Written Comments of the
Manufacturers of Emission Controls Association on the
California Air Resources Board's Proposed Revisions to the On-Board Diagnostic System Requirements and Associated Enforcement Provisions for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines

September 21, 2015

The Manufacturers of Emission Controls Association (MECA) is pleased to provide comments in support of the California Air Resources Board's proposed amendments to their on-board diagnostic system (OBD II) requirements and associated enforcement provisions for passenger cars, light-duty trucks, and medium-duty vehicles and engines. Our comments will focus primarily on ARB staff's proposed LEV III emission malfunction thresholds for emission threshold monitors. In general, MECA believes that meeting these proposed thresholds for LEV III gasoline and diesel vehicles is technically feasible in the required timeframes.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for mobile sources. Our members have over 40 years of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of on-road and off-road vehicles and equipment, including extensive experience in developing exhaust and evaporative emission controls for gasoline and diesel light-duty vehicles. A number of MECA members are engaged with their customers in developing sensor technologies. These sensors may be used for real-time measurement of PM and NOx levels in the exhaust 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 light-duty vehicles in California, and has continually supported efforts to develop innovative, technology-forcing, emission control programs to deal with California's unique air quality problems.

For gasoline vehicles, for the new LEV III ULEV70 and ULEV 50 emission categories, MECA agrees that ARB staff's proposed emission threshold of 2.0 times the NMOG+NOx standard is feasible. For the new LEV III SULEV 20 category, MECA appreciates staff's flexibility afforded manufacturers by setting a less stringent NMOG+NOx malfunction criteria of 3.25 times the applicable NMOG+NOx standard – in lieu of the proposed 2.50 NMOG+NOx multiplier – for the first three model years a vehicle is certified to the LEV III SULEV 20 standard through the 2025 model year. This flexibility will provide more time for manufacturers to address the technical issues (e.g., monitoring strategies and/or hardware changes) related to meeting the tighter malfunction criteria of 2.50 times the NMOG+NOx standard. Regarding thresholds for gasoline catalyst monitors, MECA supports ARB's decision not to propose a CO threshold at this time and instead only require that manufacturers provide CO emission data with all gasoline catalyst monitor demonstration data starting with the 2017 model year.

Regarding PM thresholds for gasoline vehicles, MECA agrees with ARB that new PM thresholds will be needed as more stringent LEV III PM standards are phased-in across both the light-duty and medium-duty vehicle fleets. Based on current monitoring strategy capability and available sensor technology, MECA supports ARB staff's proposed absolute threshold of 17.5

mg/mi PM for LEV III gasoline vehicles certified to ≤10 mg/mi in the 2019 and later model years. Sensor manufacturers have previously indicated to MECA that improvements in PM sensor technology will be needed to show the technical feasibility of PM thresholds below 17.5 mg/mi. Manufacturers are working with their customers to improve the sensitivity of their PM and NOx sensors.

For LEV III diesel vehicles, MECA supports ARB's proposal to set the light- and medium-duty NMOG+NOx and CO thresholds at the same level as those for LEV III gasoline applications. For PM thresholds, because of the technical capabilities of current aftertreatment diagnostics, MECA agrees with ARB staff's proposal of a 2.0 multiplier for PM emissions for all emission threshold monitors and aftertreatment monitors on 2019 and subsequent model year diesel passenger car, light-duty truck, and medium-duty passenger vehicle applications, as well as diesel LEV III medium-duty vehicles included in the phase-in of the PM standards. As noted by ARB in the proposal, manufacturers are expected to meet these proposed thresholds through the use of existing hardware (e.g., pressure sensors) and recalibration because tailpipe PM emissions will be minimized by the high efficiency of the diesel particulate filter.

Regarding the LEV III DPF filtering performance monitor threshold, given the limitations of current monitoring technology, MECA supports ARB's proposal to set the filtering performance monitoring threshold at 17.5 mg/mi for LEV III diesel vehicles certified to ≤10 mg/mi in the 2019 and subsequent model years. MECA also concurs with ARB staff's proposal to revise the NMHC catalyst feedgas generation monitoring requirement to allow testing out of the monitoring requirement if the NMOG+NOx emissions increase resulting from a complete failure or loss of function is less than 15% of the full useful life combined NMOG+NOx standard.

Regarding ARB staff's concerns about OBD monitoring of the DOC in diesel applications for deterioration of NO-to-NO_2 conversion and whether a thermal exotherm is a suitable indicator of DOC feedgas function, it is our understanding that – based on discussions with sensor and catalyst manufacturers – NO_2 conversion will deteriorate faster than light-off and therefore the exotherm may not be sensitive enough to detect a deterioration in feedgas generation. In further discussions with these manufacturers, there does not seem to be a definitive long-term solution for feedgas monitoring of the DOC at this time. In the future, hydrocarbon sensors may become available that could be used to distinguish HC and NO oxidation across the catalyst.

MECA is aware that privacy concerns have been raised by some vehicle manufacturers regarding ARB's proposal that OBD systems in 2019 model year vehicles incorporate data stream parameters that would be used by the agency to characterize a vehicle's CO_2 emissions. MECA agrees with ARB that collection of this data is important to ensure that specific engine and vehicle technologies designed to reduce CO_2 are actually delivering the expected GHG emission benefits and consumer fuel savings in the real world. In the absence of a commercially available sensor that can directly measure CO_2 in a vehicle's exhaust stream, MECA believes that collection of this data is a reasonable way to help characterize a vehicle's CO_2 emissions, provided that safeguards are incorporated to aggregate the data in such a way as to mask sensitive driver behavior characteristics and prevent misuse of this information beyond the intent

of this regulation. ARB already makes it clear in their proposal that the data it is requiring automakers to collect would be "the minimum needed data to achieve this goal and to have the data stored and accessed in a manner that virtually, if not completely, eliminates the ability for the data to be used to identify any specific driver behavior." Furthermore, as noted in the proposal, for ARB to access the data, vehicle owners would have to be contacted by ARB staff and asked to voluntarily participate.

In closing, MECA commends ARB for taking important steps to revise the OBD II regulation, especially the proposed changes to the emission malfunction threshold requirements to reflect the latest LEV III standards. 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 to ensure that catalysts and filters are delivering the necessary emission performance over their full useful life and beyond. Our industry is prepared to do its part to deliver cost-effective, advanced OBD-monitoring technologies to the marketplace.

CONTACT:

Dr. Joseph Kubsh
Executive Director
Manufacturers of Emission Controls Association
2200 Wilson Boulevard
Suite 310
Arlington, VA 22201
Tel.: (202) 296-4797 x107
E-mail: jkubsh@meca.org