STATEMENT OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED RULEMAKING TO ESTABLISH 2017 AND LATER MODEL YEAR LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS

January 17, 2012 Public Hearing in Detroit, MI

The Manufacturers of Emission Controls Association (MECA) is pleased to provide comments in support of the U.S. EPA's proposed rulemaking to establish 2017 and later model year light-duty vehicle greenhouse gas emission standards and corporate average fuel economy standards. We believe an important opportunity exists to significantly reduce greenhouse gas emissions and improve fuel economy from passenger cars, light-duty vehicle trucks, and medium-duty passenger vehicles.

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 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 deal with air quality problems.

The experience of our industry over the last 40 years vividly demonstrates the connection between vehicle emission regulation and economic development. Prior to 1970, our industry did not exist. But, with the enactment of the Clean Air Act in 1970, our industry has flourished, developing successive generations of technology to meet ever tightening regulatory standards. Since the introduction of the catalytic converter in 1975, more than 500 million light-duty vehicles have been sold in the United States equipped with exhaust and evaporative emission control technologies developed by our industry. This generated an estimated $250-$300 billion in economic activity since 1975. In 2010 alone, our industry generated $12 billion of economic activity and accounted for 65,000 U.S. jobs, mostly in manufacturing.[1] EPA's greenhouse gas emission standards on light-duty and heavy-duty vehicles are also aiding in the development of a thriving U.S. industry focused on a wide range of technologies that can reduce vehicle greenhouse gas emissions.

Controlling greenhouse gas emissions from the transportation sector is essential to the overall efforts to alleviate long-term impacts on the climate. As detailed in EPA's proposal, there are a large set of technology combinations that are 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.

[1] Manufacturers of Emission Controls Association, "MECA Highlights Economic Benefits of Mobile Source Emissions Control Industry," March 11, 2011 (see www.meca.org).

Implicit in federal and state greenhouse gas emission analyses is the ability of these advanced powertrain options to meet the applicable criteria pollutant emission standards, such as CO, NOx, and non-methane organic gases (NMOG). All of these advanced, light-duty powertrain options combined with the appropriately designed and optimized emission control technologies can meet all current and future federal and state criteria emission requirements. In this manner, advanced emission controls for criteria pollutants enable advanced powertrains to also be viable options for reducing greenhouse gas emissions. A range of powertrain technologies, including engine turbochargers, exhaust gas recirculation systems, advanced fuel systems, variable valve actuation technology, advanced transmissions, hybrid powertrain components, and powertrain control modules that can be applied to both light-duty gasoline and diesel powertrains to help improve overall vehicle efficiencies, reduce fuel consumption, both of which can result in lower CO_2 exhaust emissions. In many cases, the application and optimization of advanced emission control technologies on advanced powertrains can be achieved with minimal impacts on overall fuel consumption. Auto manufacturers will also take advantage of synergies between advanced emission control technologies and advanced powertrains to assist in their efforts to optimize their performance with respect to both greenhouse gas and criteria pollutant exhaust emissions.

Future light-duty diesel powertrains will continue to use emission control technologies like diesel particulate filters, NOx adsorber catalysts, and selective catalytic reduction catalysts to meet EPA's light-duty exhaust emission standards. Emission control manufacturers are working with their auto manufacturer partners to further optimize these emission control technologies to be more effective at reducing criteria pollutants and play a role in reducing vehicle greenhouse gas emissions. Advanced diesel emission control technologies like particulate filters with lower backpressure characteristics, SCR catalysts with improved performance at lower exhaust temperatures, and SCR catalyst coated directly on particulate filter substrates are examples of emerging diesel emission control technologies that will allow future diesel powertrains to not only be as clean as gasoline engines from a criteria pollutant perspective, but deliver improved fuel consumption characteristics and lower greenhouse gas emissions. The use of diesel particulate filters also delivers significant reductions in black carbon emissions from diesel engines, a combustion emission that also has important climate change impacts.

For gasoline vehicles, direct injection technology enables gasoline engines to achieve greater fuel efficiency and is expected to be a dominant pathway to meeting future light-duty greenhouse gas emission standards. Again emissions controls ensure that these more fuel efficient gasoline engines meet tough EPA or California criteria emission regulations. Under stoichiometric conditions, three-way catalysta are used to achieve ultra-low emissions of NOx, HC and CO. Advanced high performance, three-way catalysts are available and will continue to evolve and be optimized to ensure that future gasoline direct injection engines will meet the toughest criteria pollutant emissions standards with minimal impacts on overall vehicle exhaust system backpressure and fuel consumption.

Under lean combustion conditions, similar emission control technologies used on diesel vehicles can be used to reduce emissions from lean, gasoline direct injection powertrains. These include particulate filters to reduce PM emissions, and SCR and/or lean NOx adsorber catalysts

to reduce NOx emissions. Lean NOx adsorber catalyst performance has a high degree of sensitivity to fuel sulfur levels. The current EPA fuel sulfur limits for gasoline (30 ppm average, 80 ppm cap) are too high to allow lean NOx adsorber catalysts to be a viable NOx control strategy for fuel efficient, gasoline lean-burn engines that employ direct fuel injection technology. MECA believes that EPA should lower gasoline fuel sulfur limits to a 10 ppm national average to allow NOx adsorber catalysts to be used on such vehicles in the future in order to provide additional options for improving the efficiency and reducing greenhouse gas emissions from gasoline vehicles.

Tightening of hydrocarbon and NOx emission standards over time with the parallel introduction of more effective emission control systems have resulted in lower emissions of N_2O and CH_4 from today's vehicles compared to older vehicles certified to less stringent hydrocarbon and NOx standards. The performance of advanced emission control technologies for advanced diesel, gasoline, and natural gas-fueled powertrains can also be optimized to minimize N_2O and CH_4 emissions from future light-duty vehicles consistent with the limits EPA set for these important greenhouse gas emissions in their first round of light-duty vehicle greenhouse gas emission standards.

Emission controls for gasoline and diesel engines are also generally compatible with low carbon, alternative fuels (e.g., gasoline blends with renewable ethanol or biodiesel blends) that can provide additional reductions in mobile source greenhouse gas emissions. Engine operating strategies and emission control catalyst formulations, however, often need to be optimized depending on fuel composition to ensure that criteria pollutant emissions or other air toxic emissions are minimized. It is also important that specifications associated with any low carbon fuel should be compatible with the use of available exhaust emission control technologies.

In summary, there are significant opportunities to reduce greenhouse gas emissions from the transportation sector through the design of fuel efficient powertrains that include advanced exhaust emission controls for meeting even the most stringent criteria pollutant standards. MECA believes that advanced emission control systems have a critically important role in future policies that aim to reduce mobile source greenhouse gas emissions. These emission control technologies allow all high efficiency powertrains to compete in the marketplace by enabling these powertrains to meet current and future criteria pollutant standards. In nearly all cases, these fuel-efficient powertrain designs, combined with appropriate emission controls, can be optimized to either minimize fuel consumption impacts associated with the emission control technology, or, in some cases, improve overall fuel consumption of the vehicle. This optimization extends beyond carbon dioxide emissions to include other significant greenhouse gases such as methane and nitrous oxide. In the case of gasoline vehicles, additional climate change benefits could be obtained by lowering federal gasoline fuel sulfur levels to enable the use of lean NOx adsorber catalysts on gasoline lean-burn engines. MECA commends EPA for taking important steps to reduce greenhouse gas emissions and improve fuel economy from light-duty vehicles. Our industry is prepared to do its part and deliver cost-effective, advanced emission control technologies to the market.

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