

**STATEMENT OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE CALIFORNIA AIR RESOURCES BOARD'S REQUEST FOR COMMENT ON
THE INVESTMENT OF CAP-AND-TRADE AUCTION PROCEEDS**

June 20, 2012

The Manufacturers of Emission Controls Association (MECA) is pleased to provide comments in response to California Air Resources Board's request for public input on its investment of cap-and-trade auction proceeds.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for mobile sources. Our members have over 35 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 heavy-duty vehicles in all world markets. Our industry has played an important role in the emissions success story associated with light- and heavy-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 California Global Warming Solutions Act of 2006 (AB 32) Scoping Plan identifies a cap-and-trade program as one of the strategies California will employ to reduce greenhouse gas emissions to help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the end of 2020, and ultimately achieving an 80% reduction from 1990 levels by 2050. As part of the cap-and-trade program, ARB will hold quarterly allowance auctions each year to allow market participants to acquire allowances directly from ARB.

MECA recommends ARB include in its investment plan for the auction proceeds from the cap-and-trade program, funding to retrofit on-road and off-road diesel engines and equipment with diesel particulate filters (DPFs) to reduce black carbon emissions from these diesel engines as part of California's short-term strategies to reduce greenhouse gas emissions and to achieve its AB 32 goals. In particular, MECA believes that ARB should allocate a portion of the auction proceeds to retrofit off-road diesel engines, such as construction equipment, cargo handling equipment, agricultural equipment, transportation refrigeration units, mining equipment, locomotives, and marine diesel engines, with DPFs. Many of these existing, off-road diesel engines will continue to be in service in California for many years to come and could be candidates for DPF retrofits with the help of incentive funds that could be provided from a portion of the California's cap-and-trade allowance auction proceeds.

Black carbon is a major component of particulate matter emissions from mobile sources and is believed to have a significant net atmospheric warming effect by enhancing the absorption of sunlight. Black carbon is a mix of elemental and organic carbon emitted by fossil fuel combustion, bio-mass burning, and bio-fuel cooking as soot. Black carbon is a dominant absorber of visible solar radiation in the atmosphere. Anthropogenic sources of black carbon are transported over long distances and are most concentrated in the tropics where solar irradiance is highest. Because of the combination of high absorption, a regional distribution roughly aligned with solar irradiance, and the capacity to form widespread atmospheric brown clouds in a

mixture with other aerosols, emissions of black carbon are thought to be the second strongest contribution to current climate change, after CO₂ emissions.

According to scientists at the Scripps Institute of Oceanography and University of Iowa, soot and other forms of black carbon could have as much as 60% of the current global warming effect of carbon dioxide. Black carbon plays a major role in the dimming of the surface and a correspondingly large solar heating of the atmosphere. For example, the retreat of the Himalayan-Hindu Kush glaciers is one of the major environmental problems facing the Asian region. The glacier retreat has accelerated since the 1970s and several scientists have speculated that solar heating by soot in atmospheric brown clouds and deposition of dark soot over bright snow surfaces may be an important contributing factor for the acceleration of glacier retreat. A recent study published in a 2009 issue of *Nature Geoscience* (vol. 2, 2009) by researchers from the NASA Goddard Institute and Columbia University found that black carbon is responsible for 50% of the total Arctic warming observed from 1890 to 2007 (most of the observed Arctic warming over this timeframe occurred from 1976 to 2007).

According to Dr. Mark Jacobson from Stanford University in his May 24, 2012 presentation to ARB on research findings describing potent and near-term contribution to climate change, soot is the second-leading cause of global warming. Black carbon emissions from on-road and off-road transport sector make up approximately 25% of global sources of black carbon. Because it is short-lived, control of black carbon may be the fastest method of reducing the rise in global temperatures and Arctic ice loss. Additionally, a new assessment released by the United Nations during a meeting of the UN Framework Convention on Climate Change (UNFCCC) in June 2011, concluded that fast action on pollutants such as black carbon, ground-level ozone, and methane may help limit near-term global temperature rise and significantly increase the chances of keeping the temperature rise below 2°C. The report includes measures that could improve climate change mitigation and air quality and that have a large emission reduction potential. Under the transportation sector, the measures include DPFs for on-road and off-road vehicles and eliminating on- and off-road high-emitting vehicles.

It is estimated that 70% of the black carbon emissions from mobile sources are from diesel-fueled vehicles, with the assumption that 40% of gasoline PM is black carbon and 60% of diesel PM is black carbon. Up to 25% of the carbon footprint of a heavy-duty diesel truck that is not equipped with a PM filter is associated with black carbon exhaust emissions. Since black carbon particles only remain airborne for weeks at most compared to carbon dioxide, which can remain in the atmosphere for more than a century, removing black carbon would have an immediate benefit to both global warming and public health. The black carbon concentration and its global heating will decrease almost immediately after reduction of its emission. A recent study published by the Scripps Institute in late 2010 attributes significant reductions in black carbon emissions in California to the use of cleaner fuels, and the application of filters and catalytic converters on vehicles over the 1988-2008 timeframe. For these reasons and the growing body of scientific evidence that links black carbon emissions with climate change, MECA believes that ARB should allocate funding in its investment plan for the cap-and-trade auction proceeds to incentivize the retrofit on- and off-road diesel vehicles with DPFs to reduce black carbon emissions to help obtain California's AB 32 greenhouse gas emission reduction goals.

Black carbon from diesel vehicles can be significantly reduced through emission control technology that is already commercially available. High efficiency diesel particulate filters on

new and existing diesel engines provide nearly 99.9% reductions of carbon emissions. During the regeneration of DPFs, captured carbon is oxidized to CO₂ but this filter regeneration still results in a net climate change benefit since global warming potential of black carbon has been estimated to be as high as 4,500 times higher than that of CO₂ on a per gram of emission basis. To meet EPA's 2007 heavy-duty engine PM standards, essentially all new, on-road heavy-duty diesel engines are now equipped with high efficiency DPFs. It is estimated that the installation of DPFs will reduce PM emissions from U.S. heavy-duty diesel vehicles by 110,000 tons per year. Current California and EPA light-duty emission standards for diesel particulate matter also require the use of a high efficiency DPF on new light-duty diesel vehicles.

Because older diesel engines emit significant amounts of PM, there are also significant opportunities to reduce black carbon emissions through diesel retrofit programs that make use of retrofit DPF technology. The number of vehicles retrofitted, the number of programs, and the interest in new programs for DPFs have grown significantly over the past few years with more than 250,000 DPFs installed as retrofits to date in a variety of world markets. Retrofit filters can provide large benefits in human health through reductions in diesel PM and climate change benefits through reductions in black carbon emissions on both existing, on-road and off-road diesel engines. California has already tackled black carbon emissions from some existing mobile sources through its ambitious Diesel Risk Reduction Plan and their associated regulatory initiatives that target the reduction of diesel particulate emissions from existing diesel engines over the next ten to fifteen years. However, in some cases some classes of existing on-road and off-road diesel engines will continue to operate in the state without DPFs for many years to come and could be candidates for DPF retrofits that would provide additional near term co-benefits of reduced emissions of black carbon emissions and reduced public exposures to diesel particulate matter.

In conclusion, MECA commends ARB for taking important steps to reduce greenhouse gas emissions and implementing their cap-and-trade program to help California achieve its GHG reduction goals under AB 32. MECA believes that a portion of the cap-and-trade auction proceeds should be invested in the expanded use of diesel particulate filters to reduce black carbon emissions from existing on- and off-road diesel engines as part of California's short-term strategies for reducing greenhouse gas emissions. Our industry is prepared to do its part and deliver a variety of verified, retrofit diesel particulate filter technologies for on-road and off-road diesel engine applications in California.

CONTACT:

Joseph Kubsh
Executive Director
Manufacturers of Emission Controls Association
2020 N. 14th Street
Suite 220
Arlington, VA 22201
Tel.: (202) 296-4797
E-mail: jkubsh@meca.org