WSPA

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California Air Resources Board
1001 I Street
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Submitted via the Workshop Comment Submittal Form
and by email to cleancars@arb.ca.gov

Re: WSPA Comments on CARB Drive Forward Light-Duty Vehicle Program Workshop

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the June 22, 2026, public workshop held by the California Air Resources Board (CARB) on the Drive Forward Light-Duty Vehicle (LDV) Program.[1] This Program responds to Governor Newsom's June 2025 Executive Order N-27-25[2] directing CARB to propose an Advanced Clean Cars III regulation, to replace the Advanced Clean Cars II regulation, in response to the Federal disapproval of CARB's Clean Air Act waivers to set industry standards for vehicles. WSPA is a non-profit trade association that represents companies that produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states, and has been an active participant in air quality planning issues for over 30 years.

WSPA has actively participated in CARB's development of motor vehicle regulations, including Advanced Clean Cars II (ACC II), Advanced Clean Trucks (ACT), and Advanced Clean Fleets (ACF). Throughout each rulemaking process, WSPA has consistently advocated for a cost-effective, technology-neutral, performance-based approach that preserves consumer choice and does not exacerbate existing economic burdens on the people living in California and the United States. In particular, WSPA urges CARB to evaluate the feasibility of whether the proposed requirements are capable of achieving actual, intended, and measurable emission reductions. A regulatory pathway that imposes costs and fails to deliver significant emission reductions is not, in WSPA's view, a "feasible" approach. Accordingly, WSPA offers the following comments on CARB's initial concepts for the Drive Forward LDV Program as outlined in the June 2026 workshop.

WSPA noted in prior comment letters that California's greenhouse gas (GHG) emissions standards and zero-tailpipe emission vehicle mandates are preempted by Section 32919 of the Energy Policy and Conservation Act (EPCA), since they are "related to" fuel economy standards. WSPA would therefore urge CARB to ensure that any proposed requirements are technically feasible, supported by transparent data and real-world evidence, and structured to preserve affordability, reliability, and consumer choice. In particular, CARB should avoid standards that are purportedly technology-neutral but depend in practice on prescribed levels of zero-tailpipe emission vehicles (ZEV)[3] deployment or assumptions that do not reflect current market, infrastructure, and technology conditions.

As discussed in more detail below, WSPA's comments identify significant legal, technical, and methodological deficiencies in CARB's proposal that require further analysis, substantial revision, and, in several instances, withdrawal of proposed provisions that are inconsistent with existing law. They also demonstrate the need for CARB to reassess key assumptions regarding feasibility, emissions reductions,

[1] CARB. Public Workshop on Drive Forward Light-Duty Vehicle Program. June 22, 2026. Available at: ww2.arb.ca.gov/sites/default/files/2026-06/2026_06_22_Workshop_Presentation_ADA_English_Approved_3.pdf. Accessed: July 2026.

[2] Executive Order N-27-25. June 12, 2026. Available at: CRA-Response-EO-N-27-25_-bl-formatted-GGN-Signed-6-11-954pmFinal.pdf. Accessed: July 2026.

[3] Note that the term "zero emissions vehicle", and even near-ZEVs as used by CARB, is a misnomer. ZEVs are not actually zero-emission vehicles when accounting for the vehicle's lifecycle, including GHG and criteria pollutant emissions associated with electricity generation required for charging certain ZEVs and the production of the ZEV vehicle and battery. We recognize that CARB uses "ZEV" to refer only to those vehicles with a specific meaning under California's Drive Forward program, but for ease of review, "ZEVs" is used throughout these comments and encompasses all of the electric vehicle technologies, including plug in electric vehicles such as plug-in hybrid electric vehicles and battery electric vehicles.

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consumer impacts, infrastructure readiness, and statutory authority. For example, these comments focus on several areas where additional analysis and clarification are needed, including the feasibility of CARB's proposed non-methane organic gas and nitrogen oxides ($NMOG+NO_x$) and particulate matter (PM) standards, the use of repealed federal GHG standards as a benchmark, the need for a lifecycle GHG accounting framework, the potential for ZEV minimum and crediting concepts to operate as technology-forcing mechanisms, the treatment of non-exhaust PM emissions such as tire wear and road dust resuspension, and the need for CARB's future standardized regulatory impact assessments (SRIA) and environmental impact analyses (EIA) to fully evaluate costs, grid readiness, infrastructure constraints, and upstream and downstream environmental impacts.

We look forward to continuing to work with CARB throughout this important process. Our detailed comments are provided below:

1. **CARB must quantitatively assess lifecycle GHG ZEV emissions, including assessments of upstream and downstream impacts.**

   As an initial matter, CARB cannot adequately evaluate the impact of its proposal without conducting a full lifecycle assessment (LCA) that covers production, operation, and downstream stages (including vehicle and battery disposal). The term "zero-emission vehicle" is not accurate, as it refers only to tailpipe emissions and does not account for the full spectrum of emissions associated with such vehicles. In reality, "ZEVs" are only zero-*tailpipe* emissions vehicles. When considered from a life cycle perspective, ZEVs generate substantial greenhouse gas emissions during battery manufacturing, critical mineral extraction, and electricity generation. Additionally, ZEVs may produce higher levels of non-exhaust PM emissions from tire wear and road dust resuspension due to their increased vehicle weight. It would be arbitrary to deliberately exclude these known emissions that are caused by a regulation that forces ZEV market penetration.

   The California Environmental Quality Act (CEQA) requires CARB to assess regulatory alternatives in light of their cumulative impacts.[4] To comply with this requirement, CARB must conduct an LCA of ZEVs in order to understand and evaluate significant impacts. In addition, California Health and Safety Code (HSC) § 57005 requires CARB to consider any less costly but equally effective alternatives. CARB cannot perform this analysis without an LCA of ZEVs.

   A LCA is also critical to meeting other statutory requirements. CARB has a responsibility to minimize the "leakage" potential of any regulatory activities, pursuant to HSC § 38562(b)(8). As part of this responsibility, CARB must analyze the potential for emissions reduction activities in the state to be offset by an equivalent or greater increase in GHG emissions outside the state. This analysis requires estimating emissions impacts outside the state *from a lifecycle perspective*. These GHG emissions, as contrasted with criteria or toxic air pollutants, result in cumulative impacts on a global scale. CARB must adequately account for upstream and downstream emissions associated with ZEVs in order to fulfill this statutory obligation.

   Consistent with these requirements, CARB should redevelop future vehicle GHG standards based on a lifecycle GHG emissions framework rather than focusing solely on tailpipe emissions metrics. A lifecycle-based approach would account for the full range of upstream and downstream emissions associated with fuels and vehicles, including critical mineral mining and battery manufacturing and disposal, and other relevant supply chain impacts. Such an approach would ensure that regulatory requirements are designed to achieve real, system-wide net GHG reductions rather than only reducing tailpipe emissions, and would better align the standards with the broader stated objective of minimizing transportation emissions.

   CARB's current proposal fails to account for these broader emissions impacts. For instance, CARB is proposing to create a "ZEV0" emission bin – however, this "bin" is fundamentally flawed because it treats vehicles with zero-*tailpipe* emissions as having *no* emissions, and does not account for the lifecycle GHG emissions associated with existing ZEV technologies, including battery electric vehicles

[4] Cal. Code Regs., tit. 14, § 15130.

(BEVs). By defining GHG emissions performance solely based on tailpipe emissions, CARB's proposed approach fails to accurately represent the total GHG impacts of these vehicles across the vehicle and energy lifecycle, and therefore overstates the climate benefits of ZEVs. Studies have shown that, although the tailpipe emissions of BEVs may be negligible, these vehicles still have significant environmental impacts across their lifetime, from the extraction and processing of raw materials for batteries to the different methods of hydrogen production, and non-exhaust emissions (NEEs) from vehicle operation.[5,6] For example, a recent study has shown that the upstream GHG emissions from lithium-ion BEV manufacturing is approximately 40 percent more than internal combustion engine vehicles (ICEVs).[7]

Instead, CARB should establish a clear lifecycle accounting framework, including defined system boundaries and consistent methodologies, to enable transparent and comparable evaluation of total GHG impacts across different vehicle technologies and energy pathways. Many different methods of LCA exist, and therefore data availability or methodological challenges should not be used as a basis for limiting GHG assessments to tailpipe emissions alone. WSPA recommends that CARB open a formal review process, including to collect technical information, for evaluation and consideration.

2. CARB should ensure that its proposed requirements are technologically and economically feasible across a diverse mix of vehicle and fuel technologies, rather than reliance on a ZEV-only pathway.

CARB is required to consider multiple technologies and fuels in evaluating requirements under the Drive Forward LDV Program. Under California Government Code § 11346.2(b)(4)(A), when CARB proposes a regulation that would mandate the use of specific technologies or equipment, or prescribe specific actions or procedures, it must consider performance standards as an alternative. Similarly, CEQA requires CARB to assess "a reasonable range of alternatives to the proposed project, which could feasibly attain most of the project objectives but could avoid or substantially lessen any of the identified significant impacts."[8] CEQA Guidelines further specify that, in developing regulatory alternatives, agencies must consider alternatives "which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives."[9]

CARB's current proposal includes several requirements that would effectively mandate the use of ZEVs and therefore operate as a technology mandate:

- **NMOG+NOx fleet-average standards**: The proposed NMOG+NOx fleet-average standards would require significant emissions decreases from current requirements, requiring a substantial portion of ZEV sales shares even if all ICEVs in the fleet could be certified to the highest emissions standards.
- **Fleetwide GHG standard**: The proposed GHG standard would require a two- to three-fold improvement in overall vehicle efficiency within the next decade, which may only be achievable through prescribed levels of ZEV deployment.
- **"ZEV minimum" and "crediting" requirements**: CARB's ZEV minimum concept and exclusion of ZEVs from the GHG compliance and crediting framework unreasonably favor ZEVs compared to other low-emission technologies.

These proposed requirements are discussed in further detail below.

In addition, CARB must ensure that its proposed requirements are economically and technologically feasible based on real-world data and market trends. CARB's proposal would require a substantial increase in ZEV sales percentages, which may not be achievable on the timescale contemplated by

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5 Gentilucci et al. Life cycle greenhouse gas emissions of diesel oil and zero-emission trucks: Systematic review of status and perspectives. 2025. Available at: https://www.sciencedirect.com/science/article/pii/S2590198225002428. Accessed: July 2026.

6 Carlos Agudelo, Zisimos Toumasatos, Zixuan Gong, Systematic Review of Brake, Tire, and Road Wear Emissions for On-Road Light- and Heavy-Duty Vehicles. CRC E-143 Final Report. Available at: https://crcao.org/wp-content/uploads/2025/11/CRC-E-143-4th-Final-Report-ZT-CA-FINAL.pdf. Accessed: July 2026.

7 Pablo Busch, Yunzhu Chen, and Alissa Kendall, "Life Cycle Performance and Carbon Handprint of Lithium-Ion Batteries in Electric Vehicles," Journal of Industrial Ecology (2026), https://doi.org/10.1007/s44498-026-00112-1. Accessed: July 2026.

8 Cal. Code Regs., tit. 17, § 60004.2.

9 Cal. Code Regs., tit. 14, § 15126.6(b).

the regulation. Therefore, in evaluating feasible regulatory pathways, CARB must account for current ICEV market shares and additional factors impacting ZEV market shares, including electric vehicle affordability concerns and ongoing infrastructure challenges. Assumptions grounded in real-world data are critical for identifying feasible emission reduction strategies and pathways that can deliver actual, measurable reductions for both GHGs and criteria pollutants.

A. NMOG+NOx Fleet-Average Standards

CARB is proposing NMOG+NOx fleet-average standards that are substantially more stringent than current requirements.[10] Specifically, for LDVs, the proposed standards would be 27 percent lower in model year (MY) 2031 and 60 percent lower in MY 2038 than the current standards; for medium-duty vehicles (MDVs), the proposed standards would be approximately 44 percent lower for Class 2b vehicles and 60 percent lower for Class 3 vehicles in MY 2038 than the current standards. Although these standards are described as "technology-neutral," such a significant emission reduction would likely be achievable only through the inclusion of a large fraction of ZEVs in the fleet mix.

For the LDV standard, **Table 1** and **Figure 1** illustrate the range of required ZEV sales fractions that would be required to comply with CARB's range of proposed fleet-average standards for NMOG+NOx. Even if all ICEVs in the fleet were certified to the lowest emissions bin (SULEV20), the fleet would still require ZEV sales share of 42 percent to meet the proposed 12 milligram per mile (mg/mi) standard for MY 2038 LDVs in **Table 1**. Conversely, if all ICEVs in the fleet were certified to the highest emissions bin (ULEV70), the fleet would require a ZEV sales share of at least 84 percent to meet CARB's proposed standards for MY 2038 LDVs. Given these minimum ZEV shares, the LDV standard effectively operates as a technology mandate.

However, achieving a ZEV market share of even 42 percent may not be achievable within the required timeframe. As shown in **Figure 1**, the proposed LDV ZEV sales share requirements are substantially higher than projected combined sales of ZEV and Plug-In Hybrid Vehicles (PHEV) of 15.7 percent in 2026. **Figure 2** furthermore illustrates that the combined sales of ZEV and PHEV has slowed in recent years, plateauing in 2023-2024 before declining in 2025 and 2026. Given these market trends, CARB must analyze whether the ZEV sales percentages required to meet its proposed NMOG+NOx fleet-average standards for LDVs are feasible, considering known barriers related to consumer adoption, infrastructure readiness, electricity supply, hydrogen availability, and other market factors that may impact future ZEV deployment.

Table 1. LDV Fleet Mix Scenarios to Achieve the Proposed Drive Forward NMOG+NO_x Fleet Average Standards

Model Year	Proposed Drive Forward Standard (mg/mi)	Minimum ZEV Requirement: Assume only SULEV20 and ZEV Vehicles in Fleet			Maximum ZEV Requirement: Assume only ULEV70 and ZEV Vehicles in Fleet		
		SULEV20 Fraction	ZEV Fraction	Fleet Average (mg/mi)	ULEV70 Fraction	ZEV Fraction	Fleet Average (mg/mi)
2031	22	100%	0%	20	30%	70%	22
2032	19	95%	5%	19	26%	74%	19
2033	17	84%	16%	17	23%	77%	17
2034	16	79%	21%	16	22%	78%	16
2035	15	74%	26%	15	20%	80%	15
2036	14	68%	32%	14	19%	81%	14
2037	13	63%	37%	13	17%	83%	13
2038	12	58%	42%	12	16%	84%	12

[10] CARB. Public Workshop on Drive Forward Light-Duty Vehicle Program, Slides 14 and 19. June 22, 2026. Available at: ww2.arb.ca.gov/sites/default/files/2026-06/2026_06_22_Workshop_Presentation_ADA_English_Approved_3.pdf. Accessed: July 2026.

Figure 1. LDV ZEV Penetration Scenarios[11]

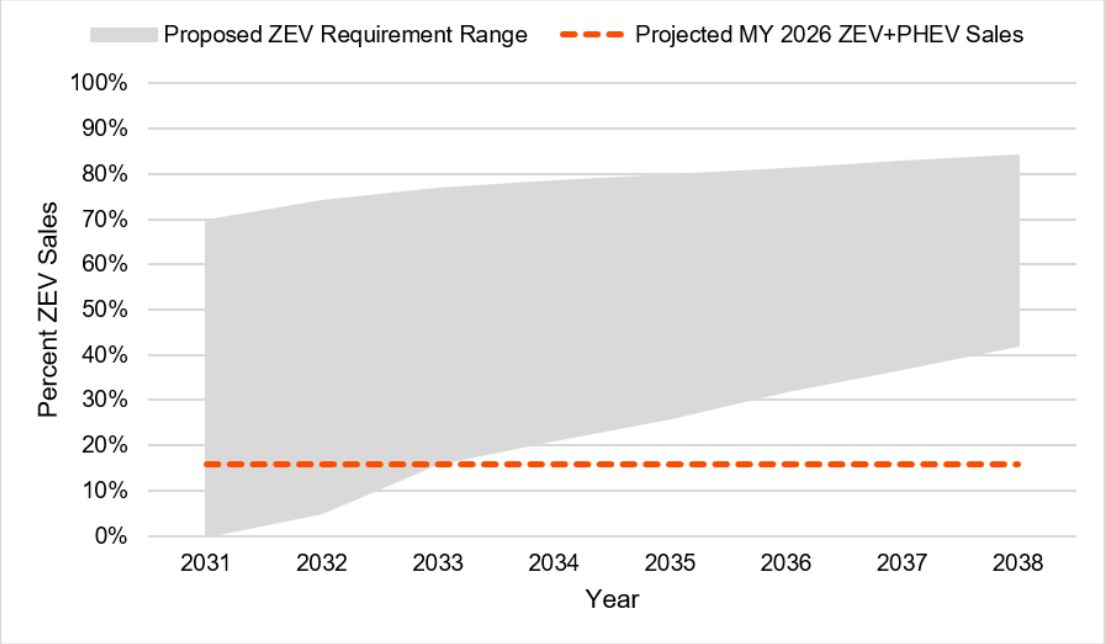
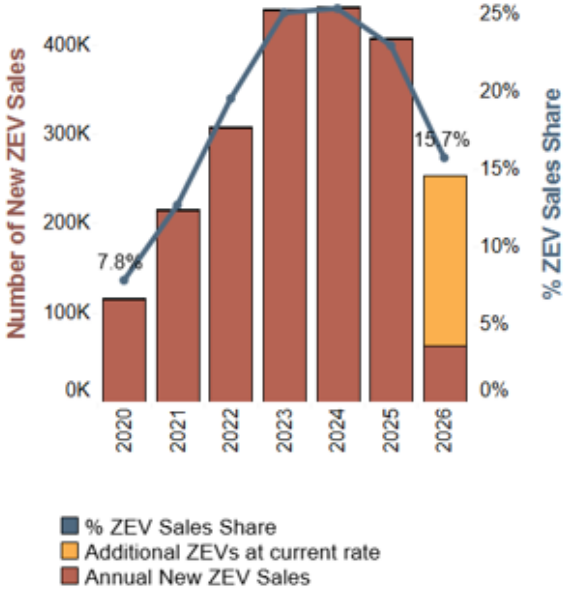


Figure 2. LDV ZEV+PHEV Sales Share in California[12]



For MDV standards, **Table 2** and **Figure 3** illustrate the range of required ZEV sales fractions that would be required to comply with CARB's range of proposed fleet-average standards for NMOG+NOx. If all ICEVs in the fleet mix are certified at the highest emission bin (ULEV170), the fleet mix would require 41 percent ZEVs in MY 2038 to meet CARB's proposed standard for Class 2b & 3 vehicles **(Table 2)**. While these standards could theoretically be achieved without additional ZEV sales if all the ICEVs in the fleet were certified to the lowest emissions bin (SULEV50) (**Table 2**), CARB has not shown that the new certification bins for the Class 3 vehicles are technologically feasible. The new NMOG+NOx emission bins for the Class 3 vehicles range from 50 to 170 mg/mi, but the current lowest emission bin for Class 3 vehicles is 200 mg/mi.

If meeting the proposed lower emission bins is not technologically feasible, the fraction of ZEVs

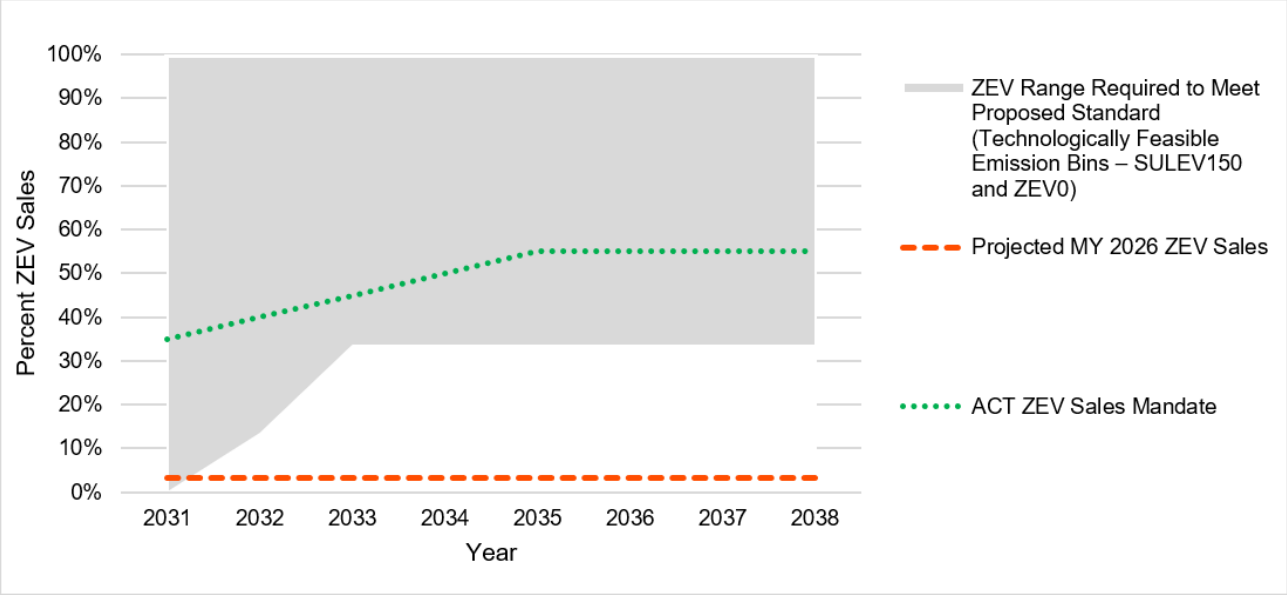
[11] Projected ZEV + PHEV sales. Available at: https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection/new-zev. Accessed: July 2026.
[12] California Energy Commission. 2026. New ZEV Sales in California. Available at: https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics-collection/new-zev. Accessed: July 2026.

needed to achieve these proposed fleet average standards for Class 3 vehicles would be 100 percent. Assuming that only the current certification bins are technologically feasible, the manufacturers would have to use the SULEV170, SULEV150, and ZEV0 bins to meet the proposed standard, and the range of ZEV penetration required would dramatically increase as illustrated in **Figure 3**. This figure further shows that the required ZEV penetration would be significantly greater than CARB estimated ZEV sales percentage for Class 2b and 3 vehicles in 2026[13] and ACT sales requirements[14] throughout much of the compliance period. Therefore, CARB must provide additional technical evidence demonstrating that proposed Class 2b and 3 vehicles certification bins are technologically feasible.

Table 2. MDV Fleet-Mix Scenarios to Achieve the Proposed Drive Forward NMOG+NO_x Fleet Average Standard

Model Year	Proposed Drive Forward Standard (mg/mi)	Minimum ZEV Requirement: Assume only SULEV50 and ZEV Vehicles in Fleet			Maximum ZEV Requirement: Assume only ULEV170 and ZEV Vehicles in Fleet		
		SULEV50 Fraction	ZEV Fraction	Fleet Average (mg/mi)	ULEV170 Fraction	ZEV Fraction	Fleet Average (mg/mi)
2031	170	100%	0%	50	100%	0%	170
2032	130	100%	0%	50	76%	24%	130
2033	100	100%	0%	50	59%	41%	100
2034	100	100%	0%	50	59%	41%	100
2035	100	100%	0%	50	59%	41%	100
2036	100	100%	0%	50	59%	41%	100
2037	100	100%	0%	50	59%	41%	100
2038	100	100%	0%	50	59%	41%	100

Figure 3. MDV ZEV Penetration Scenarios[15]



WSPA's analysis indicates that CARB's proposed LDV and MDV NMOG+NO_x fleet-average standards could potentially require significant increases of ZEVs sales. These ZEV-reliant compliance pathways would face known barriers related to consumer adoption, infrastructure readiness, electricity supply, hydrogen availability, and other market factors. Given these issues, CARB must

[13] Estimated using EMFAC2025.
[14] CARB. 2024. Advanced Clean Trucks – Final Regulation Order. Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fww2.arb.ca.gov%2Fsites%2Fdefault%2Ffiles%2Fbarcu%2Fregact%2F2024%2Factzepcert%2Ffro.docx&wdOrigin=BROWSELINK. Accessed: July 2026.
[15] MY 2026 Projected ZEV Sales. Available at: https://emfac.arb.ca.gov/. Accessed: July 2026.

demonstrate how various feasible fleet mix scenarios can realistically be used to achieve these emissions standards while considering vehicle technology and fueling infrastructure readiness. In evaluating feasibility, CARB must provide transparent data on assumptions used to model future emissions targets, particularly regarding cost, ZEV adoption, and infrastructure.

B. Fleetwide GHG Standard

CARB is proposing tailpipe GHG standards that would require the same fleet-average emission level in MY 2038 as those established in the U.S. Environmental Protection Agency's (EPA) 2024 Multi-Pollutant Emissions Standards for LDV and MDV,[16] noting that the federal GHG standards have since been repealed and are no longer in effect.[17] Following the repeal of the federal GHG standards, vehicle manufacturers have adjusted their ZEV deployment plans, which also reflects broader consumer-driven market conditions and cost considerations, infrastructure availability, and evolving policy signals across other major global markets.[18,19,20,21] Specifically in California, the projected sales of new ZEVs and PHEVs in 2026 were 15.7 percent, as we have noted in Comment 2.A above. Consequently, continuing to use the repealed EPA standards as a benchmark does not reflect current market realities or the direction of the automotive industry, and therefore provides limited technical justification for establishing meaningful vehicle GHG requirements. WSPA recommends that CARB fundamentally reevaluate and redevelop the proposed GHG standards.

Additionally, while the proposed GHG standard may be theoretically achievable under a scenario without significant ZEV adoption, where the entire LDV and MDV fleet achieves the lowest possible tailpipe carbon dioxide (CO_2) emission rates and is certified in the most stringent emission bins, as presented in slide 49 of CARB's June 2026 workshop presentation,[22] WSPA emphasizes that this scenario assumes maximum tailpipe CO_2 emission rates of only 75.6 grams per mile (g/mi) for cars and 110.1 g/mi for trucks in MY 2038. However, as shown in slide 46 of CARB's presentation,[23] the current tailpipe CO_2 emission rates of non-BEV vehicles remain just below 250 g/mi. Because tailpipe CO_2 emissions are directly associated with fuel consumption, CARB's proposal effectively assumes a two- to three-fold improvement in overall vehicle efficiency within the next decade. WSPA believes that such a substantial improvement in engine and vehicle efficiency lacks sufficient technical justification and is not supported by demonstrated technology pathways or historical rates of efficiency improvement. To the extent compliance is only achievable through certification to the cleanest emission standards or prescribed levels of ZEV deployment, the proposed requirements raise concerns that they are substantially the same as previously adopted and repealed ZEV mandates – which most vehicles on the market, and demanded by consumers, cannot meet.

C. "ZEV Minimum" and "Crediting" Requirements

CARB's proposed ZEV minimum concept appears to distinguish ZEVs from other low-emission technologies and could function similarly to ACC II by separating ZEVs from LEVs for compliance purposes. This contradicts CARB's claim in the June 2026 workshop that the proposed standards are "technology neutral."

Additionally, CARB's current approach of excluding ZEVs from the GHG compliance and crediting framework is based on the assumption that zero-tailpipe emissions are equivalent to zero GHG

[16] EPA. Multi-pollutant emissions standards for model years 2027 and later light-duty and medium-duty vehicles. 2024. Available at: https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf. Accessed: July 2026.

[17] EPA. Final Rule: Rescission of the Greenhouse Gas Endangerment Finding and Motor Vehicle Greenhouse Gas Emission Standards Under the Clean Air Act. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-rescission-greenhouse-gas-endangerment. Accessed: July 2026.

[18] Ford retreats from EVs, takes $19.5 billion charge as Trump policies grip industry. Available at: https://www.reuters.com/business/autos-transportation/ford-retreats-evs-takes-195-billion-charge-trump-policies-take-hold-2025-12-15/. Accessed: July 2026.

[19] Stellantis scraps Jeep, Chrysler plug-in hybrid vehicles amid EV slowdown, recall. Available at: https://www.cnbc.com/2026/01/09/stellantis-scraps-jeep-chrysler-phevs-amid-ev-slowdown-recall.html. Accessed: July 2026.

[20] VW to stop making its top electric vehicle in the US. Available at: https://www.reuters.com/business/autos-transportation/vw-stop-making-its-top-electric-vehicle-us-2026-04-09/. Accessed: July 2026.

[21] Proposal for a Regulation of The European Parliament and of The Council amending Regulation (EU) 2019/631 as regards CO2 emission performance standards for new light duty vehicles and vehicle labelling and repealing Directive 1999/94/EC. 2026. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52025PC0995. Accessed: July 2026.

[22] CARB. Public Workshop on Drive Forward Light-Duty Vehicle Program. June 22, 2026. Available at: ww2.arb.ca.gov/sites/default/files/2026-06/2026_06_22_Workshop_Presentation_ADA_English_Approved_3.pdf. Accessed: July 2026.

[23] Ibid.

emissions. However, this assumption does not accurately reflect the lifecycle GHG impacts of ZEV technologies, which have associated upstream emissions from electricity generation, battery production, and vehicle manufacturing. As explained in Comment 1 above, WSPA recommends that CARB redevelop vehicle GHG standards, if at all, based on a lifecycle GHG emissions framework.

Once CARB adopts a lifecycle GHG-based standard for new vehicles that accounts for emissions across the full vehicle and energy lifecycle, there would no longer be a need to treat ZEVs as a separate category or exclude them from the compliance and crediting system. Instead, all vehicle technologies should be evaluated based on their actual lifecycle GHG emissions performance, creating a technology-neutral and level playing field for all manufacturers. Compliance credits should be awarded based on verified lifecycle GHG emissions reductions rather than the use of a specific technology classification.

3. WSPA is concerned that the proposed PM standards are too stringent and may not be achievable by current vehicle technologies.

CARB's proposed new emission standard for PM is 0.5 mg/mi for all LDV and MDV in 2031. This is substantially the same as EPA's current 2024 Tier 4 emissions standards. However, compliance deadlines for existing federal tailpipe standards were recently extended for two years due to concerns about market conditions and unrealistic compliance timelines.[24,25] Additionally, EPA intends to comprehensively reconsider the Tier 4 emissions standards program. The reconsideration may include changes to the Tier 4 standards, implementation dates, phase-in schedules, and test procedures. Therefore, CARB must fully consider market conditions and the technical feasibility of its proposed standard, clearly disclose the underlying assumptions used to determine the feasibility of this standard, and provide analysis that is supported by real-world evidence.

CARB should also evaluate whether the incremental reductions expected from a 0.5 mg/mi tailpipe PM standard would be cost-effective relative to other PM control strategies. As tailpipe PM emissions from on-road vehicles have continued to decline, a growing share of vehicle-related PM emissions is attributable to non-exhaust emission sources, including brake wear, tire wear, and road dust resuspension.[26] Therefore, requiring large, infeasible reductions in tailpipe PM emissions may impose substantial cost impacts on manufacturers and consumers. CARB should compare the cost-effectiveness of further tailpipe PM reductions against strategies that directly address NEE sources, such as brake wear, tire wear and road dust resuspension, which may provide a more effective pathway for reducing real-world overall vehicle PM impacts. As discussed further in Comment 4 below, CARB should expand its NEE framework to include tire wear and road dust resuspension so that the Drive Forward Program targets the most meaningful and measurable sources of vehicle-related PM emissions.

4. CARB should revise its assessment of NEE to address variability among vehicles and to account for NEE sources from tire wear and road dust resuspension.

WSPA appreciates CARB's proposal to develop separate brake wear NEE standards for vehicles with and without regenerative braking, which is a critical first step to correctly recognize the different emission impacts between ZEVs and ICEVs. However, WSPA urges CARB to update its analysis to account for issues in obtaining representative measurements for brake wear emissions, such as a variability in brake wear measurement methods and limited real-world data for newer vehicle technologies.[27] There have been large discrepancies between emission factors measured in closed laboratory settings and in emissions inventories. A recent study released by CARB found that on-road brake emission factors for city driving were higher than PM emission estimates using the

[24] EPA. EPA proposed to delay unattainable Biden-era vehicle standards, projecting $1.7 billion in savings. 2026. Available at: https://www.epa.gov/newsreleases/epa-proposes-delay-unattainable-biden-era-vehicle-standards-projecting-17-billion. Accessed: July 2026.

[25] EPA. Fact Sheet: EPA Delays Unattainable Biden-era Tier 4 Criteria Pollutant Standards for Light-Duty and Medium-Duty Vehicles. 2026. Available at: https://www.epa.gov/system/files/documents/2026-05/420f26009.pdf. Accessed: July 2026.

[26] Carlos Agudelo, Zisimos Toumasatos, Zixuan Gong, Systematic Review of Brake, Tire, and Road Wear Emissions for On-Road Light- and Heavy-Duty Vehicles. CRC E-143 Final Report. Available at: https://crcao.org/wp-content/uploads/2025/11/CRC-E-143-4th-Final-Report-ZT-CA-FINAL.pdf. Accessed: July 2026.

[27] Agudelo, C. et al. Systematic Review of Brake, Tire, and Road Wear Emissions for On-Road Light- and Heavy-Duty Vehicles. 2025. Available at: https://crcao.org/wp-content/uploads/2025/11/CRC-E-143-4th-Final-Report-ZT-CA-FINAL.pdf. Accessed: July 2026.

California Brake Dynamometer Cycle (CBDC) cycle by two to five times, largely due to higher braking intensity, which points to the need to re-evaluate this dynamometer cycle test to better replicate real-world conditions.[28] CARB should continue to evaluate this matter and provide evidence that its proposed UN GTR 24 and CBDC testing procedures are representative and reproducible for a range of California vehicles with different brake systems, driver behavior, and vehicle calibration, and under a range of conditions including temperature, wind, road turbulence, road grade, speed, and location.

Additionally, CARB indicated that it does not intend to include tire wear or road dust resuspension in its evaluation of NEE PM standards. WSPA disagrees with this decision as there is a strong body of evidence indicating that these sources are significant contributors to NEE PM emissions. Across many studies and emissions inventories, total suspended particles (TSP) from tire wear are comparable to, if not greater than, brake wear for passenger and light-commercial vehicles. For instance, a recent study released by CARB found that tire wear emissions account for 4 to 16 percent of measured PM.[29] This study has also shown that chemical source apportionment and on-road tire sampling can be promising and feasible measurement approaches for tire wear emissions. Similarly, for road dust resuspension, existing studies have found "a positive relationship… between vehicle mass and non-exhaust emissions…for PM derived from dust resuspension (e.g., an electric vehicle with a 20% higher mass than two internal combustion engine vehicles had 25 to 30% higher tire abrasion)."[30]

CEQA requires CARB to assess regulatory alternatives considering their indirect and cumulative impacts (Cal. Code Regs., tit. 14, § 15130), particularly where human health and safety may be affected.[31] In the European Union, the Euro 7 Regulation addresses NEE requirements by establishing requirements for both brake wear and tire wear.[32] WSPA therefore continues to urge CARB to expand its analysis beyond brake wear alone to fully account for NEE sources, including emissions associated with tire wear and road dust resuspension. Without including these emissions, any comparison of NEE profiles between ZEVs and ICEVs may be misleading.

5. WSPA supports CARB's proposal to update the battery label and window sticker requirements for ZEVs as a consumer protection measure and urges CARB to expand these protections.

WSPA supports CARB's proposal to update the ZEV window sticker as a consumer protection measure and appreciates CARB's incorporation of stakeholder feedback on this issue. Providing consumers with accurate and transparent information is essential to enable informed vehicle purchasing decisions and to maintain confidence in the ZEV market.

However, WSPA urges CARB to expand its proposal to ensure that consumers of ZEVs have complete information. In particular, WSPA recommends that CARB include a range of the estimated annual electricity costs for ZEVs on the window sticker, in alignment with standards for ICEV fuel costs, based on the lowest to highest range of kilowatt hour electricity rates approved across the state. In addition, other vehicles achieving comparable emissions reductions should be eligible for similar consumer disclosures to maintain consistency and fairness, including advanced lower-emission ICEV technologies, renewable fuels, and hybrid systems. Further, WSPA continues to recommend that CARB carefully evaluate its claim on the draft window sticker that "[z]ero-emission vehicles reduce harmful emissions that cause climate change and air pollution," to ensure that this statement accounts for the upstream GHG emissions from electricity and battery production and the existence of other pathways that can achieve meaningful emissions reductions. As such, every ZEV

[28] CARB. Characterization of tire-wear and brake-wear PM emissions under on-road driving conditions. 2026. Page 118. Available at: https://ww2.arb.ca.gov/sites/default/files/2026-02/II.7%20-%20CARB%202022RD002_Draft%20Final%20Report%20v2_011926.pdf. Accessed: July 2026.

[29] *Id.* at 15.

[30] Carlos Agudelo, Zisimos Toumasatos, Zixuan Gong, Systematic Review of Brake, Tire, and Road Wear Emissions for On-Road Light- and Heavy-Duty Vehicles. CRC E-143 Final Report. Page 142. Available at: https://crcao.org/wp-content/uploads/2025/11/CRC-E-143-4th-Final-Report-ZT-CA-FINAL.pdf. Accessed: July 2026.

[31] *See* Cal. Building Indus. Ass'n v. Bay Area Air Quality Mgmt. Dist., 62 Cal. 4th 369, 386 (2015); Cal. Pub. Res. Code § 21083(b)(3).

[32] Regulation (EU) 2024/1257 of the European Parliament and of the Council of 24 April 2024 on Type-Approval of Motor Vehicles and Engines and of Systems, Components and Separate Technical Units Intended for Such Vehicles, with Respect to Their Emissions and Battery Durability (Euro 7). 2024. Available at: https://eur-lex.europa.eu/eli/reg/2024/1257/oj/eng. Accessed: July 2026.

should have a corresponding upstream footprint profile accessible to owners and included on the window sticker.

WSPA supports these measures to increase transparency, including the potential for these costs to be passed on to consumers. CARB must include such increases in costs in all analyses of ZEV affordability.

6. In developing its SRIA and EIA, CARB must account for upstream and downstream environmental impacts of battery manufacturing and disposal, include cost assumptions for ZEVs and PHEVs at each stage of the analysis, and assess the feasibility of grid electricity and hydrogen supply in California.

CARB's future performance-based targets must account for current obstacles to ZEV adoption, including rising costs of electricity[33] and hydrogen, limitations in expanding grid capacity and hydrogen supply, lag in development of charging infrastructure, global BEV production slowdown,[34] tariff increases, and critical mineral limitations. CARB must ensure that the costs of different scenarios that achieve the proposed standards are presented transparently.

WSPA urges CARB to consider how these technology forcing standards as outlined during the June 2026 Drive Forward workshop fit into the larger affordability debate, the impact to consumers, and how these standards may affect on-going work to develop medium term fuel transition planning. Vehicle standards developed to drive the adoption of zero-tailpipe emission technology beginning in 2031 may alter the transportation energy and fuel market in California including further in-state refinery rationalization. CARB should conduct an analysis of, and disclose total cost estimates to, California consumers through both electricity and fuel costs over the lifetime of this rule.

7. CARB must ensure that it does not exceed its regulatory authority in enacting proposed LDV requirements.

WSPA cautions CARB against promulgating new requirements that would effectively ban the sale of any vehicle category in California, such as ICEVs, by requiring accelerated deployment of electric vehicles. Executive Order N-27-25 makes clear that California seeks to maximize ZEV investments and phase out ICEVs, directing CARB to "immediately assess additional actions to advance progress on light-, medium-, and heavy-duty zero-emission vehicle adoption in California" and to incentivize vehicle manufacturers to continue following the requirements of the ACC II program, even though this program is currently defunct. Consistent with the Executive Order's explicit focus on ZEVs, CARB's June 2026 workshop indicates that CARB is seeking to deploy as many ZEVs as legally permissible through this rulemaking, at the expense of other technologies.[35]

Any attempt by CARB to phase out ICEVs would violate fundamental separation of powers principles and basic administrative law. Assigning CARB sweeping power to transform the California economy, including the state's transportation and energy industries, requires, at a minimum, a clear statement of authorization from the Legislature. Yet, the June 2026 workshop demonstrates that CARB is seeking to phase out ICEVs pursuant to Executive Order N-27-25, rather than any explicit legislative authorization. None of the statutes generally charging CARB with adopting regulations to address air quality authorize CARB to completely reshape the automotive industry by banning the most prevalent type of vehicle on California's roads. Instead, these statutes grant CARB lesser and more prescribed powers regarding certain, specific aspects of ICEVs. The California Legislature has already contemplated and rejected legislative attempts to ban ICEVs altogether.[36] If CARB proceeds with any

[33] PAO. Q1 2026 Electric Rates Report. March 2025. Available at: https://publicadvocatesa.cpuc.ca.gov/-/media/cal-advocates-website/files/press-room/reports-and-analyses/260430-public-advocates-office-q1-2026-electric-rates-report.pdf. Accessed: July 2026.

[34] BloombergNEF. BloombergNEF's Electric Vehicle Outlook 2026: Global EV Sales Set For Another Record-Breaking Year, But Growth in Some Major Markets Slows. June 16, 2026. Available at: https://about.bnef.com/insights/clean-transport/bloombergnefs-electric-vehicle-outlook-2026-global-ev-sales-set-for-another-record-breaking-year-but-growth-in-some-major-markets-slows/. Accessed: July 2026.

[35] CARB. Public Workshop on Drive Forward Light-Duty Vehicle Program. June 22, 2026. Available at: ww2.arb.ca.gov/sites/default/files/2026-06/2026_06_22_Workshop_Presentation_ADA_English_Approved_3.pdf. Accessed: July 2026.

[36] Assembly Bill 1745, 2017–18 Reg. Sess. (Cal. 2018), would have prohibited the original registration of non-ZEV vehicles starting in 2040. The Bill did not pass. Available at: https://legiscan.com/CA/text/AB1745/id/1673535.

rule that would phase out ICEVs, CARB would either unlawfully usurp legislative powers or act far beyond what the Legislature has authorized.

In addition, the California Legislature has unequivocally denied CARB the authority to ban any vehicle category, as stipulated in HSC § 43018.5(d)(2):

> The regulations adopted by the state board pursuant to subdivision (a) shall not require any of the following: . . . (2) A ban on the sale of any vehicle category in the state, specifically including, but not limited to, sport utility vehicles and light-duty trucks.

This prohibition applies to CARB's authority to promulgate "regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles."[37]

Further, Section 209(a) of the Clean Air Act (CAA) prohibits states from "adopt[ing] or attempt[ing] to enforce any standard relating to the control of emissions from new motor vehicles."[38] While California may apply for a waiver from EPA allowing it to adopt such standards under CAA Section 209(b),[39] in the absence of such a waiver, the general prohibition applies.[40]

Congress has disapproved, pursuant to the Congressional Review Act (CRA), three federal preemption waivers previously granted to California by EPA under CAA Section 209 (collectively, the Waiver Disapproval Resolutions).[41] These waivers purported to provide CARB with authority to enforce its ACC II, ACT, and Heavy-Duty Vehicle and Engine "Omnibus" Low NOx regulations.[42]

The CRA prohibits adoption of "a new rule that is substantially the same" as a prior, disapproved rule.[43] By disapproving EPA's waiver for ACC II, Congress effectively objected to both a partial and total ZEV mandate, as the ACC II program encompassed both such requirements. CARB is therefore prohibited from adopting ZEV requirements as part of its revised LDV program, which includes any measures that indirectly impose ZEV mandates by making alternatives infeasible. For the same reason, Executive Order N-27-25's directive to CARB to incentivize vehicle manufacturers to continue complying with the now-defunct ACC II requirements would directly violate the CRA's plain language.

In addition, CARB lacks authority to adopt or enforce *any* regulation "related to" fuel-economy standards under EPCA.[44] While the CAA grants California certain leeway to address localized pollution,[45] EPCA's broad preemption provision prevents CARB from adopting such regulations when they are "related to" fuel economy, regardless of any accompanying localized pollution benefits.[46] This provision is also self-executing, meaning that no agency action is necessary for it to be effective.[47]

WSPA appreciates your consideration of these comments and welcomes the opportunity to discuss these concerns in greater detail. WSPA looks forward to working with CARB on these important issues.

Sincerely,



Sophie Ellinghouse
Vice President, General Counsel & Corporate Secretary

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[37] HSC § 43018.5(a).
[38] 42 U.S.C. § 7543(a).
[39] *See* 42 U.S.C. § 7543(b).
[40] *See Central Valley Chrysler-Jeep v. Witherspoon*, 456 F.Supp.2d 1160, 1174 (E.D. Cal. 2006) (emphasizing that "regulations are preempted unless the EPA issues a waiver under section 209(b)").
[41] *See id.* at 1–2. *See also* H.J. Res. 87; H.J. Res. 88; H.J. Res. 89; Statement by the President (June 12, 2025), https://www.whitehouse.gov/briefings-statements/2025/06/statement-by-the-president/.
[42] *See* 42 U.S.C. § 7543 (prohibiting states from "adopt[ing] or attempt[ing] to enforce vehicle emissions standards without a valid waiver").
[43] 5 U.S.C. § 801(b).
[44] *See* 49 U.S.C. § 32919(a). Litigation regarding the effect of EPCA's preemption provision on CARB's ability to adopt ZEV mandates is ongoing, and this issue remains unresolved. *See Union of Concerned Scientists v. NHTSA*, No. 19-1230 (D.C. Cir., filed Oct. 28, 2019) (held in abeyance as of Feb. 8, 2021).
[45] *See* 42 U.S.C. § 7543.
[46] Notably, courts have emphasized that Congress' use of "related to" in a preemption clause establishes a "deliberately expansive" preemption framework. *See Pilot Life Ins. Co. v. Dedeaux*, 481 U.S. 41, 46 (1987); *FMC Corp. v. Holliday*, 498 U.S. 52, 58 (1990).
[47] *See Corporate Average Fuel Economy (CAFE) Preemption*, 86 Fed. Reg. 74,236 (Dec. 29, 2021) (withdrawing NHTSA's former preemption rule).