Overview of California EV Rules, Regulations, and Incentives

History

In 1967, California established the State Air Resources Board (CARB) to combat air pollution. CARB merged with existing agencies and gained the authority to set strict air quality rules. The history of California's air pollution reduction dates to the 1940s, with smog episodes in Los Angeles. The automobile was identified as the main culprit in the 1950s.

California took statewide action, setting tailpipe emissions standards in 1966 and establishing CARB in 1967. CARB pioneered various strategies, including catalytic converters and greenhouse gas emissions standards. California became a leader in climate change efforts in the 2000s.

CARB continues to collaborate with various stakeholders to find solutions to air quality issues. Challenges remain due to population growth and car reliance. CARB is ready for the future and committed to air pollution control.

(https://ww2.arb.ca.gov/about/history, n.d.)

Achievements Include:

• The nation's first tailpipe emissions standards for hydrocarbons and carbon monoxide (1966), oxides of nitrogen (1971), and particulate matter from diesel-fueled vehicles (1982);
• Catalytic converters, beginning in the 1970s.
• On-board diagnostic, or "check engine" light, systems, beginning with 1988 model-year cars.
• Zero-emission vehicle (ZEV) regulation (1990) that requires manufacturers to produce an increasing number of ZEVs.
• The nation's first greenhouse gas emissions standards for cars (mandated by the Legislature in 2002 and approved by CARB in 2004); and
• California's Advanced Clean Cars Program (2012), which reduces both conventional "criteria" and greenhouse gas pollutant emissions from automobiles.

Effects of Air Pollutants:

Diesel engines emit harmful pollutants, including soot particles known as diesel particulate matter (PM) and cancer-causing substances. California recognized diesel PM as a toxic air contaminant due to its cancer-causing potential. Diesel emissions contribute to about 70% of California's known cancer risk from toxic air contaminants. Diesel PM is also a significant contributor to outdoor particulate matter (PM2.5), leading to various health issues and premature deaths. Exposure to diesel exhaust can trigger allergies and worsen respiratory and cardiovascular conditions. Diesel PM is emitted close to people, easily deposits in the lungs, and contains cancer-causing compounds. It also impacts visibility and contributes to global warming through black carbon emissions.

(https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts, n.d.)

The Truck and Bus Regulations (TRUCRS)

First implemented in 2008, TRUCRS required diesel retrofit kits that include DPF filters and DEF tanks to catch the harmful byproducts of diesel combustion. From 2008 to 2023, CARB required commercial fleets with two or more commercial vehicles over 14,000 GVWR to self-report and obtain 'CARB Compliance Certificates'. These certificates were obtained by creating an account on the TRUCRS reporting portal, entering and loading the vehicles, and confirming compliance with CARB engine executive orders.

Effective from January 1st, 2020, a new system integration between CARB (California Air Resources Board) and the DMV (Department of Motor Vehicles) has been established. This integration ensures that fleet operations in California adhere to CARB Compliance Certificate requirements or possess approved

exemptions. Non-compliant fleets, lacking the necessary CARB Compliance Certificate or exemption, face registration and operational tag holds imposed by the DMV. Additionally, specific non-compliant fleet vehicles, such as pre-2007 diesel vehicles over 14,000 lbs, have been subject to VIN blocking since January 1st, 2023. In such cases, the DMV notifies operators about the non-compliance, imposes registration holds, and issues violation notices. Fleets are now required to maintain compliance to continue operating, eliminating the possibility of going unnoticed. To assist with compliance efforts, fleets must submit annual Diesel Opacity Tests or onboard computer reports demonstrating compliance with vehicle emission standards, ensuring that diesel vehicles have smoke opacity at or below 5%.

(https://ww2.arb.ca.gov/sites/default/files/truckstop/truckstop.html, n.d.)

Importance of EV Implementation in your fleet:

HVIP Incentives are scaled down for larger fleets. Fleets over 100 units have to reduce the base vouchers by 20%, and fleets over 500 units by 50%. Small fleet operators with 20 or less vehicles and $15 million or less yearly revenue receives a 15% additional kicker to the base voucher amount. Commercial EVs, though require substantially lower cost maintenance and repairs, do have a higher initial price point.

For operators seeking to charge their vehicles at the commercial premises where their vehicles are domiciled, it is imperative to proactively plan for EV implementation. By doing so, operators can circumvent public charging rates and associated inconveniences. Those who have installed charging stations on their premises can leverage the advantage of charging during off-peak hours, while also generating revenue through Low Carbon Fuel Standard (LCFS) credits. Moreover, upgrading the property to accommodate 480-volt capabilities, along with the installation of charging stations, represents a significant enhancement to the property's overall value proposition.

The range and average costs for EV commercial property upgrades to install Level 3 and Level 2 charging stations vary based on factors such as location and specific requirements. Generally, Level 3 charging stations can cost $30,000 to $80,000 per unit, while Level 2 charging stations range from $3,000 to $15,000 per unit. In California, costs tend to be higher, with a basic set-up ranging from $800,000 to $1,500,000. For accurate estimates, consult electrical contractors or charging station installation companies based on your specific needs and location. Combining or ‘stacking’ the Energize program with your local utility offerings can pay for up to 80% of the total cost of the project. Take note that projects typically take a year and a half to two years to complete.

Available Programs to Assist with Fleet Transitions:

HVIP - Provides point-of-sale discounts to vehicle purchasers. There’s no waiting for a rebate check or a tax credit. HVIP works closely with truck and bus dealers to apply the voucher incentive at the time of purchase. Funds are available on a first-come, first-served basis. There are over 7,300 HVIP funded vehicles on the road today, with over 3,100 of those vehicles in Los Angeles County.

(https://californiahvip.org/impact/#deployed-vehicle-mapping-tool, n.d.)

Funding available:

- Up to $315,000 is available for California purchasers and lessees of fuel cell zero-emission trucks and buses.
- Up to $175,000 is available for California purchasers and lessees of zero-emission buses.
- Up to $40,000 is available for trucks and buses with engines meeting the optional low NOX standard.
- Class 3 - $45,000 w/ +$6,750 for Disadvantaged comm. address and +$6,750 for small fleet.
- Class 4-5 - $60,000 w/ +$9,000 for Disadvantaged comm. address and +$9,000 for a small fleet.
- Class 6-7 - $85,000 w/ +$6,750 for Disadvantaged community address and +$6,750 for small fleet.
- Class 8 - $120,000 w/ +$18,000 for Disadvantaged community address and +$18,000 for small fleet.

ISEF HVIP (Innovative Small Fleet) - The Innovative Small e-Fleet (ISEF) set-aside, a $25 million portion of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) for Fiscal Year 2021-22, aims to assist small fleets in transitioning to zero-emission trucks. It offers various solutions, including flexible leases, short-term rentals, truck-as-a-service (TAAS), infrastructure assistance, planning support, increased funding, and other mechanisms. Small fleets and owner-operators face unique obstacles like high upfront costs, limited financing, and complex charging planning. By dedicating funds to small fleets, HVIP can understand their specific needs and aid their transition to zero-emission vehicles. The ISEF project follows the policies and requirements outlined in the HVIP Implementation Manual, with precedence given to ISEF policies when they differ. The project's objective is to provide a cost-effective solution for deploying zero-emission trucks with small fleets in California. The transaction process involves three parties: an ISEF provider (companies involved in zero-emission truck sales, rental, financing, and fueling), an HVIP approved dealer (sellers of new and conversion medium- or heavy-duty vehicles), and an eligible small fleet participant. The ISEF provider develops an offering proposal to provide small fleets with monthly or per mile costs for zero-emission trucks that are comparable to traditional vehicle operating costs. The proposal can be in the form of a purchase, lease, rental, financing, or other service agreement. The HVIP approved dealer collaborates with the provider to submit a voucher request on behalf of the eligible small fleet participant. Eligible small fleet participants are defined as California companies with 20 or fewer trucks operating in California and annual revenue of less than $15 million. Privately owned trucking companies, non-profits, and independent owner-operators are included. Fleets with up to five ISEF vehicles that would exceed the 20-truck limit are still considered eligible. Planned non-operational vehicles are counted in the fleet size calculation during the voucher request.

- Class 3 - $90,000 w/ +$6,750 for Disadvantaged comm. Address
- Class 4-5 - $120,000 w/ +$9,000 for Disadvantaged comm. Address
- Class 6-7 - $170,000 w/ +$12,750 for Disadvantaged community address
- Class 8 - $240,000 w/ +$18,000 for Disadvantaged community address

(https://californiahvip.org/program-updates/innovative-small-e-fleet-update/, n.d.)

CORE - The Clean Off-Road Equipment Voucher Incentive Project (CORE) aims to accelerate the adoption of advanced technology in the off-road sector by offering funding to offset the additional costs of clean technology. It focuses on commercial-ready products that haven't gained significant market traction yet. By encouraging the purchase of clean technology and reducing reliance on internal combustion options, the project is expected to decrease emissions, particularly in highly impacted areas. It also seeks to build confidence in zero-emission technology, support CARB strategies, and promote sector-wide benefits like technology transferability, cost reductions, and infrastructure investments. CORE provides vouchers on a first-come, first-served basis to California buyers and lessees of zero-emission off-road equipment, with extra incentives for disadvantaged communities. Initially approved with $40 million funding, CORE has received additional allocations of $108.5 million and $86.5 million from the Greenhouse Gas Reduction Fund and Air Pollution Reduction Fund, respectively. The program is set to reopen in the summer of 2022. EPTO's, Generators, Bucket Lifts, Refrigeration Units, and just some of the offerings in this program.

(https://californiacore.org/, n.d.)

Carl Moyer VIP (Voucher Incentive Program) – Funding is offered to fleets that comply with the Truck & Bus Regulation and own 10 or fewer diesel trucks with a GVWR above 14,000 lbs. They must primarily operate in California and have been registered in the state for the past two years. The funding amounts vary up to $410,000 for a zero-emission heavy-duty truck replacement and up to $520,000 for another zero-emission heavy-duty truck replacement. To apply, contact a participating dealership to check eligibility and local requirements. Then, submit the completed application and necessary documents to the dealership. If approved, purchase the replacement vehicles and generators, and scrap the old unit.

(https://ww2.arb.ca.gov/our-work/programs/carl-moyer-memorial-air-quality-standards-attainment-program, n.d.)

VW Mitigation - The Volkswagen (VW) Environmental Mitigation Trust provides approximately $423 million to address the nitrogen oxide (NOX) emissions resulting from VW's illegal use of emissions testing defeat devices in certain diesel vehicles. This trust is part of the settlements reached with VW and is outlined in the first Partial Consent Decree as Appendix D. California developed a Beneficiary Mitigation Plan (Plan) in compliance with the Consent Decree, which focuses primarily on "scrap and replace" projects for heavy-duty vehicles like trucks, buses, forklifts, and marine vessels. Agreements have been made with specific air quality management districts to administer funding categories and prioritize low-income or disadvantaged communities. Program changes have been implemented to enhance participation and align VW incentives with other programs, with the aim of expediting NOx reductions based on feedback from stakeholders and lessons learned from the initial implementation phase.

(https://ww2.arb.ca.gov/our-work/programs/volkswagen-environmental-mitigation-trust-california, n.d.)

Loan Assistance Program – The Truck Loan Assistance Program, initiated in 2009, supports small-business fleet owners affected by CARB's In-Use Truck and Bus Regulation by facilitating access to financing for fleet upgrades with newer trucks. In collaboration with the California Pollution Control Financing Authority (CPCFA) and its California Capital Access Program (CalCAP), the program combines public funding with private contributions from participating lenders. It specifically aids small business truck owners who don't meet conventional lending criteria or qualify for traditional financing for cleaner trucks. State funds are allocated as contributions into a loan loss reserve account for each lender, providing protection against potential losses resulting from loan defaults. The program caters to small fleets with 10 or fewer trucks during the application period, while loan terms are determined based on the lender's standard underwriting practices, with an existing interest rate cap of 20 percent.

Energize - (Energy Infrastructure Incentives for Zero-Emission) - The commercial vehicles project aims to enhance community health by reducing air pollution caused by diesel emissions. It also assists commercial fleets and industry partners in meeting California's climate objectives. The project, funded by the California Energy Commission (CEC), collaborates closely with equity partners to provide funding for infrastructure development. This infrastructure will support the transition from old, polluting medium- and heavy-duty equipment to zero-emission battery electric and hydrogen fuel cell vehicles.

Local Utility Programs – Each local utility has it own infrastructure programs that you can combine, or 'stack' with Energize incentives.

Edison - https://www.sce.com/evbusiness/chargeready

LADWP - link

SDGE - https://www.sdge.com/business/electric-vehicles/power-your-drive-for-fleets

Federal Commercial Clean Vehicle Credit - Businesses and tax-exempt organizations can receive a clean vehicle tax credit, as per Internal Revenue Code (IRC) 45W, by purchasing eligible commercial clean vehicles. The tax credit can amount to a maximum of $40,000 and is calculated based on the lesser of either 15% of the vehicle's basis (or 30% for non-gas or non-diesel vehicles), the incremental cost of the vehicle, or a maximum credit of $7,500 for vehicles with gross vehicle weight ratings (GVWRs) under 14,000 pounds, and $40,000 for other vehicles.

(https://afdc.energy.gov/laws/13039, n.d.)

(https://www.irs.gov/credits-deductions/commercial-clean-vehicle-credit, n.d.)

Low Carbon Fuel Standard - The Low Carbon Transportation Investments and the Air Quality Improvement Program aim to incentivize the adoption of advanced technology and clean transportation in both light-duty and heavy-duty sectors to reduce greenhouse gas emissions, criteria pollutants, and toxic air contaminants. The Low Carbon Transportation Investments are funded by Cap-and-Trade auction proceeds, while the Air Quality Improvement Program (AQIP) was established by the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007.

Funding for these incentives is allocated by the legislature to CARB annually to support emission reductions and advancements in technology demonstrations and deployments. The implementation of These investments are guided by the AQIP Guidelines and annual Funding Plans. This program gives owners of newly installed EV charging infrastructure by earning and selling LCFC credits.(https://ww2.arb.ca.gov/our-work/programs/low-carbon-transportation-investments-and-air-quality-improvement-program/about, n.d.)

Upcoming ACF (Advanced Clean Fleet) Regulations – Effective November 1st, 2023

Starting in 2036, manufacturers are required to exclusively sell zero-emission medium- and heavy-duty vehicles. Regarding drayage fleets, from January 1, 2024, trucks engaging in drayage activities in California must be registered in the CARB Online System. Non-zero-emission "legacy" drayage trucks can register until December 31, 2023, and continue operating until the end of their useful life. However, starting from January 1, 2024, only zero-emission drayage trucks are allowed to register. By 2035, all drayage trucks entering seaports and intermodal rail yards must be zero-emission.

High priority and federal fleets have two options for incorporating zero-emission vehicles (ZEVs) into their fleets. They can follow the Model Year Schedule, which requires purchasing only ZEVs starting in 2024 and retiring internal combustion engine vehicles at the end of their useful life by January 1, 2025. Alternatively, they can choose the ZEV Milestones Option, where ZEV targets are met as a percentage of the total fleet, prioritizing vehicle types suitable for electrification according to Table 1.

For state and local government fleets, including city, county, special district, and state agency fleets, a 50 percent purchase of zero-emission vehicles is mandated from 2024, increasing to 100 percent by 2027. Small government fleets and those in designated counties start their ZEV purchases in 2027. Alternatively, they can use the ZEV Milestones Option outlined in Table 1. Until 2035, these fleets can purchase either ZEVs or near-ZEVs, or a combination of both. However, starting in 2035, only ZEVs will fulfill the requirements.

What is a 'High Priority Fleet'?

- Any entity or combination of entities operating under common ownership and control with more than $50 million total gross annual revenue that operates at least one vehicle in California; or
- Any fleet owner who owns, operates, or directs 50 of more vehicles in the total fleet, excluding light-duty package delivery vehicles; or
- A fleet owner or controlling party whose fleet in combination with other fleets operated undercommon ownership and control total 50 or more vehicles in the total fleet excluding light-duty package delivery vehicles. Includes private and public entities.
- Or are a federal government agency

Percentage of vehicles that must be zero-emission	**10%**	**25%**	**50%**	**75%**	**100%**
Milestone Group 1: Box trucks, vans, buses with two axles, yard tractors, light-duty package delivery vehicles	2025	2028	2031	2033	2035 and beyond
Milestone Group 2: Work trucks, day cab tractors, 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