WRITTEN COMMENTS OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON CALIFORNIA AIR RESOURCES BOARD'S
PROPOSED AMENDMENTS TO THE AIRBORNE TOXIC CONTROL MEASURE
FOR DIESEL PARTICULATE MATTER FROM PORTABLE ENGINES

November 13, 2017

The Manufacturers of Emission Controls Association (MECA) is pleased to respond to the California Air Resources Board's request for public comments on its proposed amendments to the airborne toxic control measure (ATCM) for diesel particulate matter from diesel-fueled portable engines rated at 50 horsepower and greater.

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 emission controls for gasoline and diesel engines and vehicles in all world markets, including portable diesel engines regulated under this regulation. MECA also represents a majority of diesel retrofit device manufacturers on ARB's verified device list.

MECA supports ARB's conclusion to set a tier phase-out schedule and fleet average emission target for large fleets of portable engine and equipment in the state of California. In addition, we commend ARB on its decision to exempt engines retrofitted with Level 3 devices from the requirements. MECA commented on ARB's originally adopted Portable Engine ATCM in February 2004, which was part of ARB's Diesel Risk Reduction Plan. Due to subsequent amendments to the regulation in 2007, 2008 and 2010, the environmental and health benefits of the original rule have not yet been fully realized. MECA supported ARB's analysis that formed the basis of the 2004 regulation, and we offered comments in support of staff's conclusions regarding the technological feasibility of diesel particulate filters (DPF) to reduce diesel PM from portable engines. ARB correctly stated in its 2004 Staff Report that there were no verified Level 3 diesel emission control products available for portable engines at that time, and staff have noted that they have only seen seven portable engines that have been retrofitted to date. However, this is not due to a lack of verified Level 3 retrofit technologies since there are now at least eight Level 3 options verified for portable engines subject to this rule.

Diesel PM emissions from diesel engines/equipment can be significantly reduced through emission control technology that is already commercially available. High efficiency diesel particulate filters (DPFs) on new and existing diesel engines provide up to 90% or more reductions of diesel PM emissions, which qualifies DPFs as Level 3 diesel emission control strategies. As has been shown on various engines and applications, DPFs are extremely efficient at reducing particulate emissions over a wide range of particle sizes, including reducing emissions of the smallest, ultrafine particles emitted by a diesel engine. DPFs have also provided important co-benefits on climate change due to the large reductions in black carbon emissions that result from the use of high efficiency DPFs (an ARB funded study highlighting

the significant impact of reducing black carbon emissions from diesel engines on climate change was released in June 2013).

It should be noted that there has been some confusion concerning the applicability of Level 3 retrofit devices that are verified for off-road engines. It has been reported that some ARB and regional air district PERP staff have previously ruled that a Level 3 device is not allowed to be installed on a portable engine unless the verification specifically dictates that it is approved for portable engines. However, ARB Verification Program staff have confirmed that a verification does not need to include the word "portable" for a Level 3 device to be approved for a portable engine. Level 3 devices approved for installation on off-road engines and equipment are able to be installed on a portable engine if the engine satisfies the remaining criteria specified in the verification. MECA suggests that ARB staff communicate this information to all statewide PERP staff.

In their proposal, staff indicated that future PERP engine turnover to cleaner Tier 4 certified engines will deliver the PM emission reduction goals of the original ATCM. It is important to reiterate that recent EPA certification information for off-road diesel engines certified in model year 2015 indicates that 50-60% of the engine families, for engines rated from 37-560 kW, are being certified without DPFs. In some cases, OEMs are choosing to remove DPFs that were certified with engines for Tier 4 interim compliance in certifying their Tier 4 final configurations. Although the non-DPF equipped engines are meeting the Tier 4 PM limits, as certified, MECA encourages ARB to characterize the regulated and unregulated exhaust emissions of similar Tier 4 final off-road diesel engines certified with and without DPFs at the end of their useful life to more completely understand the impacts of these alternative compliance pathways on public health and climate change. A future "Tier 5" off-road diesel engine regulation that forces the use of best available PM controls would ensure further reductions in diesel PM emissions from this sector (including portable engines) and result in additional public health and climate change benefits. The European Union recently finalized a Stage 5 off-road regulation that includes a particle number-based emission limit to force the use of DPFs on a large segment of off-road diesel engines. In addition, China has planned by 2019 to implement China IV standards that would require DPFs on off-road engines operating in metropolitan areas. California (and the U.S.) needs to continue its leadership role on reducing PM emissions from diesel engines by putting policies in place that ensure that off-road diesel engines (including portable engines and equipment) utilize DPFs. The advent of SCR catalyst-coated filters (now commercialized for light-duty diesel applications) allows for the design of compact diesel emission control systems that can simultaneously provide high reductions in PM/black carbon and NOx, pollutants important to both California's ambient air quality and climate change policy goals.

MECA is concerned about the PM emissions durability of off-road Tier 4 engines certified without DPFs, which will emit as much as four to five times more PM in actual use than similar engines certified with DPFs. There is ample evidence that engine-based PM control strategies are prone to higher in-use emissions than DPF-equipped engines, due to factors such as cold starts, poor maintenance, and the large variety of duty cycles encountered in the off-road sector. Given the expected, relatively small compliance margins of off-road Tier 4 final engine designs that do not utilize DPFs, MECA believes that ARB (and EPA) should closely scrutinize

Tier 4 final certification packages of non-DPF diesel engines and allocate extra compliance and enforcement resources to follow up with in-use emissions testing of any off-road Tier 4 engines certified without a DPF. MECA also believes that ARB (and EPA) should strongly consider adoption of a manufacturer run, in-use emissions testing program in the off-road sector that utilizes the latest portable emissions measurement technology to ensure that off-road Tier 4 final engines are delivering the emission reductions affirmed in the off-road Tier 4 standards. The off-road sector could also benefit from the adoption of on-board diagnostic requirements that are similar in scope to the heavy-duty highway diesel on-board diagnostic requirements required by ARB. In-use testing and OBD ensure that the emissions performance of the engine/equipment is maintained over the regulated full useful life.

MECA supports ARB's goal of reducing diesel PM from portable engines operating in California through a tier phase-out and fleet average target. Exempting engines that have been retrofitted with Level 3 devices will help to encourage fleets to install DPFs on their engines. Fleet owner/operators can currently choose from eight ARB-verified Level 3 retrofit technologies. These DPFs will also help California meet its climate goals by providing important climate co-benefits due to their ability to reduce black carbon emissions by up to 99%. MECA requests that ARB staff communicate within the agency, to statewide PERP staff, and to fleets the availability of these Level 3 options that may provide cost-effective solutions for complying with the portable engine ATCM. Finally, MECA suggests that ARB staff continue to evaluate new off-road engine certifications to determine if Tier 4 engines that are being certified without DPFs continue to achieve their certification limits over the full useful life. Since the portable engine ATCM relies on fleet turnover to achieve its health and environmental benefits, it is important that the engines being introduced into the fleet are being certified with the best available emission control technologies.

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