



COMMENT OF ENVIRONMENTAL DEFENSE FUND IN RE: CARB'S OCTOBER 2025 DRIVE FORWARD LIGHT-DUTY VEHICLE WORKSHOP

Submitted via CARB's Website, November 21, 2025

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Environmental Defense Fund (EDF) respectfully submits the following comments on the California Air Resources Board (CARB) staff's initial concepts for the Drive Forward Light-Duty Vehicle Program, as presented in the October 21, 2025, public workshop.

EDF works to create transformational solutions to the most serious environmental problems by linking science, economics, law, and innovative private-sector partnerships. With over 3 million members, including half a million in California, EDF's scientists, economists, attorneys, and policy advocates are working to turn our solutions into action.

I. INTRODUCTION

EDF strongly supports CARB's continued leadership in advancing clean, affordable vehicles and securing the criteria, toxic, and GHG pollutant reductions necessary to protect public health and welfare in California and beyond. This rulemaking, together with other mobile and stationary source efforts, is critical to achieving the necessary criteria pollutant reductions to meet National Ambient Air Quality Standards and protect California's 39 million residents from harmful smog and soot. Simultaneously, this program is essential for achieving California's statutory 2030 and 2045 climate targets and propelling GHG reductions forward, particularly at a time when the federal government has proposed eliminating the federal vehicle GHG standards. Together with its partner states in the Affordable Clean Cars Coalition, California's leadership is more important than ever.

EDF supports CARB's interest in establishing protective, next-generation, performance-based standards structurally consistent with the U.S. Environmental Protection Agency's (EPA) Tier 4 program. Performance-based standards that can be achieved through multiple technological pathways will cut pollution, provide flexibility, and support consumer choice. Clean air and a safe climate go hand in hand with affordable vehicles and consumer choice.

We also support CARB's interest in securing near-term pollution reductions, both through compelling early action pathways for regulated manufacturers, as well as demand-side solutions, such as a new window sticker that effectively communicates consumer benefits of zero-emission vehicles (ZEVs) technologies. We support the close coordination of the light-duty program with complementary efforts, such as targeted rebates like Clean Cars 4 All, and the work by the California Energy Commission (CEC) and the California Public Utilities Commission (CPUC) to expand the deployment of reliable charging infrastructure.

EDF appreciates the transparent and robust public process that CARB has outlined, including additional workshops and opportunities for bilateral engagement. We strongly support your vital efforts and look forward to continuing to engage with CARB and stakeholders to advance durable, effective, and protective standards.

II. CRITERIA POLLUTANT PROGRAM

A. NMOG+NO_x

EDF supports CARB's interest in aligning the new criteria program for non-methane organic gases and nitrogen oxides (NMOG+NO_x) with the structure of EPA's Tier 4 program, including the use of performance-based standards that incorporate ZEVs into the fleet averaging mechanism. Such standards should deliver needed pollution reductions that could be met through various technology pathways, including increasing ZEV deployments, expanding sales of hybrids and plug-in hybrids, implementing further improvements in internal combustion engine (ICE) aftertreatment, or a combination of the above. These standards would thus enhance manufacturer flexibility and advance consumer choice, while securing substantial reductions to support ozone attainment.

EDF encourages CARB to consider recent technical and market information demonstrating that EPA's Tier 4 standards—and even more protective requirements—are feasible. For instance, California has a higher baseline level of ZEVs than EPA considered in its Tier 4 rule, and recent Federal certification data

demonstrates further improvements in ICE vehicle performance, with increasing numbers of ICE vehicles certifying well below 30 mg/mi, with many already achieving 15 mg/mi and even 10 mg/mi levels.

EDF supports CARB's target of MY2031 for the first year of the new standards. A similar phase-in schedule could reasonably be applied to NMOG+NO_x, tailpipe PM, and GHG standards.

Finally, we believe that well-designed, early action incentives for MY2027-2030 can help secure vital, near-term pollution reductions. At the same time, we urge CARB to ensure that the growing bank of ACC1 credits advances the goals of the program and does not undermine the integrity and emissions benefits of the new Drive Forward program. We believe these principles regarding early credit generation and ACC1 credits also apply to the GHG program.

B. PM

EDF believes CARB should take this opportunity to strengthen its existing tailpipe PM standard to align with the more protective standards in EPA's Tier 4 rule. EPA's rule phased in a 0.5 mg/mi per-vehicle PM requirement, including cold temperature testing.

EPA demonstrated the technological feasibility of this standard based on MY2022 gasoline particulate filter (GPF) equipment on ICE vehicles. The agency noted that GPFs are available at low cost and already widely used on vehicles sold in the European Union, China, and India—including on vehicles produced by U.S. manufacturers for sale in those markets. Manufacturers have also recently certified vehicles in the US that apply such GPF technology. Adopting a Tier 4-aligned PM standard would better control PM under all driving and ambient conditions, provide significant health benefits, support California's PM attainment goals, and rely on proven, off-the-shelf technology.

EDF also recognizes the increasing importance of reducing non-exhaust emissions (NEE) of PM as tailpipe PM becomes better controlled. Science, technology, and regulatory approaches relating to NEE PM control continue to mature, including through the recent adoption of the Euro 7 standards for brake and tire wear. EDF welcomes CARB's consideration of NEE PM, which could be undertaken along with or separate from the remainder of the light-duty program.

C. Real-World Criteria Emissions Reductions

EDF supports CARB's consideration of appropriate provisions to ensure real-world emissions reductions for criteria pollutants. This is a critical component for ensuring that the benefits of the program are fully realized in communities across the state and across the vehicles' full useful lives. Moreover, ensuring real-world emissions reductions across a broad range of operating conditions is especially important when manufacturers are allowed to average ICE and ZEV emission performance to meet fleet average standards. We encourage CARB to carefully evaluate the various options presented in the workshop, and we look forward to engaging further on specific proposals.

III. GHG PROGRAM

A. GHG Standards

EDF supports CARB's interest in structurally aligning the new GHG program with EPA's Tier 4 framework. This includes performance-based standards that integrate ZEV technologies into fleet averaging and employ footprint-based curves designed to eliminate perverse incentives for manufacturers to upsize their vehicles.

As CARB develops the new CO₂ target curves, we encourage careful consideration of the range of factors that CARB and EPA have historically considered in establishing such standards:

- Technical feasibility of the standards, demonstrated by both increasing potential adoption of EV technologies, and of non-ZEV technologies (such as hybrids and advanced ICE) above and beyond the ZEV baseline.
- Consumer costs, including total cost of ownership, pocketbook savings on operations (including fuel, maintenance, and repair expenses), and upfront purchase price affordability.
- Charging infrastructure and the electric grid, including the availability of infrastructure to support the standards and the benefits of electric vehicles for reducing electricity rates and providing grid services such as backup power, in consultation with CEC and CPUC.
- The immense public health and welfare benefits of the standards for California's residents, including reducing toxic smog and soot, and mitigating the worst consequences of climate change, such as wildfires, droughts, and other impacts already felt by Californians.

B. Technology Treatment and Real-World GHG Reductions

We believe the GHG standards should remain performance-based, allowing all vehicle technologies to qualify for credits based on their real-world emissions performance. Other programs, such as the Low Carbon Fuel Standard (LCFS), already provide significant support for lower lifecycle transportation fuels, allowing the Drive Forward program to maintain its focus on vehicle technology. In this vein, we support CARB's interest in examining the utility factor for plug-in hybrid and extended-range electric vehicles to ensure their credit generation aligns with real-world usage. We also support CARB's further consideration of provisions to ensure real-world GHG reductions.

IV. OTHER PROVISIONS

EDF supports CARB's consideration of additional provisions to strengthen its light-duty programs, including ZEV certification improvements and high-level communication standards and conformance testing. We also support CARB's consideration of a new window sticker to communicate the benefits of EVs to the public. This tool could support more informed consumer choice and decision making by making clear the substantial pocketbook and public health benefits of EVs, as well as addressing range and battery life concerns.

In determining whether to adopt a new label and its design, we encourage CARB to carefully evaluate empirical evidence regarding label design and, as appropriate, to conduct its own empirical assessments of California drivers. CARB's evaluation should account for the interactions between the existing Federal fuel economy and GHG label and the new CARB label, including how to present related information without confusing consumers and the relative physical locations of the labels on the vehicle.

As it evaluates the empirical evidence, CARB could consider the potential inclusion of the following information on a label:

- *Reduced pocketbook expenditures*, which could be presented per 100 miles driven, or over the average time a consumer keeps their new vehicle, or over the vehicle's full useful life. These expenditures could be calculated based on California data, including average State gasoline and electricity costs, in lieu of the national data used for the Federal label.
- *Public health benefits*, such as quantified reductions in smog and soot emissions over the vehicle life, along with clear and accessible text explaining the public health benefits of EVs.

- *Battery-related information*, including real-world range depicted by graphical and numerical descriptions of minimum, typical, and maximum driving range in miles; charging speed for Level 1, Level 2, and public fast chargers; and battery durability and warranty.
- *Interactive QR Code* linking to a website where consumers could explore personalized information, such as reduced pocketbook expenditures based on their local electricity prices and expected vehicle miles traveled. The website could also further signal the benefits of clean EVs for public health, using a combination of visuals, taglines, narrative text, and other design elements.

V. CONCLUSION

EDF thanks CARB for its leadership and for initiating this important public process. We respectfully urge CARB to move forward with a rule that is durable, effective, and protective of public health and the environment. We look forward to continued engagement on these vital issues. If you have questions or would like to discuss these comments, please contact Ryland Li at ryli@edf.org.

Respectfully,

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