

Advanced Clean Fleets Regulation

Accelerating Zero-Emission Truck Markets

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The following information summarizes the draft Advanced Clean Fleets (ACF) regulation, which is one part of a broader strategy to deploy medium- and heavy-duty zero-emission vehicles (ZEV) everywhere feasible. The regulation is still being developed and is subject to change.

Why do we need the ACF regulation?

The ACF regulation is part of a comprehensive statewide strategy to reduce emissions from transportation to protect public health and meet climate goals including [economy-wide carbon neutrality by 2045](https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf) (<https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>). The primary goal of the ACF regulation is to accelerate the market for zero-emission trucks and buses by requiring fleets that are well suited for electrification to transition to zero-emission vehicles where feasible. The regulation would contribute to the goal of achieving the [Governor's Executive Order N-79-20](https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf) (<https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>) to reach:

- 100 percent zero-emission drayage trucks by 2035
- 100 percent zero-emission off-road vehicles and equipment by 2035, where feasible
- 100 percent zero-emission medium- and heavy-duty vehicles by 2045, where feasible

Which fleets would the ACF regulation affect?

The regulation would apply to fleets performing drayage operations, state and local agencies, federal government agencies, and high priority fleets with at least 1 vehicle with a gross vehicle weight rating (GVWR) greater than 8,500 lbs. operating in California. High priority fleets are defined as an entity with \$50 million or more in gross annual revenue or a fleet who owns, operates, or controls a total of 50 or more vehicles themselves or under common ownership and control. Only vehicles with a GVWR greater than 8,500 lbs. included in this total. The regulation affects medium- and heavy-duty trucks, off-road yard trucks and light-duty mail and package delivery vehicles.

What regulatory concepts are being explored?

Staff are exploring several concepts for manufacturers and certain fleets to begin making a full transition to zero-emission vehicles. The following is a summary of the proposed requirements:

- Manufacturers may only sell zero-emission medium- and heavy-duty vehicles starting 2040.
- State and local government fleets, including county, special district, and state agency fleets, would be required to ensure 50 percent of vehicle purchases are zero-emission beginning in 2024 and 100 percent of vehicle purchases are zero-emission by 2027.
- For drayage fleets, starting 2024, only zero-emission trucks may be added to drayage service and legacy vehicles must be removed from drayage service at the end of their useful life. By 2035, all drayage trucks must be zero-emission.
- High priority and federal fleets must comply with the Model Year Schedule or elect to use the optional ZEV Milestone Schedule to phase in zero-emission vehicles to their fleet:
 - Model Year Schedule: Fleets must only purchase zero-emission vehicles beginning 2024 and must remove internal combustion engine vehicles at the end of their useful life.
 - ZEV Milestone Schedule (Optional): Instead of the Model Year Schedule, fleets may elect to meet zero-emission vehicle targets as a percentage of the total fleet starting with vehicle types that are most suitable for electrification. The proposed schedule is laid out in Table A:

Table A: ZEV Milestone Schedule by Milestone Group and Year

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

How will disadvantaged communities benefit from the proposed ACF regulation?

This regulation will accelerate the deployment of zero-emission vehicles and the benefits they offer to communities most impacted by harmful truck emissions. Neighborhoods located near seaports, railyards, warehouses, and distribution centers are disproportionately affected by high truck traffic from medium- and heavy-duty trucks. One aspect of the proposed regulation proposed that by 2035, trucks entering the ports and railyards would need to be zero-emission, which will greatly benefit air quality in neighborhoods surrounding these locations. Nearly half of all the semi-trucks that travel on our freeways will need to be zero-emission by 2035 as well. This regulation will also affect the vehicles that operate directly in our neighborhoods such as delivery trucks, garbage trucks, and utility trucks. This will greatly reduce the harmful impacts of tailpipe emissions and disruptive noise on our streets. And as the demand for zero-emission vehicles increases and new fueling infrastructure is needed, various businesses throughout the zero-emission vehicle supply chain will create new job opportunities.

Can zero-emission trucks save vehicle owners money?

Yes, zero-emission trucks have lower operating costs than conventional trucks which can help offset the higher initial purchase price. These vehicles will also result in lower costs for scheduled maintenance. Today, the total cost of ownership in California may be comparable to conventional trucks for certain duty cycles and applications, without considering available grants or rebates. As components and battery prices fall and technology continues to improve, the total cost of ownership is expected to become more favorable.

The electricity cost to charge battery electric trucks varies based on how fast they charge, the utility rate, and the time of day. A calculator for estimating electricity cost is available at [Battery-Electric Truck and Bus Charging Cost Calculator](https://ww2.arb.ca.gov/resources/documents/battery-electric-truck-and-bus-charging-cost-calculator) (<https://ww2.arb.ca.gov/resources/documents/battery-electric-truck-and-bus-charging-cost-calculator>). In many cases, a fleet owner may have little to zero net electricity cost after.

[Low-Carbon Fuel Standard](https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard) (<https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>) credits are included. Additionally, the operational costs for hydrogen fuel cell electric trucks is expected to decrease as the demand for the fuel increases over time.

Is there funding for purchasing zero-emission trucks?

Yes, several funding programs are available to support the use of advanced technologies. These programs are administered by state agencies, federal agencies, and local air districts. For example, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) provides point-of-sale rebates to help offset the upfront cost of advanced technologies like fuel cell electric and battery electric vehicles. A list of all vehicles that are currently eligible for funding is available at [California HVIP](https://www.californiahvip.org/) (<https://www.californiahvip.org/>). For more information

about additional funding opportunities, visit [CARB Incentive Programs](https://ww2.arb.ca.gov/our-work/topics/incentives) (<https://ww2.arb.ca.gov/our-work/topics/incentives>) and the [US Department of Energy's Alternative Fuels Data Center](https://afdc.energy.gov/laws/state) (<https://afdc.energy.gov/laws/state>).

Technical and financial assistance for infrastructure is also available through several programs. The California Public Utilities Commission has approved plans for California utilities to support heavy-duty charging infrastructure installation pursuant to [Senate Bill 350](https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350) (<https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350>). The California Energy Commission is also working to accelerate medium and heavy-duty vehicle infrastructure for both charging and hydrogen refueling. The recently launched [EnergiIZE](http://energiize.org) (energiize.org) program provides energy infrastructure incentives for commercial vehicle fleets.

Where can more information be found?

Information about the draft ACF Regulation and upcoming meetings, workshops, and events is available at the [ACF Website](https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets) (<https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>). Information about all medium- and heavy-duty zero-emission regulations, funding, and background can be found at [ZEV TruckStop](https://ww2.arb.ca.gov/sites/default/files/truckstop/zev/zevinfo.html) (<https://ww2.arb.ca.gov/sites/default/files/truckstop/zev/zevinfo.html>).

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