May 9, 2023

MECA Oral Testimony at the US EPA Public Hearing on the

"Proposed Light- and Medium-Duty Multi-Pollutant Emissions Standards"

Docket No. EPA-HQ-OAR-2022-0829

MECA Oral Testimony – Part 1: Rasto Brezny

Good afternoon, I am Rasto Brezny, the Executive Director for MECA Clean Mobility. For nearly 50 years, MECA has been the trade association representing leading suppliers of clean mobility technologies. From clean combustion to electrification, our members have a proven track record in developing and commercializing emission control, efficiency, and electric technology for a wide variety of on- and off-road vehicles and equipment in all world markets.

Specific to this proposal, our members provide the technologies that enable passenger cars and medium-duty vehicles to meet the most stringent criteria and GHG emission standards and transition to zero tailpipe emissions. In the electric vehicle space, MECA members are supplying EV components from critical battery raw materials, power electronics, motors, and EV transmissions. Because infrastructure is so critical to the pace of EV penetration, our members are commercializing the EV chargers and components to enhance grid resiliency.

This regulatory process has been a monumental effort by EPA to simultaneously set limits on both criteria pollutants and GHGs for the first time. This proposal sends a signal that light- and medium-duty combustion engines must be as clean as possible alongside zero-tailpipe vehicles being phased into the fleet.

This proposal is projected to result in rapid increases in sales of battery electric vehicles, however performance-based standards need to recognize that in the near term, HEVs and PHEVs can achieve GHG benefits of 30-60% compared to their conventional vehicle counterparts through the deployment of low-capacity batteries. This will be important in the next 5-10 years to reduce critical battery material supply chain pressures while providing car owners and manufacturers more choices. MECA supports elements of the proposal, such as battery durability and warranty requirements, that will provide consumers confidence in the reliability of EV technology.

We believe that EPA should retain the accounting of upstream emissions as originally adopted in the 2017-2025 light-duty GHG regulation for implementation in 2022 and delayed to 2027. Until we have a fully renewable grid, metrics such as CO2/kWh or miles/kWh would continue to drive the most efficient electric technologies onto vehicles analogous to how GHG and fuel efficiency standards benefited combustion vehicles.

MECA members continue to invest in jobs, manufacturing capacity and innovation in the technologies that reduce the environmental impact of transportation. MECA remains concerned with the rate of charging infrastructure build-out as well as near-term availability of sufficient critical minerals to support supplier investments in clean mobility components for light and heavy-duty vehicles. MECA therefore encourages ongoing efforts by EPA alongside the Departments of Transportation, Energy and Labor to ensure that our nation's supply chain, grid and charging infrastructure match the needs of our country's transportation system.

I am going to pass the baton to Mike Geller to continue MECA's testimony. Thank you for this opportunity to comment on the proposal and I am happy to answer any questions you might have.

MECA Oral Testimony – Part 2: Michael Geller

Good afternoon, my name is Mike Geller and I am MECA's Deputy Director. MECA has been conducting technology demonstrations for the better part of the last decade to provide EPA with state-of-the-art PM emission control information. EPA presents solid technical work in this proposal that demonstrates both the ability to control PM down to near zero levels and also the ability to measure well below the proposed limit of 0.5 mg/mile with existing certification procedures. MECA supports EPA's inclusion of both standard and cold temperature testing for criteria pollutants across all vehicle categories as these represent real world operation across much of the country.

The majority of the global vehicle market outside of the U.S. is subject to more stringent particulate standards. Gasoline passenger cars have been regulated on the number of particles they emit since 2015 in Europe and 2020 in China and India. The result has been that best available PM emission control technologies like gasoline particulate filters and high pressure fuel injectors have been on cars sold in these regions for several years. In fact, a nearly identical vehicle produced in the U.S. without a GPF will be shipped to Europe and sold after a GPF is installed.

To highlight the air quality benefits of more stringent PM requirements, MECA funded a study to model the benefits of a national 0.5 mg/mile PM standard that is approximately equivalent in mass to the particle number standard in other global regions. We chose to model three scenarios of fleet composition representing a wide range of projected rates of EV sales penetration over the next 20-30 years.

Results indicate cumulative benefits of 60,000 tons of PM reduced from only ICE vehicles based on high rates of electrification, similar to projections in EPA's NPRM. Our analysis indicates that proposed PM standards for ICE vehicles achieve similar PM reductions as those from a high rate of EV

penetration. This parallel approach ensures that expected PM reduction goals will be met regardless of the type of vehicle sold even beyond 2032. Furthermore, using EPA's PM reduced form benefits modeling tools, we calculated those emission reductions would save up to 22,000 lives and as many as 314,000 avoided asthma attacks. The approximate monetized health benefits of those savings ranges from 20 to 160 billion dollars depending on rate of electrification and selected discount rate.

In conclusion, MECA commends the hard work of EPA staff for conducting comprehensive and scientifically grounded research underpinning the PM provisions in this proposal. We support the proposed limits, and our members will deliver the technologies to enable vehicles to meet them. Before passing the microphone to Kevin Brown to discuss medium-duty vehicles, I am happy to answer any questions you might have.

MECA Oral Testimony – Part 3: Kevin Brown

Good afternoon, I'm Kevin Brown, MECA's Technical Director and I would like to comment about how this rule will deliver emission reductions from medium-duty vehicles. Since Mike just discussed PM, I will focus on other criteria emissions.

Similar to light-duty vehicles, a range of technologies exist that can be utilized on gasoline engines to further reduce their cold start emissions in MD vehicles. These include advanced catalyst formulations supported on substrates with higher cell density and porosity as well as electrically heated catalysts, improved engine mapping and calibration strategies, fuel delivery, EGR, and boost pressure. We believe these technologies can accelerate catalyst light-off and provide lower emissions over a wider range of air-fuel ratios allowing medium-duty trucks to readily meet the proposed limits.

In addition, significant emissions can also be contributed by MD vehicles operating with fuel enrichment under higher load operating conditions such as towing. Catalyst manufacturers have continued to improve the performance and durability of supporting catalyst washcoats and the stabilization of precious metal catalysts under higher exhaust temperatures that can reduce the need for fuel enrichment. These catalysts can be further combined with a variety of additional technologies such as EGR, EHC, modified valve timing, electronic throttle and cylinder heads with integrated exhaust manifolds and improved cooling to eliminate the need for fuel enrichment.

MECA also supports EPA's proposal requiring mandatory engine certification for medium duty vehicles with gross combined weight ratings (GCWR) greater than 22,000 lbs using the emissions standards and test procedures for 2027 and later heavy-duty engines that were finalized in December 2022. MECA members have been developing and commercializing a variety of engine and exhaust emission control technologies to help medium and heavy-duty engine manufacturers to comply with the low NOx truck standards and believe these technologies can be readily applied to medium-duty vehicles with GCWR's >22,000 lbs as well.

Finally, I want to highlight that MECA sees great potential for hybrid electric technology to provide substantial benefits for medium-duty vehicles, especially those that are more challenging to fully electrify due to the demands of the duty-cycle.

In closing, we thank EPA staff for their hard work and dedication to this important rule making. Our industry remains committed to working with EPA and its federal and state partners on the challenges and opportunities that lie ahead to simultaneously advance electric vehicles while also achieving emission reductions from the non-electric fleet. Thank you for your time and I am happy to answer any questions that you might have.