



national association of clean air agencies

September 29, 2015

**BOARD OF DIRECTORS**

**Co-Presidents**

George S. Aburn, Jr.  
Maryland

Merlyn Hough  
Springfield, OR

**Co-Vice Presidents**

Stuart A. Clark  
Washington

Ursula Nelson  
Tucson, AZ

**Co-Treasurers**

Barry R. Stephens  
Tennessee

Craig T. Kenworthy  
Seattle, WA

**Past Co-Presidents**

David J. Shaw  
New York

Barry R. Wallerstein  
Los Angeles, CA

**Directors**

Rita Bates  
New Mexico

Rick Brunetti  
Kansas

Robert H. Colby  
Chattanooga, TN

Richard Corey  
California

Anne Gobin  
Connecticut

Thomas Huynh  
Philadelphia, PA

David Klomp  
Montana

Bart A. Sponseller  
Wisconsin

Richard A. Stedman  
Monterey, CA

**Executive Director**  
S. William Becker

Administrator Gina McCarthy  
U.S. Environmental Protection Agency  
Air and Radiation Docket and Information Center  
Docket ID No. EPA-HQ-OAR-2014-0827  
Mail Code: 28221T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Administrator Mark R. Rosekind  
U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Docket ID No. NHTSA-2014-0132  
Docket Management Facility, M-30  
1200 New Jersey Avenue, SE  
Washington, DC 20590

Dear Administrators McCarthy and Rosekind:

The National Association of Clean Air Agencies (NACAA) appreciates this opportunity to comment on the U.S. Environmental Protection Agency's (EPA) and the National Highway Traffic Safety Administration's (NHTSA) joint proposal, entitled *Greenhouse Gas and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2*, as published in the *Federal Register* on July 13, 2015 (80 Fed. Reg. 40,137). NACAA is a national, non-partisan, non-profit association of air pollution control agencies in 41 states, the District of Columbia, four territories and 116 metropolitan areas. The air quality professionals in our member agencies have vast experience dedicated to improving air quality in the U.S. This testimony is based upon that experience. The views expressed in this testimony do not represent the positions of every state and local air pollution control agency in the country.

According to EPA, although heavy-duty trucks account for less than 5 percent of vehicles on U.S. roads, they are responsible for about 20 percent of the U.S. transportation sector's energy use and greenhouse gas (GHG) emissions, and are the second largest source of GHG emissions in the transportation sector after passenger cars and light trucks. These vehicles consume about 2.5 million barrels of oil a day and produce almost a half billion tons of carbon a year.

NACAA supported EPA's and NHTSA's efforts to adopt the first phase of GHG and fuel efficiency standards for heavy-duty vehicles and engines, which took effect with Model Year (MY) 2014 and are being phased in through MY 2018. Now, we are pleased to support your agencies' efforts to advance this program by establishing Phase 2 standards. We believe your proposal holds great promise for achieving further GHG

reductions and better fuel efficiency from heavy-duty combination tractors, trailers, vocational vehicles and heavy-duty pickups and vans. Fulfilling that promise, however, will require some key improvements to the proposal.

But before addressing those, NACAA would like to commend EPA and NHTSA on several aspects of the proposed rule that our association strongly supports.

We strongly endorse the continued inclusion of separate but complementary standards for engines and whole vehicles – this is a fundamental aspect of the rule. Separate engine standards are critical for the Phase 2 program because they directly address the source of GHG emissions and ensure that engine manufacturers will incorporate some level of engine efficiency improvements that will reduce GHG emissions over the useful life of the vehicle. Engine test procedures and methods have been refined over decades of implementation and provide high certainty that verifiable emission reductions will occur when engines are in use. Separate engine standards are also important because engine GHG emission levels can be directly verified through the existing engine certification test protocols: the Supplemental Emission Test (SET) and Federal Test Procedure (FTP). The SET and FTP used to certify engines to GHG and criteria pollutant emission standards, such as for oxides of nitrogen (NO<sub>x</sub>), provide a direct link between GHG and NO<sub>x</sub> emission measurement methods. Further, separate engine standards prompt development of advanced engine technologies that, in turn, can offer a substantial improvement in a vehicle's fuel efficiency. In the absence of separate engine standards, some vehicle manufacturers may rely more heavily on vehicle improvements, such as aerodynamic technologies, that are less effective at reducing fuel consumption and emissions, particularly as vehicles change vocations, or functions, over time.

We are also very much in favor of EPA's proposal to close the existing loophole for glider kits and glider vehicles, under which used pre-2013 engines – with no limit on age – may be installed into new glider kits without meeting applicable standards. We agree with EPA that its regulations should be revised to require that only engines that have been certified to meet the prevailing standards be eligible for installation into new glider kits. The sale of glider kits has increased 10-fold<sup>1</sup> since the implementation of federal 2007/2010 particulate matter (PM) and NO<sub>x</sub> emission standards. The proposed changes will stem the unrestricted sale of glider vehicles with older, higher-emitting engines. With respect to implementation of EPA's proposed glider requirements, we believe this should occur as soon as possible but no later than January 2018.

With respect to aspects of the proposal NACAA believes should be improved, we offer the following comments.

In a March 18, 2015 letter to your respective agencies,<sup>2</sup> NACAA provided our recommendations for essential components of a Phase 2 rule. In those recommendations, we urged for a rule that would reduce GHG emissions and fuel consumption across the entire fleet by at least 40 percent, on average, compared to 2010. Unfortunately, we find the overall effectiveness of the Phase 2 proposal to fall short of our recommendation and, more importantly, significantly short of what can and should be achieved. Accordingly, we believe the overall stringency of the proposal should be enhanced to take advantage of

---

<sup>1</sup> U.S. EPA, *Frequently Asked Questions about Heavy-Duty "Glider Vehicles" and "Glider Kits"* (2015), <http://www.epa.gov/OMS/climate/documents/420f15904.pdf>.

<sup>2</sup> NACAA Letter to EPA and NHTSA providing recommendations on a Phase 2 regulatory proposal (March 18, 2015), [http://www.4cleanair.org/sites/default/files/Documents/NACAA-Letter to EPA DOT-Ph2 HD Fuel EffGHG Stds-031815.pdf](http://www.4cleanair.org/sites/default/files/Documents/NACAA-Letter%20to%20EPA%20DOT-Ph2%20HD%20Fuel%20EffGHG%20Stds-031815.pdf).

missed opportunities that, if incorporated into the final rule, would drive technology and ensure that maximum emission reductions and reduced fuel consumption are achieved.

Toward this end, we believe the proposed engine standards must be strengthened. Others – including the California Air Resources Board (CARB),<sup>3</sup> engine makers<sup>4</sup> and independent non-governmental organizations<sup>5</sup> – have suggested engine efficiency can be improved significantly more than the modest 4.2 percent proposed by EPA. Recent work by the Southwest Research Institute, West Virginia University, the U.S. Department of Energy's SuperTruck teams and Cummins, the largest manufacturer of heavy-duty truck engines, all indicates the feasibility of engine GHG reductions in the Phase 2 timeframe at levels more than twice that included in the proposal. Further, these analyses, as well as those of EPA, indicate that technologies to achieve this degree of improvement are currently available and highly cost effective. In conjunction with increasing engine standards, we also recommend that EPA increase the corresponding whole-vehicle standards to capitalize on the full emission reduction potential of efficiency-improving technologies. We believe it is imperative that EPA strengthen the engine and vehicle standards in the final rule to reflect this.

With respect to timing, NACAA strongly supports EPA's proposed Alternative 4, under which the standards would be fully implemented by 2024. This implementation deadline is entirely feasible and vitally important to spur much-needed near-term emissions reductions and technological innovation. Further, Alternative 4 would provide manufacturers of heavy-duty engines and vehicles nearly eight years of lead time to develop and apply technologies needed to comply with the most stringent GHG emissions standards and is consistent with the lead-time requirements of section 202(a)(2) of the Clean Air Act. NACAA urges EPA to finalize Alternative 4 rather than Alternative 3, which would unnecessarily extend full implementation by three years to 2027, particularly when all of the technologies/approaches required already exist, with many already deployed on today's trucks.

We believe, in general, that the Phase 2 proposal is overly pessimistic regarding the implementation outlook for advanced technologies nationwide. The proposal also underestimates the ability of engine and truck manufacturers to incorporate longer-term technical solutions now for meeting global climate goals. As such, we recommend that EPA take a more assertive stance in challenging industry to accelerate technology innovation by adopting Alternative 4. EPA includes the projected compliance costs for the proposed emission standards under Alternatives 3 and 4 in the proposal. Even the projected higher compliance costs for Alternative 4 – which constitute only a fraction of the base costs of new engines and vehicles – are more than offset by the cost savings from reduced fuel consumption within two to six years. With respect to fuel efficiency and emission reductions, the proposal indicates that, on a nationwide basis, Alternative 4 overall would save 10 billion more gallons of fuel and provide about 130 more million metric tons of GHG reductions by 2030 than Alternative 3. These are important improvements that can and should be realized.

Additionally, EPA assumes in the proposal only a modest level of hybrid technology and no use of other advanced technologies, such as electric or fuel cell. Further, the proposal lacks sufficient stringency

---

<sup>3</sup> California Air Resources Board, *Draft Technology Assessment: Engine/Powerplant and Drivetrain Optimization and Vehicle Efficiency* (June 2015), [http://www.arb.ca.gov/msprog/tech/techreport/epdo\\_ve\\_tech\\_report.pdf](http://www.arb.ca.gov/msprog/tech/techreport/epdo_ve_tech_report.pdf).

<sup>4</sup> Cummins, *Engine Technologies for GHG and Low NO<sub>x</sub>* (April 2015), [http://www.arb.ca.gov/msprog/onroad/caphase2ghg/presentations/2\\_7\\_wayne\\_e\\_cummins.pdf](http://www.arb.ca.gov/msprog/onroad/caphase2ghg/presentations/2_7_wayne_e_cummins.pdf).

<sup>5</sup> International Council on Clean Transportation, *Advanced Tractor-Trailer Efficiency Technology Potential in the 2020-2030 Timeframe* (April 2015), [http://www.theicct.org/sites/default/files/publications/ICCT\\_ATTTEST\\_20150420.pdf](http://www.theicct.org/sites/default/files/publications/ICCT_ATTTEST_20150420.pdf).

to drive market development of these technologies and eliminates the Advanced Technology Credits included in the Phase 1 program intended to encourage development of these technologies. Therefore, we also recommend that EPA reinstate Advanced Technology Credits to help advance zero- and near-zero-emission technologies and to make Alternative 4 more attractive and attainable.

NACAA commends EPA for including requirements to regulate GHG emissions associated with trailers for the first time at the national level. While we support the proposal as a first step by requiring nearly all trailer types designed for on-highway use to use low rolling resistance (LRR) tires and automatic tire inflation systems, we believe the proposed trailer provisions miss several opportunities to maximize fuel efficiency technologies in the heavy-duty trailer sector.

Based on manufacturers' and fleets' experiences with EPA's SmartWay program and CARB's experience in implementing its Tractor Trailer Greenhouse Gas Regulation, we urge EPA to 1) consider expanding the proposed requirements for aerodynamic technologies on box type trailers to include other trailer types, such as tanker and flatbed trailers; 2) increase the proposed penetration rate for Level 1 LRR tires to at least 95 percent for short and long box type trailers; 3) adopt Alternative 4 augmented with revisions to include a nominal adoption rate in Bin VIII technologies (which represent as yet undeveloped technology) in order to further advance aerodynamic technology development; and 4) increase the final Alternative 4 stringency (applicable to MY 2024) for long box refrigerated van trailers so that the combined adoption of Bins VI and VII match or exceed that of long box dry van trailers.

Our March 18, 2015 letter also included a recommendation that EPA articulate in the proposal the need for significantly lower national heavy-duty NO<sub>x</sub> standards beyond the current 2010 onroad heavy-duty NO<sub>x</sub> exhaust emission standards and nonroad heavy-duty engine exhaust emission standards. We are very disappointed that EPA has not included such a discussion in this proposal. Although there is the potential for ancillary NO<sub>x</sub> reductions from the Phase 2 rule, the achievement of these reductions is not certain (we note that predicted ancillary benefits of Phase 1 did not occur). Moreover, even if ancillary NO<sub>x</sub> benefits do accrue under the Phase 2 rule, they will not be nearly sufficient given the challenges state and local agencies face in attaining and maintaining current and upcoming ozone and fine PM standards and protecting against visibility impairment and eutrophication of water bodies.

In addition to early climate benefits, federal action on our recommendation to adopt Alternative 4 (full implementation by 2024) would also provide manufacturers the ability to incorporate technologies to significantly reduce NO<sub>x</sub> emissions from heavy-duty vehicles in a more timely manner. While already crucial for a number of areas, NO<sub>x</sub> reductions from the heavy-duty sector will become increasingly important to additional areas under strengthened National Ambient Air Quality Standards for ozone, which are expected imminently. We urge that EPA include in the final Phase 2 rule a clear and comprehensive discussion of the need for very substantial additional NO<sub>x</sub> reductions from heavy-duty vehicles and engines and, even more critically, an explicit commitment to begin immediately a separate rulemaking initiative to capture those reductions.

Next, EPA projects an increase in the use of auxiliary power units (APUs) under the Phase 2 proposal and an associated 10-percent increase in PM emissions. The agency seeks comment on this, but proposes nothing to address the unacceptable and unnecessary expected rise in PM pollution. Exposure to diesel PM is one of the greatest public health challenges of our time. In California, for example, diesel PM was identified as a toxic air contaminant in 1998. However, even after implementation by the state of extensive control programs, diesel PM remains responsible for 60 percent of the known risk from toxic air

contaminants. Therefore, NACAA recommends that, concurrent with the final Phase 2 rule, EPA adopt national requirements to equip APUs with diesel particulate filters, similar to CARB's requirements.

Additionally, while MOVES modeling points to other air quality benefits of APU usage, there remains a significant difference between the emission standards for Tier 4 smaller nonroad diesel engines typically used in APUs when compared to the emission rates of a modern long-haul truck at idle. To prevent any potential backsliding from air quality benefits appreciated from the newest onroad engine standards, we recommend adding provisions to ensure that there are no increases in emissions of NO<sub>x</sub> or PM as a result of increased use of APUs on all affected vehicles. We also encourage EPA to ensure against overestimation of the potential NO<sub>x</sub> benefits associated with APU use.

Finally, NACAA urges that EPA do everything feasible to implement in-use compliance verification. We support EPA's testing regime for engines and the requirement for manufacturers to submit data from chassis testing – these are good first steps. However, we believe the current whole-vehicle provisions should be complemented with some type of whole-vehicle validation to ensure long-term compliance by vehicles in-use. For example, tracking vehicle weight and speed with engine carbon dioxide and nitrous oxide emissions could be used as a tool to determine overall vehicle performance for corrections/correlations to EPA's Greenhouse Gas Emissions Model moving forward.

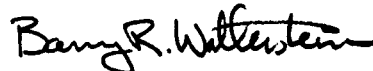
In conclusion, NACAA believes EPA and NHTSA have a tremendous opportunity to finalize a rule that will effectively address heavy-duty vehicle and engine GHG emissions and fuel consumption and set the stage for a separate rule to achieve meaningful additional NO<sub>x</sub> reductions. We urge you to make the most of this opportunity. Further, in doing so, we encourage your agencies to continue collaborating with experts at CARB, given California's unique ability to regulate these same source categories, its decades of experience in doing so and the past success that has been achieved when EPA, and more recently NHTSA, have collaborated with CARB.

Once again, NACAA appreciates the opportunity to provide comments on this important proposal. If you have any questions, please contact either of us or Nancy Kruger, Deputy Director of NACAA, at (202) 624-7864.

Sincerely,



Nancy L. Seidman  
Massachusetts  
Co-Chair  
NACAA Mobile Sources and Fuels Committee



Barry R. Wallerstein  
Los Angeles, CA  
Co-Chair  
NACAA Mobile Sources and Fuels Committee