POLICY UPDATE

APRIL 2025

SUMMARIZES REGULATORY AND OTHER DEVELOPMENTS RELATED TO CLEAN TRANSPORTATION WORLDWIDE

California's Advanced Clean Fleets regulation

Anish Sinha

INTRODUCTION

On April 28, 2023, the California Air Resources Board (CARB) adopted the Advanced Clean Fleets (ACF) regulation.[1] The first of its kind globally, the ACF requires medium- and heavy-duty vehicle (MHDV) fleets to reduce emissions through requirements to phase-in zero-emission vehicles (ZEVs), starting with model year (MY) 2024. It also sets an end date for combustion MHDV sales in California; these will not be allowed starting with MY 2036. The ACF rule is part of a comprehensive strategy to reduce heavy-duty transportation greenhouse gas (GHG) emissions and provide cleaner air, especially in the communities most heavily impacted by air pollution. It complements the Advanced Clean Trucks (ACT) regulation adopted in 2020, which mandates increasing percentages of ZEV sales by manufacturers from MY 2024 onward.

Designed to prioritize fleets and vehicle types that are well-suited for zero-emission technologies, the ACF rule provides a structured timeline for owners of fleets operating in the state to plan and implement the zero-emission transition. On January 13, 2025, CARB withdrew its request for a waiver from the U.S. Environmental Protection Agency (EPA) that is needed to implement the stricter emission standards on all vehicles within its scope in the state.[2] Since that time, CARB announced that it intends to implement the purchase requirements on state and local fleets, which it is able to do without a waiver.[3] If the ACF were to be applied to all vehicles within its scope, CARB estimated that it would reduce 327 million tons of carbon dioxide

1 California Air Resources Board, "California Approves Groundbreaking Regulation That Accelerates the Deployment of Heavy-duty ZEVs to Protect Public Health," press release, April 28, 2023, https://ww2.arb.ca.gov/news/california-approves-groundbreaking-regulation-accelerates-deployment-heavy-duty-zevs-protect.

2 Steven S. Cliff, "RE: Withdrawal of California's Request for a Waiver, Pursuant to Clean Air Act Section 209(b), and Request for Authorization, Pursuant to Clean Air Act Section 209(e)(2), for the Advanced Clean Fleets (ACF) Regulation, Docket ID EPA-HQ-OAR-2023-0589," January 13, 2025, https://www.epa.gov/system/files/documents/2025-01/ca-acf-carb-withdrawal-ltr-2025-1-13.pdf.

3 "Advanced Clean Fleets," California Air Resources Board, accessed February 26, 2025, https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets.

www.theicct.org

communications@theicct.org

@theicct.org

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equivalent GHG emissions and deliver $106.6 billion statewide net benefits and savings between 2024 and 2050.[4]

This policy update summarizes the scope, timeline, projected benefits, and other key elements of the ACF rule if it were applied to all vehicles within its scope in the state. It also puts the rule in the context of zero-emission HDV consumer-facing policies in California and compares it with fleet purchase requirements in other major vehicle markets.

KEY ELEMENTS

SCOPE

The ACF regulation applies to Class 2b-8 on-road MHDVs with a gross vehicle weight rating greater than 8,500 lb, light-duty package delivery vehicles such as those used by the U.S. Postal Service, and off-road yard tractors operating in California. Its requirements apply to the "California fleet," which includes vehicles within its scope that operate in California during a calendar year, even if they only enter the state one time for one day (there is, however, a 5-day pass option for vehicles that only enter once in a year), regardless of their state of registration. (While the rule includes the public and private fleets described below, in the absence of a waiver from EPA, only the state and local government agency fleets are currently subject to enforcement. Regardless, as indicated above, the details and benefits presented in this paper reflect the full rule and its impacts if a waiver were granted.)

- **Drayage fleets**: Class 7 and 8 drayage trucks transporting cargo to and from California's intermodal seaports and railyards. Land ports of entry are not considered seaports or intermodal railyards.
- **High priority and federal fleets**: Fleets belonging to private entities with $50 million or more in gross annual revenue that own, operate, or direct the operation of at least one vehicle in California; private entities that own, operate, or direct the operation of 50 or more vehicles, including those under their common ownership or control; and federal government agencies that own, operate, or direct the operation of at least one vehicle in California.
- **State and local government agency fleets**: All state or local government agencies in California that own, lease, or operate one or more vehicles in California. A state or local government agency is a city, county, public utility, special district, local agency or district, and any department, division, public corporation, or public agency of the State of California.

In addition to requirements for fleets, the ACF rule requires that 100% of manufacturer sales of MHDVs in 2036 be zero-emission vehicles.[5] While this sales requirement also requires a waiver to enforce, CARB, the Truck and Engine Manufacturers Association, and other major truck manufacturers representing over 90% of California's truck

4 California Air Resources Board, Public Hearing to Consider the Advanced Clean Fleets Regulations Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response, April 27, 2023, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/ac/acffsor.pdf.

5 This requirement was also incorporated by CARB into the ACT rule on October 24, 2024, by clarifying that 2036 and subsequent model year MHDVs are subject to ACF sales requirements. California Air Resources Board, "Amendments to the Advanced Clean Trucks Regulation and the Zero-Emission Powertrain Certification Test Procedure," last updated March 25, 2024, https://ww2.arb.ca.gov/rulemaking/2024/advancedcleantrucks; see Appendix A-1 and the Initial Statement of Reasons.

market have signed a Clean Truck Partnership agreement whereby they commit to meeting this requirement regardless of waiver status.[6]

TIMELINE

The different timelines and compliance options for each fleet type are detailed below.

Drayage fleets: As of January 1, 2024, only zero-emission drayage trucks can be newly registered in CARB's Truck Regulation Upload, Compliance, and Reporting System (TRUCRS), where all trucks must be registered to conduct drayage activities in California. Internal combustion engine drayage trucks must have been registered in TRUCRS by December 31, 2023, and they can continue to operate until they reach their minimum useful life, defined as at least 13 years from the model year of the vehicle's engine, and up to 18 years or 800,000 miles, whichever comes first.[7] All registered drayage trucks entering seaports and intermodal railyards are required to be zero-emission by 2035.

High priority and federal fleets: High priority and federal fleets regulated by the ACF can achieve compliance in one of two ways. The first is the Model Year Schedule. Under this, fleets can only add ZEVs or plug-in hybrid vehicles of MY 2035 or earlier that meet a minimum all-electric range requirement (known as near-ZEVs, or NZEVs) to their California fleet beginning in 2024. Additionally, as of January 1, 2025, internal combustion engine vehicles must be removed from the fleet at the end of their useful life, defined as at least 13 years from the model year of the vehicle's engine, and up to 18 years or 800,000 miles, whichever comes first. Near-ZEVs or ZEVs can be added to the fleet through new vehicle purchases, by bringing in existing vehicles from out of state, or if vehicles are gifted. Starting with the MY 2036, NZEVs will no longer meet the requirements. Regulated high priority and federal fleets are required to report their fleet information by February 1, 2024, in TRUCRS to begin compliance, and annually thereafter until February 1, 2045.

Under the second option, the ZEV Milestones Option, fleet owners must continuously meet or exceed the ZEV stock percentage requirements shown in Table 1 for their California fleets. With this compliance pathway, fleets may elect to meet ZEV targets as a percentage of the California fleet starting with vehicle types that are most suitable for electrification, reflected as Milestone Group 1. Vehicles with higher payloads and more demanding duty cycles have more time before ZEV requirements begin. Fleets also have the option to switch between the ZEV Model Year Schedule and the ZEV Milestones Option, but they must make their choice permanent by January 1, 2030.

6 California Air Resources Board, "Clean Truck Partnership," accessed February 26, 2025, https://ww2.arb.ca.gov/clean-truck-partnership-home

7 California Air Resources Board, "ACF Final Regulations Order – Drayage Truck Requirements," https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/ac/acffrod31.pdf

Table 1

Zero-emission vehicle fleet stock requirements under the ZEV Milestones Option by group

Percentage of all vehicles that must be ZEVs	10%	25%	50%	75%	100%
Milestone Group 1: Box trucks, vans, buses with two axles, yard tractors, and light-duty package delivery vehicles	2025	2028	2031	2033	2035 and beyond
Milestone Group 2: Work trucks, pickup trucks, day cab tractors, and buses with three axles	2027	2030	2033	2036	2039 and beyond
Milestone Group 3: Sleeper cab tractors and specialty vehicles	2030	2033	2036	2039	2042 and beyond

Sources: California Air Resources Board, "Advanced Clean Fleets Regulation - ZEV Milestones Option," December 13, 2023, https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-zev-milestones-option. For vehicle definitions, see California Air Resources Board, "Advanced Clean Fleets Regulation – ZEV Milestones Option Details," January 2, 2024, https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-zev-milestones-option-details.

State and local government fleets: There is no combustion engine vehicle retirement requirement for state and local government fleets. These fleets are required to ensure 50% of annual vehicle purchases are ZEVs beginning in 2024. Any ZEV can be counted toward the 50% requirement. For example, one ZEV pickup truck and one ZEV Class 8 truck are treated the same for compliance. Beginning in 2027, 100% of vehicle purchases are required to be ZEVs. Near-ZEVs of MY 2035 or earlier count the same as a ZEV. Small government fleets with 10 or fewer vehicles and those in designated counties with low population have no requirements until 2027, when they must comply with 100% ZEV purchases. Any early or excess ZEV purchases before 2027 count one-for-one toward a future combustion engine vehicle purchase. For example, if a fleet bought 10 ZEVs in 2023, they could buy 10 combustion engine vehicles in 2024 without buying any ZEVs.

Alternately, state and local government fleet owners may choose to meet ZEV targets using the ZEV Milestones Option shown in Table 1. They also must make their compliance option choice permanent by January 1, 2030. State and local government fleets must report their fleet information in TRUCRS by April 1, 2024, and annually thereafter until April 1, 2045.

ZEV Milestones Option example calculation

The ZEV Milestones Option for a fleet can be calculated by counting the number of vehicles in each of the three Milestone Groups in Table 1 and multiplying it by the ZEV percentage requirement for that year. For example, a fleet may have 50 vehicles in total with 30 vehicles in Group 1, 10 vehicles in Group 2, and 10 vehicles in Group 3. The fleet's ZEV requirements for 2028 and 2032 are illustrated in Table 2. As a flexibility mechanism, all vehicles within a common milestone group are treated equally toward compliance with the milestone targets. Furthermore, any ZEV within the scope of the regulation can count toward the Milestone requirement. For example, a fleet with only sleeper cab tractors could meet its first 10% requirement with ZEV pickup trucks. In other words, the rule does not require a one-to-one replacement of the same vehicle.

Table 2

Example calculation of a hypothetical fleet's compliance with the ZEV Milestone Option

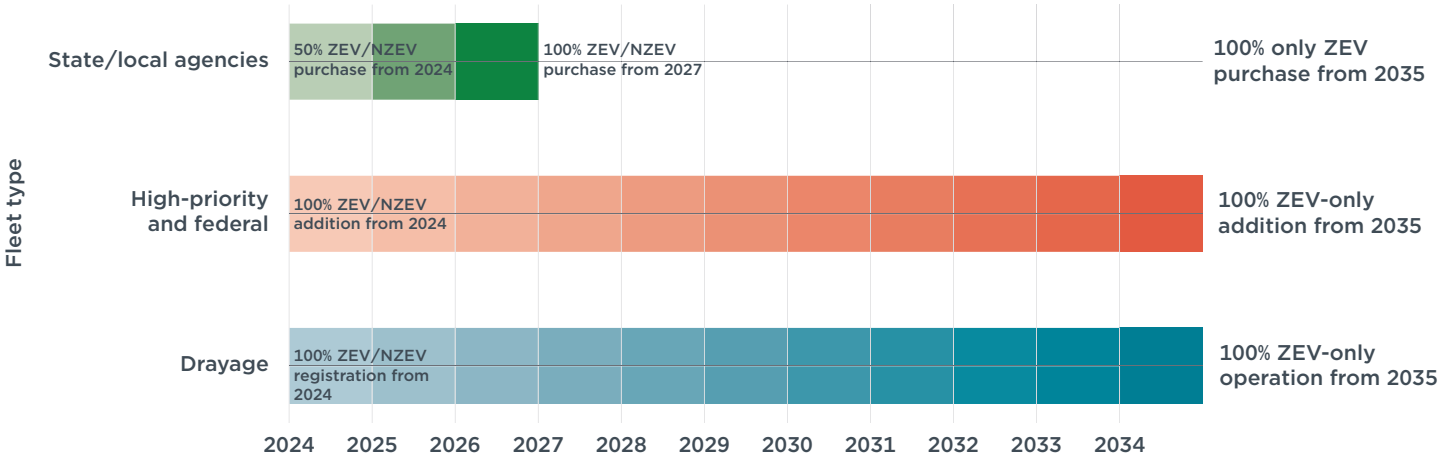
2028			
Milestone Group	**Number of vehicles**	**Percentage requirement**	**ZEV requirement**
1	30	25%	30 x 25% = 7.5 ~ **8**
2	10	10%	10 x 10% = **1**
3	10	0%	10 x 0% = **0**

2032			
Milestone Group	**Number of vehicles**	**Percentage requirement**	**ZEV requirement**
1	30	50%	30 x 50% = **15**
2	10	25%	10 x 25% = 2.5 ~ **3**
3	10	10%	10 x 10% = **1**

Figure 1 shows the timeline of ZEV compliance for drayage fleets, high priority and federal fleets, and state and local government fleets regulated by the ACF that remain on the default compliance path, and Figure 2 shows the timeline of compliance for fleets that choose the ZEV Milestone Option.

Figure 1

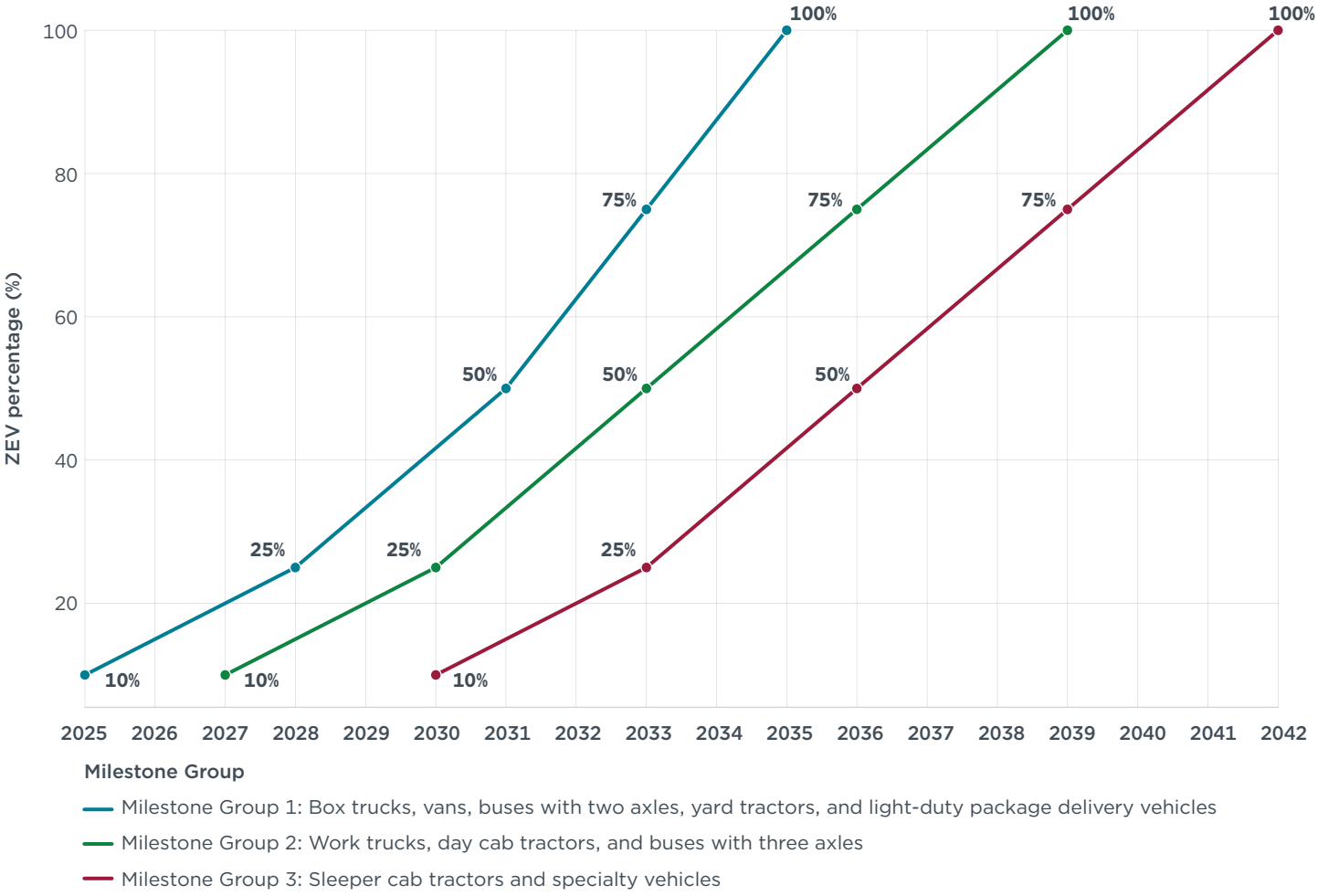
Zero-emission vehicle compliance timeline for regulated fleets that remain on the default Model Year Schedule compliance path



Note: For small fleets and fleets in low population counties falling under state and local agencies, the requirements start with purchasing 100% ZEVs in 2027.

Figure 2

Compliance timeline for fleets that choose the ZEV Milestones Option



ADDITIONAL FLEXIBILITIES, EXTENSIONS, AND EXEMPTIONS

There are several compliance flexibilities. Near-ZEVs are eligible to meet the ZEV model year schedule requirement until MY 2035 and these always count as ZEVs. After the 2035 model year, NZEVs will no longer meet compliance requirements.

Exemptions from the ACF are available for circumstances beyond the fleets' control. When a fleet owner cannot comply because ZEV models in the same configuration as an eligible vehicle being replaced are not available for purchase, they get a ZEV Purchase Exemption and can purchase a new combustion engine vehicle with a California-certified engine. The fleet owner must report the vehicles bought under this exemption in TRUCRS when received. A list of vehicle configurations deemed not available to purchase as ZEVs or NZEVs has been created by CARB and will be updated[8]; this allows fleets to use the ZEV Purchase Exemption without submitting an

8 California Air Resources Board, "Streamlined ZEV Purchase Exemption List," last updated March 20, 2025, https://ww2.arb.ca.gov/applications/streamlined-zev-purchase-exemption-list.

application. Exemptions are also available if a fleet owner cannot comply with the ACF because their demonstrated daily usage needs of a given vehicle configuration cannot be met by available ZEVs.

Other exemptions apply to specific vehicle categories. Transit buses, which are covered under the Innovative Clean Transit regulation, are exempt from ACF requirements, as are dedicated snow removal vehicles, authorized emergency vehicles, and others.[9] Exemptions are also given to owner-designated backup vehicles, provided they are driven less than 1,000 miles a year and their odometer readings are reported in TRUCRS. Intermittent snow removal vehicles are exempt from requirements until 2030, and there are exemptions that allow for operation of vehicles that are supporting declared emergency events. Fleets with mutual aid agreements can apply for exemptions to purchase up to a quarter of their California fleet as combustion vehicles to respond to mutual aid events during declared emergencies. Exemptions are also granted for uncommon occurrences, such as when a vehicle is in an accident and becomes non-repairable.

Additionally, extensions are allowed for delays incurred during vehicle delivery and infrastructure deployment. In the former case, if a fleet owner ordered the ZEV 1 year ahead of the compliance date and the fleet did not receive the vehicle delivery by the compliance date, the extension allows the fleet to continue operating the vehicle scheduled to be replaced until the replacement ZEV is delivered. This applies to all fleets except those following the ZEV Purchase Schedule. Another extension applies when fleet owners face infrastructure construction or site electrification delays, such as when the electric utility cannot provide the requested power to the site. An extension is available if the refueling or charging infrastructure project is started 1 year ahead of the compliance date and is delayed. The maximum extension is 5 years, depending on specific circumstances.[10]

PROJECTED IMPACTS AND BENEFITS

Staff at CARB estimate that of the 1.8 million MHDVs operating daily in California, 532,000 will be subject to ACF fleet requirements. The regulation focuses on the truck types that pollute the most; 67% of all Class 7-8 tractors will be covered.[11]

The ACF regulation is expected to significantly increase the number of MHDV ZEVs on California roads, beyond the sales expected from the ACT regulation. The two regulations together are expected to result in about 510,000 zero-emission MHDVs in California in 2035, 1,350,000 in 2045, and 1,690,000 in 2050.[12]

The transportation sector accounts for 41% of total greenhouse gas (GHG) emissions in California. Medium- and heavy-duty vehicles contribute 25% of the transportation

9 California Air Resources Board, "Advanced Clean Fleets Regulation Exemptions and Extensions Overview," October 7, 2024, https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-exemptions-and-extensions-overview.

10 California Air Resources Board, "Advanced Clean Fleets Regulation – Zero-Emission Vehicle Infrastructure Delay Extension," September 20, 2023, https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-zero-emission-vehicle-infrastructure-delay.

11 California Air Resources Board, "Public Hearing to Consider the Proposed Advanced Clean Fleets Regulation Staff Report: Initial Statement of Reasons," August 30, 2022, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf.

12 California Air Resources Board, "Public Hearing to Consider."

sector's GHG emissions, despite being only 6% of the registered vehicles in the state.[13] These vehicles are also a major contributor of toxic diesel particulate matter (PM) and nitrogen oxide (NO_x) emissions. With the ACF regulation enforced as drafted, CARB expects to avoid over 2,500 premature mortalities between 2024 and 2050 in California along with other health benefits, which have an estimated value of over $26.5 billion.[14] The estimated emission reductions and monetized benefits from the implementation of the ACF are shown in Table 3. In addition to climate and health benefits, CARB also estimates that the ACF regulation will result in net savings of $48 billion to California fleets by 2050 from operational savings and declining upfront costs over time.

Table 3

Statewide cumulative benefits of the Advanced Clean Fleets regulation through 2050

Criteria	Benefit
NO_x emissions reduction	146,872 metric tons
$PM_{2.5}$ emissions reduction	6,875 metric tons
Greenhouse gas emissions reduction	327 million metric tons carbon dioxide equivalent
Avoided cardiopulmonary premature mortalities	2,526
Health benefits	$26.5 billion
Statewide direct cost benefits	$116.7 billion
Statewide incremental total cost of ownership benefits	$48.0 billion
Tax and fee revenues	-$36.6 billion
Net statewide benefits and savings	$106.6 billion

CALIFORNIA CONTEXT

In 2021, California's governor signed Executive Order N-79-20, which set forth a 100% zero-emission MHDV fleet target by 2045 wherever feasible.[15] The order specifies:

- 100% zero-emission drayage trucks, last mile delivery and government fleets by 2035
- 100% zero-emission refuse trucks, local buses, and utility fleets by 2040
- 100% zero-emission truck and bus stock by 2045

Promoting the development and use of zero-emission trucks will contribute to the goals set by the Governor's Executive Order N-79-20 and the Sustainable Freight Action Plan.[16] The promotion of zero-emission trucks will also help achieve emission reductions as outlined in the State Implementation Plan, the Clean Energy and

13 California Air Resources Board, Proposed Advanced Clean Fleets Regulation Staff Report: Initial Statement of Reasons, August 30, 2022, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf.

14 California Air Resources Board, "Public Hearing to Consider."

15 California Air Resources Board, "Governor Newsom's Zero-Emission by 2035 Executive Order (N-79-20)," January 19, 2021, https://ww2.arb.ca.gov/resources/fact-sheets/governor-newsoms-zero-emission-2035-executive-order-n-79-20.

16 California Air Resources Board, "The California Sustainable Freight Action Plan," accessed January 10, 2025, https://ww2.arb.ca.gov/our-work/programs/california-sustainable-freight-action-plan/about.

Pollution Reduction Act of 2015, the California Global Warming Solutions Act of 2006, and the California Climate Crisis Act of 2022.[17]

The ACF was proposed on August 30, 2022. Prior to that, the ACT was approved by CARB in 2020 and is the world's first ZEV sales requirement for heavy-duty trucks. Together, policies such as the ACF and the ACT stimulate both supply and demand for zero-emission MHDVs in a complementary manner. Table 4 compares key aspects of them.

Table 4

Key aspects of the Advanced Clean Fleets and Advanced Clean Trucks regulations

	Advanced Clean Fleets	Advanced Clean Trucks
Target	Primarily a purchase requirement for Class 2b-8 vehicle fleet owners and operators; also includes a manufacturer sales mandate to only sell ZEVs starting in 2036	A sales requirement for Class 2b-8 vehicle manufacturers
Scope	Three types of fleets: Drayage trucks, state and local agencies, and federal and large private fleets	Three vehicle groups: Class 2b-3 pickup trucks and vans, Class 4-8 vocational trucks, and Class 7-8 tractor trucks
Compliance	Increasing ZEV fleet percentages (ZEV Milestones Option) or 100% ZEV purchase starting from a certain year (Model Year Schedule/ZEV Purchase Schedule); combustion vehicles can operate full useful life	Increasing ZEV sales percentages from MY 2024 to MY 2035
Reporting and enforcement	Annual reporting for affected fleets	Credit-deficit based system; manufacturers report sales of ZEVs and combustion engine vehicles annually

California has several incentives to support fleets in their transition to ZEVs. These incentives include funding from CARB, the California Energy Commission, and the California Public Utilities Commission.

The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program (HVIP) offered by CARB provides point-of-sale rebates to cover most of the incremental cost difference between diesel vehicles and ZEVs.[18] This incentive is for all MHDVs from Class 2b through Class 8. For smaller fleets that want to transition to ZEVs earlier, the HVIP program has $35 million allocated under the Innovative Small e-Fleet Pilot Project.[19] In addition, the Truck Loan Assistance Program helps small-business fleet owners secure financing to upgrade their fleets with new trucks.[20]

The revised Low Carbon Fuel Standard (LCFS) in California can provide more incentives to MHDV infrastructure investments. A recently adopted amendment to the LCFS expanded infrastructure crediting to both public and private MHDV charging

17 California Senate Bill-350 Clean Energy and Pollution Reduction Act of 2015, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350; California Senate Bill-32 California Global Warming Solutions Act of 2006: Emissions Limit, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB32; California Assembly Bill-1279 The California Climate Crisis Act, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1279.

18 California HVIP, "Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project," accessed July 23, 2024, https://californiahvip.org/.

19 California HVIP, "Clean-Air Vehicles at a Fraction of the Price," accessed July 23, 2024, https://californiahvip.org/purchasers/.

20 California Air Resources Board, "Truck Loan Assistance Program," June 21, 2024, https://ww2.arb.ca.gov/resources/fact-sheets/truck-loan-assistance-program.

and refueling infrastructure.[21] Owners and operators of MHDV charging and refueling infrastructure earn LCFS credits based on the capacity of the infrastructure minus the quantity of dispensed fuel. Therefore, chargers with low utilization rates in early stages of MHDV adoption could still generate revenues.

The Carl Moyer Memorial Air Quality Standards Attainment Program can also be used to fund the installation of charging stations and fueling infrastructure.[22] The grant amount depends upon the project's projected pollutant reductions and the type of infrastructure, with public school bus projects eligible for 100% of charging and refueling infrastructure costs.

The California Public Utilities Commission has approved $738 million for MHDV charging under Senate Bill 350.[23] The agency has also authorized investor-owned utilities to invest in utility-side infrastructure upgrades under Assembly Bill 841.[24] The California Energy Commission has set aside $2.69 billion for light-duty and MHDV charging and refueling infrastructure and the agency announced the Energy Infrastructure Incentives for Zero Emission (EnergIIZE) Commercial Vehicles program in April 2021 to support infrastructure for MHDVs.[25]

NATIONAL AND INTERNATIONAL CONTEXT

The U.S. federal government provides financial incentives to support fleets transitioning to zero-emission MHDVs by subsidizing vehicle purchases and investments in related charging and refueling infrastructure through the Inflation Reduction Act of 2022 and the Infrastructure Investment and Jobs Act of 2021.[26] The Commercial Clean Vehicle Credit is a tax credit for businesses and tax-exempt organizations under Internal Revenue Code 45W. Under this scheme, clean vehicles (battery electric, plug-in hybrid electric, and fuel-cell electric) can qualify for a maximum tax credit of $7,500 for vehicles with gross vehicle weight rating less than 14,000 pounds and $40,000 for vehicles more than 14,000 pounds. The Charging and Fueling Infrastructure grant program provides funding for public charging infrastructure. It prioritizes funding in rural areas, low- and moderate-income neighborhoods, public roads, schools, parks and public parking facilities.

Globally, 38 countries, including Australia, Canada, Germany, Israel, the Netherlands, New Zealand, Norway, Sweden, and the United States, signed the Zero-Emission Government Fleet Declaration in 2022. The Declaration sets an aspirational goal of 100% government-owned and operated zero-emission MHDV acquisitions before 2035,

21 California Air Resources Board, Public Hearing to Consider the Proposed Amendments to the Low Carbon Fuel Standard Staff Report: Final Statement of Reasons, November 8, 2024, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/fsor.pdf.

22 California Air Resources Board, Carl Moyer Program Guidelines, Chapter 10 Infrastructure, January 18, 2023, https://ww2.arb.ca.gov/sites/default/files/2023-01/Moyer%20Ch%2010%20Infrastruture.pdf.

23 California Public Utilities Commission, "Transportation Electrification Activities Pursuant to Senate Bill 350," accessed July 23, 2024, https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/transportation-electrification/charging-infrastructure-deployment-and-incentives/transportation-electrification-activities-pursuant-to-senate-bill-350.

24 California Public Utilities Commission, "Distribution Infrastructure and Planning," accessed July 23, 2024, https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/transportation-electrification/distribution-infrastructure-and-planning.

25 California Energy Commission, "EnergIIZE Commercial Vehicles," accessed July 23, 2024, https://www.energiize.org/.

26 Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818 (2022), https://www.congress.gov/bill/117th-congress/house-bill/5376/text; Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021), https://www.congress.gov/bill/117th-congress/house-bill/3684/text.

and more countries sign the Declaration every year.[27] Binding purchase requirements implemented at the country level mostly apply to individual MHDV segments but not all MHDVs and fleet owners: for example, the Netherlands committed to procuring 100% zero-emission transit buses by 2025 and to achieving a 100% zero-emission fleet by 2030 through its Climate Agreement.[28]

27 Global Commercial Vehicle Drive To Zero, "Global Memorandum of Understanding on Zero-Emission Medium- and Heavy-Duty Vehicles," October 2024, https://globaldrivetozero.org/mou-nations/; Electric Vehicles Initiative, "Zero-Emission Government Fleet Declaration," Clean Energy Ministerial, September 23, 2022, https://iea.blob.core.windows.net/assets/72fef210-e69f-4430-bb4f-41c63b619e2d/EVIZero-EmissionGovernmentFleetDeclaration_final.pdf.

28 The Government of the Netherlands, Climate Agreement (2019), https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands.

www.theicct.org

communications@theicct.org

@theicct.org

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