COMMENTS OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON CALIFORNIA AIR RESOURCES BOARD'S PROPOSED REVISIONS TO ON-BOARD DIAGNOSTIC SYSTEM REQUIREMENTS, INCLUDING THE INTRODUCTION OF REAL EMISSIONS ASSESSMENT LOGGING (REAL), FOR HEAVY-DUTY ENGINES, PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES AND ENGINES

November 13, 2018

The Manufacturers of Emission Controls Association (MECA) is pleased to provide comments in support of the California Air Resources Board's (ARB) proposed revisions to on-board diagnostic (OBD) system requirements, including the introduction of real emissions assessment logging (REAL), for heavy-duty engines, passenger cars, light-duty trucks, and medium-duty vehicles and engines. In particular, our comments focus on the adoption of REAL and potential for these requirements to lead to reduced compliance costs for industry while serving to better ensure that vehicles are meeting their certified emissions levels during in-use operation. Our industry continues to respond to the need for on-board diagnostics that can enable future heavy-duty inspection and maintenance (I/M) as well as continuous emissions monitoring by innovating and commercializing the technologies that will help our customers meet OBD requirements. We will continue to work with ARB staff as REAL requirements are implemented in order to use the information from initial systems in the field to improve future sensor and OBD component designs and inform future OBD policy amendments.

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 45 years of experience and a proven track record in developing and manufacturing clean mobility solutions for a wide variety of on-road and off-road vehicles and equipment, including extensive experience in developing OBD sensors for gasoline, diesel, alternative fuel and hybrid vehicles in all world markets. A number of MECA members are engaged with their customers in implementing and improving sensor technologies. These sensors are used for the measurement of PM and NOx levels in the exhaust, and in some strategies, to facilitate closed loop control of the combustion process as well as monitoring of the catalyst and filter functionality. Our industry has played an important role in the emissions success story associated with heavy-duty vehicles in California, and has continually supported efforts to develop innovative, technology-forcing, emissions programs to deal with California's unique air quality problems.

MECA supports ARB's proposed introduction of real emissions assessment logging (REAL) to characterize real world NOx and CO_2 performance. MECA agrees with ARB staff's proposal that vehicle OBD NOx sensors meet the requirement of being within either 20 percent or 0.10 grams per brake horsepower-hour (g/bhp-hr) of the dynamometer instrument NOx measurements at the time of certification because today's sensor technology can meet these goals. Because the collection and storage of real-world NOx and CO_2 data on-board vehicles is a new requirement, MECA supports ARB's proposed 15-day changes that provide some flexibility to OEMs to phase-in REAL for the 2022-2023 model years. This phase-in approach has been

successful for other mobile source regulations and allows industry, consumers and regulators to learn from a technology's early adopters. MECA members look forward to working with ARB staff to collect, analyze and review REAL data as this new requirement is implemented, including comparing REAL data with other OBD codes to understand real and false MILs. This will help sensor manufacturers and OEMs to identify potential issues and address them early. In addition, ARB will be able to determine if they are getting the projected benefits from the data or if revisions to the REAL requirements are needed.

Today's OBD sensors and advanced computing can be utilized to measure and calculate information to provide data to OEMs and regulators so that they can better understand how vehicles are operating in the real world. Data collected from vehicles in-use has been expensive to obtain because of the need to install hardware and/or software on existing vehicles in order to measure emissions. Most current vehicles are already equipped with sensors that measure NOx and fuel use. The addition of a requirement that these data be stored along with other currently measured parameters offers a method to collect and report in-use operational data. These data can be used for many purposes, including to identify populations of vehicles for additional testing, identify the conditions in-use where vehicles are not performing as expected with regard to emissions control, help regulatory agencies develop emission inventories, and enable quicker inspection and maintenance and remediation of issues. In addition, as REAL is implemented and regulatory agencies gain experience with the data, there may be an opportunity to reduce future certification and compliance burdens to OEMs.

MECA encourages ARB to continue to explore the potential concepts for future comprehensive I/M programs that could be enhanced with REAL data. MECA supports the use of OBD, and potentially telematics, to screen vehicles that were manufactured with the applicable OBD sensors. Future programs may utilize, as part of a thorough I/M program, a download of information, including REAL data and malfunction code information, from the OBD computer module to analyze vehicle operation and diagnose current and potential issues.

As more I/M program functions transition away from solely mechanical work to include computational work, proper training of repair shop technicians and mechanics will be vital to ensuring an effective I/M program. Licensing and training of repair shops may be an effective way for ARB to certify that technicians and mechanics are remaining up to date on the latest technical and OBD information. MECA encourages ARB to share their REAL data and experience with other states seeking to improve their I/M programs and may benefit from a simplified way to learn how the vehicles on their roads are performing.

MECA continues to recognize the benefit to real-world CO_2 reductions via the off-cycle credit program as a policy to expand the available technologies that vehicle manufacturers can deploy to meet the goals of light-duty GHG regulations. As MECA has previously commented, a potential approach to certifying technologies for off-cycle credits could begin by assigning a conditional pre-approved credit value to a technology based on modeling using EPA's ALPHA model or initial demonstration of the technology on a limited number of vehicles. This can be further combined with fleet simulation data across broader vehicle categories and real-world conditions under which the technology may offer CO_2 reductions. Once introduced into the market by OEMs, REAL CO_2 data may be reported as a way to demonstrate the real-world off-

cycle credit value by averaging over hundreds or thousands of vehicles in the field to obtain a statistically significant analysis and verification. Following a review of the field results, the final credit allocation could be adjusted appropriately based on real-world experience. We 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, and REAL may help to ultimately confirm the real world CO_2 reductions of a given technology.

MECA supports ARB staff's proposal to increase the exemption criteria to test out of monitoring for NMHC catalyst feedgas generation performance from 15 percent to 30 percent of the applicable standard as measured from an applicable emission test cycle, and to limit the exemption criteria pollutant to only NOx emissions. In addition, we support the option for feedgas monitors and test out of monitoring to be designed on a system level or individually. MECA members continue to work toward solutions to improve feedgas monitoring.

We recommend that CARB staff continue to work with the SAE/ISO standards committee to incorporate standard definitions into CARB OBD regulatory text so that industry norms can be applied and used across product lines in the U.S. and around the world. In cases where definitions for certain terms already exist, we suggest providing guidance to minimize confusion. Furthermore, as continuous monitoring approaches similar to REAL are considered around the world, regulators, industry and consumer will all benefit from a harmonized set of definitions.

In summary, MECA commends ARB for regularly reviewing the developments in sensor technologies and monitoring strategies and taking important steps to revise the OBD regulations as needed through discussions with all stakeholders. We believe that this proposal achieves the right balance between technically achievable monitoring thresholds and timelines that stimulate sensor technology development to achieve the objectives of the regulation and ensure that vehicles and engines are achieving their certified emission performance over their full useful life and beyond. Our industry will continue to do its part and deliver cost-effective, advanced OBD monitoring technologies to the market.

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