



COMMENTS OF THE CENTER FOR CLIMATE AND ENERGY SOLUTIONS

This document constitutes the comments of the Center for Climate and Energy Solutions (C2ES) on the Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards proposed by the U.S. Environmental Protection Agency, Docket ID No. EPA-HQ-OAR-2019-0055.

C2ES is an independent, nonprofit, nonpartisan organization dedicated to advancing strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts. Through the *Climate Innovation 2050 Initiative*, C2ES has worked closely with more than four dozen leading companies to examine the decarbonization challenges facing the United States and develop pathways toward decarbonization, including through developing *Getting to Zero: A U.S. Climate Agenda*, a comprehensive policy agenda to decarbonize the U.S. economy by 2050.

The views expressed here are those of C2ES alone and do not necessarily reflect the views of members of the C2ES Business Environmental Leadership Council (BELC).

Executive Summary

As underscored by the most recent report from the Intergovernmental Panel on Climate Change (IPCC), it is imperative that we reduce global greenhouse gas emissions as swiftly as possible to keep global warming to 1.5 degrees Celsius above pre-industrial levels.¹ In the United States, transportation is the largest sectoral source of emissions, and while medium- and heavy-duty vehicles make up only 5 percent of vehicles on the road, they account disproportionately for almost a quarter of all transportation emissions.² Reducing the emissions from these vehicles must be central to the United State's decarbonization strategy.

C2ES welcomes EPA's proposed updates to the heavy-duty emission control program, including the proposed updates to the emissions standards, test procedures, useful life, and other requirements. C2ES also supports the proposed targeted updates to the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program, particularly with regards to the greenhouse gas standards for school buses, transit buses, delivery trucks, and short-haul tractors.

Diesel-powered vehicles produce climate-polluting greenhouse gas emissions, as well as harmful air pollutants including PM2.5 particulate pollution and nitrous oxides (NOx), which produce smog and are hazardous to human health, especially to children, the elderly, pregnant people, and others with pre-existing respiratory conditions.³ Yet often the emissions from idling trucks, delivery vans, and other medium- and heavy-duty vehicles are concentrated in the very communities with populations most vulnerable to them. Delivery vans travel through neighborhoods, while highway and urban truck routes often pass through vulnerable communities and low-income communities. The burdens of pollution are often borne by communities disproportionately made up of people of color.⁴

In short-haul medium- and heavy-duty applications, many vehicles' use cases make them particularly well-suited to early adoption of electrification technology. For example, slow speeds, frequent stops, and relatively predictable routes of last-mile delivery vehicles enable them to fully utilize the advantages of regenerative braking and the cost savings of depot charging.

In the heavy-duty sector, transit and school buses are also favorable for early adoption of zero-emission vehicle (ZEV) technologies, with their predictable routes and charging times. Because these vehicles are most often used by children and other vulnerable populations, the reduction of air pollution from these vehicles is particularly impactful in historically marginalized communities.

Last year's passage of the Infrastructure Investment and Jobs Act (IIJA) marked a significant commitment to the development and deployment of low- and zero-emission bus technologies. The bill's more than \$5 billion in funding for electric and alternative fuel school buses, alongside its \$4 billion in funding for transit bus electrification, related infrastructure, and workforce development, will build on existing momentum in the field to accelerate the deployment of zero-emission technologies in the coming decade.

ZEV Outlook: Market shifts to ZEV technologies in certain segments

The market is currently moving much more rapidly toward electrification than was expected at the time EPA initially finalized the Phase 2 standards in 2016. In considering whether and to what extent to make targeted adjustments to the Phase 2 standards, EPA cites two vastly different projections for 2030 market penetration of ZEV powertrains by total vehicle miles traveled: the U.S. Energy

Information Administration’s 2018 Annual Energy Outlook, which projects 0.08 percent, and the 2018 NREL Electrification Futures Study, which projects 29 percent. However, the more recent 2022 Annual Energy Outlook projects this share will be 13 percent by 2050.⁵ Given the developments in the market and the industry since then, C2ES believes more optimistic projections are more appropriate.

Based on recent progress in battery technology development extending range and reducing cost, in combination with increasing corporate ambition and federal procurement commitments, BloombergNEF’s 2021 Electric Vehicle Outlook predicts that “battery electric trucks of any size become the cheapest option for several use cases in the 2020s.”⁶ For example, Atlas Public Policy finds that, as of February 2022, the total cost of ownership of the forthcoming electric Ford F-150 Lightning—one of the most popular pickup truck models in the U.S. market—is 17 percent lower than its gas-powered version.⁷ The Environmental Defense Fund and ROUSH Industries also project that electric versions of all class 3, 5, 7, and 8 vehicles will reach parity in total cost of ownership with their diesel counterparts by 2027, and all apart from shuttle buses will reach purchase price parity by the same year.⁸

Recent federal policy developments since the 2020 Advanced Notice of Proposed Rulemaking also lend additional funding and political support to the development of the nascent heavy-duty ZEV industry in the United States. The IIJA includes a transformative investment in capital funding to support battery technology development and targeted ZEV deployment.

As EPA references throughout the proposed rule, momentum is also building at the state and local levels, as states move to adopt California’s Advanced Clean Trucks standards. 15 states and the District of Columbia signed the Multi-state Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding setting a target of making 100 percent of new trucks zero-emission by 2050 and 30 percent zero-emission by 2030.⁹ Additionally, cities including Los Angeles and Boston have committed to fully electrifying their municipal fleets, including their heavy-duty transit vehicles.¹⁰

One successful example of heavy-duty fleet electrification can be found in Antelope Valley, California, which transitioned its entire transit fleet to electric in 2022, a full 18 years ahead of the state’s 2040 electrification mandate.¹¹ The fleet now includes 57 zero-emission buses, 10 EV microtransit vans, and 20 battery-electric commuter coaches, serving a community with more than 450,000 residents. The agency reported no disruptions to service and millions of dollars saved in avoided diesel fuel costs, as well as significant emissions reduction benefits. This successful example demonstrates not only that fleet electrification is possible, but it also sets a model for other transit authorities to follow.

Given these developments in both technology advancement and policy support, EPA should adopt the most stringent emissions standards feasible with the earliest feasible target date.

Energy Independence

Recent geopolitical events have also demonstrated the need to accelerate the shift away from unabated fossil fuels, including by electrifying the U.S. vehicle fleet. Russia’s invasion of Ukraine has sent shockwaves through the global energy system, which has exacerbated price volatility and exposed the economic and national security vulnerabilities of our dependence on petroleum, the price of which is set in global markets and influenced by the actions of hostile foreign powers.

In addition to the climate impacts of burning gasoline and diesel, the fundamental role these fuels play in our transportation system only makes it more imperative that we reduce our reliance on them to bolster the resilience of the U.S. economy to future geopolitical shocks. Other agencies, including the Department of Energy, are taking action to secure domestic supplies of critical minerals used to produce batteries and are considering ways to onshore processing and domestic production capacity.

Given the benefits of improved efficiency and fuel savings as outlined in the draft regulatory impact analysis, EPA should adopt emissions standards at the more stringent end than the proposed range. Setting stringent standards will support both innovation and reduced fuel consumption across the medium- and heavy-duty transportation sector.

Equity and Justice

Air pollutants, including PM_{2.5} and NO_x, are hazardous to human health; prolonged or excessive exposure can contribute to conditions like asthma, high blood pressure, chronic stress, and chronic respiratory diseases.¹² Exposure to poor air quality is also correlated at the community level with significantly higher rates of COVID-19 infections and poorer health outcomes following infection.¹³ Burdens of air pollution and poor air quality are disproportionately borne by historically marginalized communities, including majority-Black communities, majority-immigrant communities, and low-income communities, as well as children, the elderly, and other population with heightened health vulnerability.¹⁴

On-road NO_x emissions are often concentrated in these communities, as they are produced by trucks traveling on highways located within or near them, as well as trucks idling at ports, warehouses, and other freight applications in these communities. Current lab testing cycles of these NO_x levels may underestimate the true amounts of NO_x emissions produced due to insufficient testing under real-world conditions or artificially short regulatory useful life figures.

Both of EPA's proposed options, as well as the alternative, would significantly reduce NO_x emissions over the coming decades. To address historic injustices, EPA should consider the most expedient course toward emission reductions, and should prioritize real-world emissions reductions in the use cases that most disproportionately harm historically marginalized communities.

Endnotes

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