July 26, 2024

Chair Randolph and Members of the Board
California Air Resources Board
1001 I St.
Sacramento, CA 95814

RE: Amendments to Advanced Clean Cars II

Dear Chair Randolph and Members of the Board:

The undersigned environmental and public health organizations write as a follow-up to our earlier comments on CARB's proposed amendments to Advanced Clean Cars II ("ACC II").[1] As EPA's light-duty vehicle emissions rule has now been finalized, it is clear CARB must act with increased urgency to finalize these amendments with strong greenhouse gas ("GHG") standards for new gas-powered cars and light trucks. **Urgent, strong action is needed especially now because California is falling behind on its 2030 climate goals; the state will need to triple the rate of emissions reductions in coming years to catch up**.[2] This letter provides our recommendations for how CARB can and must adopt a strong, swift pathway to a zero-emissions future and prioritize the needs of environmental justice communities.

Time is slipping away to meet the state's climate goals. CARB must finish its work on the vital ACC II rule proposal as soon as feasible to start in model year 2027. 2029 is too late

California's Greenhouse Gas Standards Should be Stronger Than the Federal Program

California must urgently increase requirements to clean up the new gas-powered vehicle fleet. U.S. EPA recently finalized its light-duty vehicle emissions standards program for model years (MY) 2027-32.[3] Unfortunately that rule was significantly weakened from the earlier proposal the agency had considered, delaying steep cuts in emissions to later years of the rule.[4] This change eased pressure on automakers to introduce cleaner vehicles in the next few years, when they are most needed to confront the climate crisis.

CARB will now add GHG standards to ACC II, as California's current standards are set to expire after 2025. The staff presentation noted that CARB will "consider alignment with EPA where appropriate."[5] But this would be inadequate. CARB needs to *go beyond* the standards in EPA's rule given that the federal rule shifted the draft standards back, delaying much-needed improvements to the gas-powered fleet by several years. CARB's standards must send a clear message to automakers that they must shift to cleaner technology now. Indeed, it is for this reason that our organizations have fought for years for California to maintain its own, stronger emissions control program.

---

[1] Comments from Environmental and Public Health Organizations regarding Amendments to Advanced Clean Cars II (Jan. 15, 2024), https://ww2.arb.ca.gov/form/public-comments/submissions/7906.

[2] See California Green Innovation Index 2023, Next10, *available at* https://greeninnovationindex.org/2023-edition/ (cited by Melody Peterson, California Unlikely to Meet Landmark Goals for Reducing Greenhouse Gas Emissions, Los Angeles Times, (Mar. 16, 2024), https://www.latimes.com/environment/story/2024-03-16/california-behind-on-goals-for-reducing-greenhouse-gases).

[3] U.S. Environmental Protection Agency, Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles (March 2024), *available at* https://www.epa.gov/system/files/documents/2024-03/lmdv-veh-standrds-ghg-emission-frm-2024-03.pdf

[4] *See* Chris Kirkham, Plug in Polluters? How Biden's Emissions Rules Go Soft on Hybrid Trucks, SUVs, Reuters (June 6, 2024), https://www.reuters.com/business/autos-transportation/plug-in-polluters-how-bidens-emissions-rules-go-soft-hybrid-trucks-suvs-2024-06-06/?utm_source=Sailthru&utm_medium=Newsletter&utm_campaign=Auto-File&utm_term=061824&user_email=0c4dab20df7d1c317462160d00c7731bc75b786d825c235150c86bbe3d5f7b44&lctg=6256b9f1fde8f25957e1fe04.

[5] CARB Staff Presentation, November 15, 2023, slide 12, https://ww2.arb.ca.gov/sites/default/files/2023-12/2023_11_15%20ACC%20II%20Amends%20Workshop%20slides_ADAv2.pdf.

Clean car standards are the low-hanging fruit of emissions reductions: clean vehicle technology is proven and cost-effective, yet often underused by automakers.[6] And the state is unlikely to meet its ambitious climate targets unless it makes all possible improvements in the light-duty fleet.

CARB Must Apply the GHG Standards to the Maximum Number of Model Years

CARB has signaled that it does not intend to bring the ACC II amendments to the full Board before summer or fall 2025. CARB has indicated that it will not apply the standards to California vehicles until MY 2029 at the earliest, and possibly 2030 or later. That timeline fails to meet the urgency of the moment and needlessly puts the future of the program in jeopardy. In comments on the original ACC II rule, several of our organizations urged CARB to include significant emissions reductions from new gas-powered cars over the next ten years, yet CARB did not. It is now even more urgent to tighten GHG standards on the gas-powered vehicles that will be sold prior to 2035.

CARB's proposed timeline is unnecessarily slow, bowing to the supposed reluctance of some of the 177 states[7] to quickly adopt the amendments. This delay is unwarranted and increases the threats rising temperatures pose to Californians. Indeed, California's progress on implementing ACC II.5 will provide encouragement to 177 states to follow our state's lead. Though automakers take several years to design and manufacture new models, they have been put on notice from the adoption of ACC II that the state would be moving quickly toward a zero-emission future. The adoption of EPA's GHG standards this spring gave further notice that they would have to reduce GHG emissions from their gas-powered fleets. Automakers have had many years to make their vehicle fleets cleaner with proven, cost effective, on-the-shelf technologies.

CARB should not delay the application of these amendments to California out of a perceived need to wait for the 177 states. A lockstep coalition of California and the 177 states acting in perfect synchronous fashion to adopt these amendments is not legally required. States may adopt California's regulations after they have already taken effect in California, and indeed, that is already happening with ACC II. In 2022, states that chose to implement California standards could begin the program a year after the ACC II rule went into effect and merely start with a later model year at the original level of stringency.[8] For example, while the regulation will take effect in 2026 in California, in states like Colorado, Maryland, Delaware, New Mexico, and Rhode Island, the first applicable model year will not be until 2027.[9] This staggered adoption has already occurred for other regulations from California, such as the Zero-Emission Vehicle

[6] EPA, 2023 Automotive Trends Report, Executive Summary at ES-8, *available at* https://www.epa.gov/automotive-trends.

[7] Section 177 of the Clean Air Act authorizes other States to choose to adopt California's standards in lieu of federal requirements.

[8] Kathy Harris, *Clean Car Rules: What they Mean for States*, NRDC, (Oct. 5, 2022), https://www.nrdc.org/bio/kathy-harris/clean-car-rules-what-they-mean-states.

[9] California Air Resources Board, States that Have Adopted California's Vehicle Regulations (last updated June 2024), https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/states-have-adopted-californias-vehicle-regulations.

regulation and the Low-Emission Vehicle (LEV) greenhouse gas and criteria pollutant regulations.[10]

CARB should not supplement the two years of required lead time for 177 states under the Clean Air Act with additional self-imposed delays. California should push ahead with its own regulatory path, given the urgency of climate change in this state, and allow the 177 states to adopt the identical standards for future model years as soon as is feasible for them.

Critically, every year CARB delays adopting and implementing the rule means significantly more emissions the world—and the people of California—cannot afford. For example, a rule that begins with Model Year 2027 and requires all ICEV sales to be–for instance–Hybrid Electric Vehicles (HEV)s by 2030, would save about 20 MMT CO_2, the equivalent emissions of burning over 2 billion gallons of gasoline.[11] If, instead, the rule starts in MY 2027 and transitions all gas-powered car sales to HEVs by 2035 (when all sales must be ZEVs), it would save about 8 MMT CO_2, an amount equal to the emissions from burning almost a billion gallons of gasoline (Appendix A).[12] The later CARB waits, the more emissions it allows. CARB should not tie its own hands when neither the courts nor the Clean Air Act require that the agency give more than the required lead time to 177 states.

The ACC II Amendments Must Strengthen CARB's Commitment to Equity

CARB should recommit to the vision the Board articulated in 2022 that, "all Californians deserve equitable access to clean air and the benefits of zero-emission technology."[13] ACC II included voluntary environmental justice incentives, but the Board can do more to incentivize clean car technology in disadvantaged communities and for low-income and disadvantaged customers. This is especially imperative given that the current iteration of the Low Carbon Fuel Standard ignores many recommendations of the Environmental Justice Advisory Committee that would improve equity outcomes, among other problems.

Research shows that CARB needs to improve its commitment to low-income Californians. The harmful environmental, health, and economic impacts of aging vehicles disproportionately fall on Latino and Black Californians, lower-income households, and formerly redlined communities, and older gasoline and diesel-powered vehicles significantly contribute to air and climate pollution in these communities.[14] Targeted equity incentives and investments can help to lessen these disparities. We look forward to sharing our specific thoughts about how CARB can recommit to the equity commitments in ACC II.

Conclusion

[10] *Ibid.*

[11] Analysis by John Fleming, Ph.D., Senior Scientist, Center for Biological Diversity, July 2024 (Appendix A).

[12] *Ibid.*

[13] California Air Resources Board, Resolution 22-12 (2022), *available at* https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2022/res22-12.pdf.

[14] Greenlining Institute and Union of Concerned Scientists, Cleaner Cars, Cleaner Air: Replacing California's Oldest and Dirtiest Cars Will Save Money and Lives (June 2023), https://greenlining.org/wp-content/uploads/2023/06/Cleaner-Cars-Cleaner-Air_report.pdf.

The weakening and delay embedded in the federal rule should give CARB cause for alarm. There is no reason why CARB should delay a strong GHG regulation and renewed equity commitments to 2025. Instead, CARB must move fast to adopt a rule that starts in earlier model years.

Time is slipping away to meet the state's climate goals. Those goals are simply incompatible with millions of new gas-burning cars that may stagnate even with the new EPA rule. The health of our communities and our planet is at stake. California must act swiftly to lock in a strong GHG program as soon as possible.

Sincerely,

Maya Golden Krasner
Deputy Director, Climate Law Institute
Center for Biological Diversity

AndreaMarpillero-Colomina
Sustainable Communities Program Director
GreenLatinos

Laura Neish
Executive Director
350 Bay Area

Alan Weiner
Chapter Lead
350 Conejo / San Fernando Valley

Daniel Chandler
Steering Committee Member
350 Humboldt

Katie McCammon
Program Director
350 Sacramento

Lauren Weston
Executive Director
Acterra: Action for a Healthy Planet

Robert van de Hoek
Environmental Scientist
Ballona Institute

Cheryl Auger
President
Ban SUP (Single Use Plastic)

Barbara Sattler
Leadership Council
California Nurses for Environmental Health and Justice

Suzanne Hume
Educational Director and Founder
CleanEarth4Kids.org

Haley Ehlers
Executive Director
Climate First: Replacing Oil & Gas (CFROG)

RL Miller
President
Climate Hawks Vote

Bill Magavern
Policy Director
Coalition for Clean Air

Dee Fromm
Managing Director
Coastal Lands Action Network

Janelle London
Co-Executive Director
Coltura

Bahram Fazeli
Policy Director
Communities for a Better Environment

Marcia Hanscom
Commuinty Organizer
Defend Ballona Wetlands

Todd Weber
Volunteer, Chapter Co-Leader
Elders Climate Action (ECA) Northern California (NorCal) Chapter

Richard Burke
Founder, Chapter Leader
Elders Climate Action (ECA) Southern California (SoCal) Chapter

Dan Silver
Executive Director
Endangered Habitats League

Emily Wurth
Organizing Director
Food and Water Watch

Nicole Ghio
Senior Fossil Fuels Program Manager
Friends of the Earth

Veronica Wilson
CA Organizer
Labor Network for Sustainability

Karen Reside
President
Long Beach Gray Panthers

Matt Leonard
Director
Oil and Gas Action Network

Chance Cutrano
Director of Programs
Resource Renewal Institute

Robert Gould, MD
President
San Francisco Bay Physicians for Social Responsibility

PaulineSeales
Organizer
Santa Cruz Climate Action Network

Ara Marderosian
Board Secretary
Sequoia ForestKeeper

Shoshana Wechsler
Co-Coordinator
Sunflower Alliance

Woody Hastings
Phase Out Polluting Fuels Program Manager
The Climate Center

Doug Linney
Executive Director
ZEV 2030

Appendix A

California Passenger Vehicle Emissions Under Different Hybrid Vehicle Adoption Scenarios

Problem: In 2022, the California Air Resources Board (CARB) finalized its Advanced Clean Cars II (ACC II) Rule, which set the requirement that 100% of new vehicle sales be zero-emission models by 2035. Now, CARB is considering amendments to ACC II that would target emissions from internal combustion engine vehicles (ICEVs) leading up to 2035. One way to target emissions from ICEVs would be to establish benchmarks for hybrid electric vehicle (HEV) uptake, replacing standard ICEVs with HEVs in the lead up to 100% ZEVs (BEVs, FCEVs, and PHEVs) by 2035. This analysis explores various scenarios of HEV adoption and the impact on carbon dioxide emissions.

Scenarios:

- Base Scenario: Starting in 2024, the ratio of hybrid sales to total ICEV sales increases along a trajectory in line with recent annual data. ZEV sales follow the trajectory outlined by CARB to 100% ZEV sales by 2035.
- Scenario 1: Starting in 2024, the ratio of hybrid sales to total ICEV sales increases so that all ICEV sales are hybrids by 2030. ZEV sales follow the trajectory outlined by CARB to 100% ZEV sales by 2035.
- Scenario 2: Starting in 2024, the ratio of hybrid sales to total ICEV sales increases so that all ICEV sales are hybrids by 2035.[15] ZEV sales follow the trajectory outlined by CARB to 100% ZEV sales by 2035.
- Scenario 3: Starting in 2027, the ratio of hybrid sales to total ICEV sales increases so that all ICEV sales are hybrids by 2030. ZEV sales follow the trajectory outlined by CARB to 100% ZEV sales by 2035.
- Scenario 4: Starting in 2027, the ratio of hybrid sales to total ICEV sales increases so that all ICEV sales are hybrids by 2035. ZEV sales follow the trajectory outlined by CARB to 100% ZEV sales by 2035.

Analysis:

Establishing Scenarios

To establish the base scenario, we estimated the annual HEV and ICEV sales (split into HEVs and non-hybrid (NH) ICEVs) and the annual ZEV sales (split into BEVs + FCEVs and PHEVs) using data from 2020 to 2024 to extrapolate to 2035 (Table 1).

- California light-duty vehicle sales from 2020 to 2023 were reported by the California Energy Commission (CEC). Light-duty vehicle sales in 2024 were forecast by the California New Car Dealers Association in its California Auto Outlook. The 2024 forecast of annual sales was assumed to equal the sales in subsequent years through 2035.
- The percent ZEV sales from 2020 to 2023 were determined using CEC data. Percent ZEV sales from 2026 to 2035 were assumed to align with ZEV goals set by ACC II. ZEV percentages for 2024 and 2025 were estimated by interpolating between the 2023 and 2026 values.

[15] In Scenarios 2 and 4, the trajectory of HEV sales leads to all ICEV sales being HEVs by 2035. But, in 2035, all sales are expected to be ZEVs. Therefore, there will be no ICEV sales, HEV or otherwise, in 2035.

- From 2020 to 2024, PHEV sales were about 19% of total ZEV sales (BEVs + FCEVs + PHEVs) on average. This proportion was assumed to hold through 2035.
- From 2020 to 2024, the amount of HEV sales relative to total ICEV sales (HEVs + non-hybrid (NH) ICEVs) increased by about 3% per year, on average. This trend was assumed to hold through 2035 in the base scenario.

Year	BEVs + FCEVs	PHEVs	HEVs	NH ICEVs	Total LDVs
2020	106,946	38,153	113,714	1,605,351	1,864,164
2021	163,465	53,090	155,661	1,338,339	1,710,555
2022	264,579	43,689	143,948	1,129,628	1,581,844
2023	377,787	63,496	195,811	1,126,969	1,764,063
2024	433,490	82,570	237,900	1,076,040	1,830,000
2025	467,977	110,303	262,861	988,859	1,830,000
2026	518,329	122,171	285,480	904,020	1,830,000
2027	636,804	150,096	281,637	761,463	1,830,000
2028	755,279	178,021	269,010	627,690	1,830,000
2029	873,755	205,945	247,599	502,701	1,830,000
2030	1,007,039	237,361	210,816	374,784	1,830,000
2031	1,125,515	265,285	171,288	267,912	1,830,000
2032	1,214,371	286,229	138,348	191,052	1,830,000
2033	1,303,227	307,173	98,820	120,780	1,830,000
2034	1,392,084	328,116	52,704	57,096	1,830,000
2035	1,480,940	349,060	0	0	1,830,000

Table 1: Light-duty vehicle sales from 2020 to 2035. Data for 2020 to 2023 is from the California Energy Commission, while the data for 2024 to 2035 is projected based on past and present sales data and ZEV sales goals of ACC II.

Scenarios 1 - 4 have the same number of BEV, FCEV, and PHEV sales, but different proportions of HEVs relative to NH ICEVs, and different starting years for HEV sales ramp up. Scenarios 1 and 2 start HEV ramp up in 2024 with all ICEVs as HEVs by 2030 and 2035, respectively. Scenarios 3 and 4 start HEV ramp up in 2027 with all ICEVs as HEVs by 2030 and 2035, respectively (Table 2). In all scenarios, the ratio of HEVs to total ICEVs is assumed to increase linearly from the year of initial ramp up to the year of all ICEVs being HEVs.

		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Year	**Total ICEVs**	**HEVs**	**NH ICEVs**	**HEVs**	**NH ICEVs**	**HEVs**	**NH ICEVs**	**HEVs**	**NH ICEVs**
2020	1,719,065	113,714	1,605,351	113,714	1,605,351	113,714	1,605,351	113,714	1,605,351
2021	1,494,000	155,661	1,338,339	155,661	1,338,339	155,661	1,338,339	155,661	1,338,339
2022	1,273,576	143,948	1,129,628	143,948	1,129,628	143,948	1,129,628	143,948	1,129,628
2023	1,322,780	195,811	1,126,969	195,811	1,126,969	195,811	1,126,969	195,811	1,126,969
2024	1,313,940	237,900	1,076,040	237,900	1,076,040	237,900	1,076,040	237,900	1,076,040
2025	1,251,720	456,878	794,842	328,576	923,144	262,861	988,859	262,861	988,859
2026	1,189,500	596,653	592,847	400,861	788,639	285,480	904,020	285,480	904,020
2027	1,043,100	665,706	377,394	429,236	613,864	448,533	594,567	338,334	704,766
2028	896,700	694,763	201,937	435,796	460,904	555,954	340,746	366,570	530,130
2029	750,300	683,823	66,477	420,543	329,757	607,743	142,557	370,080	380,220
2030	585,600	585,600	0	371,856	213,744	585,600	0	338,294	247,306
2031	439,200	439,200	0	311,612	127,588	439,200	0	290,808	148,392
2032	329,400	329,400	0	258,250	71,150	329,400	0	245,922	83,478
2033	219,600	219,600	0	188,527	31,073	219,600	0	182,492	37,108
2034	109,800	109,800	0	102,443	7,357	109,800	0	100,518	9,282
2035	0	0	0	0	0	0	0	0	0

Table 2: Sales of Total ICEVs (HEVs and NH ICEVs) under the Base Scenario and Scenarios 1 - 4.

Estimating CO_2 Emissions

The 2023 EPA Automotive Trends Report noted that real-world CO_2 emissions from passenger vehicles were 359 g/mi in 2023 when excluding EVs, PHEVs, and FCEVs. This has been essentially the case since 2015 with real-world CO_2 emissions consistently about 360 g/mi. It is assumed here that this consistency continues through 2035. Since 359 g/mi is presumably for NH ICEVs and HEVs jointly, we reached out to EPA staff for real-world CO_2 emissions factors specific to NH ICEVs and HEVs separately. Since we wanted to estimate the emissions from all vehicle sources, we inquired about the real-world CO_2 emissions factor for PHEVs as well.

Average real-world CO_2 emissions were about 370 g/mi for NH ICEVs, 245.1 g/mi for strong hybrids, and 173.6 g/mi for PHEVs (A. Hula, U.S. EPA Technology Advisor, personal communication, July 3, 2024). For our analysis, we assumed that all hybrid sales starting in 2024 were strong hybrids. Further, we assumed that the average mileage of a light-duty vehicle is 14,435 miles annually. With these assumptions, we calculated the cumulative emissions under our scenarios from 2024 to 2035 (Eqn. 1):

Eqn. 1: *Model year emissions (mmt) =*

$$\frac{14{,}435\ mi * \{(\#NH\ ICEVs * 370\ g/mi) + (\#PHEVs * 173.6\ g/mi) + (\#HEVs * 245.1\ g/mi)\}}{10^{12}\ g/mmt}$$

Where:
Real-world NH ICEV emissions factor = 370 g/mi
Real-world PHEV emissions factor = 173.6 g/mi
Real-world HEV emissions factor = 245.1 g/mi
Average annual vehicle miles traveled = 14,435 miles

Year	Base Emissions	Scenario 1	Scenario 2	Scenario 3	Scenario 4

2024	6.79	6.79	6.79	6.79	6.79
2025	13.27	12.92	13.16	13.27	13.27
2026	19.41	18.51	19.09	19.41	19.41
2027	24.85	23.25	24.26	24.55	24.75
2028	29.60	27.23	28.71	28.78	29.32
2029	33.67	30.52	32.47	32.21	33.17
2030	37.01	33.19	35.52	34.87	36.28
2031	39.71	35.41	37.97	37.09	38.77
2032	41.94	37.29	39.98	38.98	40.80
2033	43.70	38.84	41.58	40.52	42.42
2034	45.02	40.05	42.81	41.73	43.64
2035	45.89	40.92	43.68	42.61	44.52
Total	**380.86**	**344.92**	**366.00**	**360.82**	**373.15**

Table 3: Cumulative emissions (mmt CO_2) under all scenarios of HEV adoption. Note that the emissions shown in any given year are from that year's sales plus those from all the previous years' sales starting in 2024. It is assumed that all light-duty vehicles sold between 2024 and 2035 will still be on the road in 2035.

Results:

For scenarios 1 and 2 with ramp up starting in 2024, cumulative emissions between 2024 and 2035 are 345 and 366 mmt CO_2, respectively. For scenarios 3 and 4 with ramp up starting in 2027, cumulative emissions between 2024 and 2035 are 361 and 373 mmt CO_2, respectively. All scenarios result in emissions less than those of the base, or business-as-usual, scenario (381 mmt CO_2), but the greatest emissions reductions occur with an earlier ramp up and an earlier deadline for all ICEVs being HEVs:

- Scenario 1: By following a trajectory where all ICEV sales are HEVs by 2030 with ramp up starting in 2024, about 36 mmt CO_2 would be avoided compared to business as usual, an amount equal to the emissions from burning over 4 billion gallons of gasoline.
- Scenario 2: By following a trajectory where all ICEV sales are HEVs by 2035 with ramp up starting in 2024, about 15 mmt CO_2 would be avoided compared to business as usual between 2024 and 2035, an amount equal to the emissions from burning almost 1.7 billion gallons of gasoline.
- Scenario 3: By following a trajectory where all ICEV sales are HEVs by 2030 with ramp up starting in 2027, about 20 mmt CO_2 would be avoided compared to business as usual, an amount equal to the emissions from burning over 2 billion gallons of gasoline.
- Scenario 4: By following a trajectory where all ICEV sales are HEVs by 2035 with ramp up starting in 2027, about 8 mmt CO_2 would be avoided compared to business as usual, an amount equal to the emissions from burning almost a billion gallons of gasoline.