not all elements in the Summary Report are relevant to motor vehicle suppliers, MEMA provides ARB with input on the issues that are relevant to our industry and suppliers’ role in helping our customers, the OEMs, meet these standards and regulations.

MEMA appreciates ARB’s appropriate timeframe of 60 days for stakeholder comments on the Summary Report given the length and complexity of the materials. The midterm evaluation (MTE), as originally outlined in the 2012 final rule, provided for a coordinated process with the ARB, the U.S. Environmental Protection Agency (EPA), and the U.S. Department of

¹ MEMA represents its members through four divisions: Automotive Aftermarket Suppliers Association (AASA); Heavy Duty Manufacturers Association (HDMA); Motor & Equipment Remanufacturers Association (MERA); and, Original Equipment Suppliers Association (OESA).

Transportation's National Highway Traffic Safety Administration (NHTSA).² This coordinated process was to ensure the development of "One National Program" to regulate fuel economy and greenhouse gas (GHG) emissions was a synchronized undertaking. We look forward to a resumption of a coordinated process.

Our comments on ARB's Summary Report address the following:

- Collaborate with EPA and NHTSA to provide the industry with a harmonized National Program;
- Continue alignment with the National Program by maintaining the "deemed to comply" provision allowing for compliance with the adopted EPA GHG standards for MYs 2022 – 2025;
- Provide further flexibilities, including additional performance-based credits for Plug-in Electric Vehicles (PHEV) in the Zero Emission Vehicle (ZEV) Program; and,
- Maintain the phase-in of the 1 milligram per mile (mg/mi) Particulate Standard (PM) starting with MY2025 vehicles.

Importance of Harmonization and a National Program

MEMA supports a harmonized "One National Program" with EPA, NHTSA and ARB. The first iteration of this concept was addressed in the jointly issued final rule for model years (MYs) 2012-2016. The final rule explained that the National Program should make "it possible for the standards of two different agencies and the standards of California and other states to act in unified fashion in providing these benefits ... mitigating the additional costs ... to comply with multiple sets of Federal and State standards."³ Stakeholders in the National Program acknowledged the need to harmonize the federal and California GHG programs. California's adoption of the "deemed to comply" rule is significant in that it ensures OEMs do not have to meet separate standards in California and the other Section 177 states. The Presidential memorandum in 2010 reinforced the unity of the National Program⁴ and carried through this concept in the next set of joint standards finalized in 2012 for MYs 2017-2025.⁵

A harmonized program provides regulatory clarity and certainty that are critical for suppliers to make the necessary long-term business and technology investment decisions. Program harmonization and long-term regulatory certainty are essential factors in the industry's investment equation. Motor vehicle suppliers are responsible for a significant proportion of research and development of the technologies needed for OEMs to meet and exceed the standards. Therefore, alignment of regulatory requirements is equally important to suppliers as it is to the OEMs. This certainty enables suppliers to advance development, to continually innovate and to

² 77 Fed. Reg. at 62624, Oct. 15, 2012

³ 75 Fed. Reg. at 25324 and 25326, May 7, 2010

⁴ Presidential Memorandum Regarding Fuel Efficiency Standards, May 21, 2010, available at <https://obamawhitehouse.archives.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards>

⁵ 77 Fed. Reg. at 62624, Oct. 15, 2012

turn research technologies into commercially viable products. One National Program aids in creating economies of scale for suppliers, which leads to reduced compliance costs for the OEMs and improves market availability for needed technologies.

In the Summary Report, ARB explains that it will stay aligned with the National Program for MYs 2022 - 2025 because its determination, consistent with EPA's Final Determination, is that "changes to the stringency of the national or California GHG standards are not necessary or warranted."⁶ However, ARB states that if the national GHG standards are "substantially changed" that California would evaluate whether compliance with the new revised National Program would be appropriate to address California's unique air quality challenges.⁷

MEMA strongly supports consistent GHG standards at the state and federal level and urges California to continue to focus on collaborating on a true National Program. MEMA urges ARB to work closely with EPA and NHTSA to provide the industry with harmonization as contemplated by the National Program. This is critical for providing the industry with the regulatory certainty essential for the investment decisions necessary to meet the stringent GHG standards for MYs 2022 - 2025.

National GHG Emissions Standards

MEMA supports ARB's continued alignment with the National Program by maintaining the "deemed to comply" provision allowing for compliance with the adopted EPA GHG standards for MYs 2022 - 2025.

MEMA agrees with ARB's statement that manufacturers and suppliers have historically outpaced projections of developing innovative technology to meet regulatory requirements and doing so at lower costs than expected.⁸ However, as OEMs strive to meet the increasingly stringent standards in the latter half of the program (MYs 2022 - 2025), progress becomes more challenging and future low-cost options may not be fully developed in time to meet the demands of the regulations. As a result, the industry may need to place higher cost options into the market at the expense of these low-cost options. As the standards become more stringent, the industry will require further flexibilities to meet the GHG standards in a cost-effective manner.

The ARB states in the Summary Report that the extensive draft 2016 Technical Assessment Report (TAR) clearly showed GHG emission standards for MYs 2022 - 2025 can be met "at the same or lower cost" than projected in 2012 "predominantly with advanced gasoline engines and transmissions."⁹ MEMA disagrees with that draft 2016 TAR statement on the market assumptions and data on which that conclusion is based. The 35 percent increase in propulsion efficiency mandated under the GHG program from 2014 to 2025 will require significantly more electrification than projected in the draft 2016 TAR. Again, the most cost effective solutions have

⁶ California's Advanced Clean Cars Midterm Review: Summary Report for the Technical Analysis of the Light Duty Vehicle Standards, at ES-4, Jan. 18, 2017

⁷ *Ibid*

⁸ *Id.* at ES-22

⁹ *Id.* at ES-3

already been implemented, so steep investments will be needed to obtain the substantial degree of electrification required to meet the standards for MYs 2022 – 2025. These significant investments may cause technical and financial risks for the industry.

In the draft 2016 TAR, as demonstrated in the Table ES-3 below, there are significant discrepancies in the EPA and NHTSA technology projection estimates (particularly electrification technology estimates) to meet the MY2025 standards. MEMA’s comments on the draft 2016 TAR discussed that there are fundamental differences with suppliers’ estimates and the agencies’ estimates for the technology needed to meet the MY2025 standards.¹⁰ For instance, suppliers estimate the required penetration rates for Strong Hybrid Electric Vehicle and PHEV would need to be in excess of 10 percent of the total fleet to meet the 2025 target – which is way above the agencies’ estimates. Further, independent analysis conducted by Bloomberg New Energy Finance estimates that PHEV and Battery Electric Vehicle (BEV) market penetration would need to be more than twice than what is estimated in the draft 2016 TAR. These inconsistencies on the estimated levels of electrification needed to meet the MYs 2022 – 2025 standards are concerning because these are underlying assumptions on which the Final Determination is based.

Table ES-3 Selected Technology Penetrations to Meet MY2025 Standards⁽¹⁾¹¹

	GHG	CAFE
Turbocharged and downsized gasoline engines	33%	54%
Higher compression ratio, naturally aspirated gasoline engines	44%	<1%
8 speed and other advanced transmissions⁽²⁾	90%	70%
Mass reduction	7%	6%
Stop-start	20%	38%
Mild Hybrid	18%	14%
Full Hybrid	<3%	14%
Plug-in hybrid electric vehicle⁽³⁾	<2%	<1%
Battery electric vehicle⁽³⁾	<3%	<2%

Notes: **(1)** Percentages shown are absolute rather than incremental. These values reflect both EPA and NHTSA’s primary analyses; both agencies present additional sensitivity analyses in Chapter 12 (GHG) and Chapter 13 (CAFE). For EPA, this includes a pathway where higher compression ratio naturally aspirated gasoline engines are held at a 10% penetration, and the major changes are turbocharged and downsized gasoline engines increase to 47% and mild hybrids increase to 38% (See Chapter 12.1.2) **(2)** Including continuously variable transmissions (CVT) **(3)** In EPA’s modeling, the California ZEV program is considered in the reference case fleet; therefore, 3.5% of the fleet is projected to be full EV or PHEV in the 2022-2025 timeframe due to the ZEV adoption of that program by nine additional states.

¹⁰ MEMA Comments to the draft 2016 TAR, Docket No. EPA-HQ-OAR-2015-0827-4314, incorporated here by reference, Sept. 2016

¹¹ Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards for Model Years 2022 – 2025, at ES-10, July 2016

Further, MEMA has consistently supported a well-to-wheel, fuel lifecycle analysis to evaluate the benefits of vehicle technologies to shape policy choices. Without this type of comprehensive assessment on the fuel impacts and comprehensive GHG costs, policies consequently improperly slant toward preferred technologies rather than providing truly technology-neutral standards. If lowering GHGs and other criteria pollutants is truly the goal of the state, failing to account for these emissions costs will distort the value of technologies and the programs. Consequently, MEMA supports ARB's use of the well-to-wheel assessment for the ACC rulemaking environmental impact analysis and supports ARB plans to use the well-to-wheel analysis as part of future rulemakings.¹²

California's ZEV Program

The One National Program has harmonized the federal and California GHG emissions programs. However, California's ZEV mandate is counterproductive to the alignment of the federal and state GHG programs. The ZEV program is a technology forcing, regulatory driven approach which stifles technology innovation and constrains the competitive marketplace. Unintentionally driving technologies down a few narrow regulatory paths could possibly set the industry up for long-term failure to realize federal and state goals.

The ARB explains that ZEVs are an ideal solution because PHEVs "do not generally result in GHG or criteria pollutant emission reductions equal to pure ZEVs."¹³ ARB used a unique testing procedure, as described in Appendix H, to help support this claim by proving that some blended PHEVs can have significantly higher cold-start emissions under high-power demand conditions relative to normal engine start conditions.¹⁴

The ARB test procedure combines higher power engine restarts under a combination of challenging conditions that have low probability of occurring in the real world, and, as such, is an extreme operating condition not representative of typical real world driving. The procedure commences with the PHEVs having a cold engine and a cold catalyst with no preconditioning engine warm-up phase; and operating in charge depletion mode. The legislated '5-cycle' procedure is accepted as being the most representative of real world driving, of which the supplemental US06 test cycle¹⁵ is considered the most severe portion of the "5-cycle" test process. In fact, ARB's test cycle is much more extreme than the US06; since the emissions produced under this test condition produces even more emissions than would a "cold start" version of the US06 cycle. Further, the maximum acceleration on this test cycle, while falling between maximum accelerations of Federal Test Procedure (FTP) and US06, is also not representative of real world because of the other characteristics such as vehicle speed, rate of acceleration increase and duration of the acceleration.

¹² Summary Report at C-39

¹³ Summary Report at ES-35 and ES-39

¹⁴ Summary Report at ES-39

¹⁵ Supplemental Federal Test Procedure

Using this test procedure to prove that ZEVs are an ideal solution to reducing criteria pollutant emissions is prejudicial. Apart from the testing scenario not being representative of real world driving, these PHEVs were not specifically optimized for these conditions since the OEMs had no requirement to optimize the system for high-power engine restarts. OEMs could lower the criteria emissions for this type of scenario if the design and calibration approach had addressed this as an explicit requirement. If ARB has initiated conversations with industry to address this issue as mentioned in the Summary Report,¹⁶ ARB knows that suppliers have technologies available to minimize the impact of potential high-power cold starts.

MEMA would support ARB working with industry to develop an additional test cycle to measure PHEV tailpipe criteria emissions more thoroughly. This additional test cycle could then be used to provide additional ZEV program performance-based credits that incentivize tailpipe criteria emissions controls technology for PHEVs. The level of credit should correlate with tailpipe emissions under the developed test cycle. This would incentivize OEMs to integrate technology to achieve improved real world criteria emissions. This would also push PHEVs to achieve Super Ultra Low Emissions Vehicle (SULEV) 20 and lower real world driving emissions. These incentives would move the ZEV program toward more fair, balanced, and performance-based driven solutions.

Further, MEMA disagrees with ARB's conclusion that OEMs should not be allowed to comply with the ZEV program with more PHEVs than what is currently allowed in the regulation for the MYs 2018 – 2025.¹⁷ MEMA is disappointed that ARB dismisses the argument that PHEVs can serve as a successful transition to ZEV technology by appealing to a broader market.¹⁸ PHEVs are appealing to consumers who are sensitive to cost and require a high driving range or a high payload. PHEV performance in electric mile driving range, motor efficiency and thermal management have significantly improved, providing direct environmental benefits. As ARB correctly acknowledges, the ZEV market is still in its early stages of development and consumer awareness of ZEVs is still low.¹⁹ Additionally, given the current market scenario of low fuel prices, a consumer's top motivation of purchasing a ZEV is gone. More importantly, ARB admits it is unclear what consumer response will be to the expected phase out of ZEV purchase incentives and other incentives between 2018 and 2025.²⁰ Given all of these factors, MEMA urges ARB to support and provide further flexibilities for PHEVs and to acknowledge that PHEVs serve as an important transitional technology during this critical ZEV program development period between 2018 and 2025.

ARB uses a biased test procedure to strengthen its argument that ZEVs are an ideal solution to reducing GHG and criteria pollutant emissions and has decided not to allow more PHEVs to comply with the ZEV program than what is currently permitted.²¹ ARB needs to set targets that

¹⁶ Summary Report at ES-39

¹⁷ Summary Report at ES-54

¹⁸ *Ibid*

¹⁹ Summary Report at ES-7

²⁰ *Ibid*

²¹ Summary Report at ES-35 – ES-38, and ES-54

are technology neutral. MEMA would prefer one technology-neutral and performance-based GHG standard that would allow industry to find the most cost-effective manner by which to reach those emission goals. Moreover, because much higher levels of electrification will be required to meet the increasingly stringent federal GHG standards than estimated in the draft 2016 TAR, the ZEV program may be unnecessary.

California's PM Emissions Program

MEMA supports the Summary Report's conclusion to maintain (1) the 3 mg/mi PM standard starting with MY2017 vehicles and (2) the phase-in of the 1 mg/mi PM standard starting with MY2025 vehicles. MEMA agrees with ARB's statement that vehicle manufactures have achieved significant PM emission reductions over the last redesign cycle and that suppliers and manufactures are "on track to achieve control of PM emissions within the current lead time provided by the regulation"²² ... "even as they implement advanced technologies to reduce GHG, hydrocarbons, and NOx emissions."²³

Regulatory certainty is necessary for MEMA's members to commit the requisite research and development to assist manufacturers in meeting future regulations cost-effectively. Thus, MEMA concurs that maintaining the more stringent standard of 1 mg/mi for MY2025 vehicles provides OEMs and suppliers regulatory certainty and allows sufficient lead time for developing strategies for meeting the lower standard.

Conclusion

Suppliers play an important role in the innovation and development of many of the technologies that can be used to meet the ACC Program's GHG and PM emission standards and ZEV requirements. These technologies are critical to helping OEMs meet California's program requirements. Regulatory certainty of the ACC Program is paramount to suppliers as we hit a critical point in investing in and developing technologies needed for OEMs to meet program goals. As such, MEMA urges the ARB to assess opportunities for further coordination with EPA and NHTSA to achieve harmonization under the National Program and provide further flexibilities and incentives in the ZEV program.

Thank you for consideration of these comments. For more information, please do not hesitate to contact Laurie Holmes, senior director of environmental policy or Leigh Merino, senior director of regulatory affairs.

²² Summary Report at ES-5

²³ Summary Report at ES-30