



Guide to Off-Road Vehicle & Equipment Regulations

The California Air Resources Board (CARB) is actively enforcing off-road diesel and large spark-ignition engine vehicle and equipment regulations in support of California's clean air goals. Enforcement of clean off-road vehicle rules provides a level playing field for those who have already done their part and are in compliance. If your fleet does not meet state clean air laws, you could be subject to fines.

This booklet provides basic information and resources to help take the guesswork out of California's clean off-road vehicle and equipment requirements. This booklet is not comprehensive of all CARB regulations that an off-road fleet may be subject to, but provides basic information specific to the following:

- Regulation for In-Use Off-Road Diesel-Fueled Fleets
- Large Spark-Ignition Engine Fleet Requirements Regulation
- Portable Equipment Registration Program

DISCLAIMER

While this booklet is intended to assist vehicle owners with their compliance efforts, it is the sole responsibility of fleets to ensure compliance with applicable regulations.

For more information or assistance with compliance options, visit arb.ca.gov/offroadzone, call the toll-free hotline at (877) 59DOORS (877-593-6677), or email at doors@arb.ca.gov.

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What off-road vehicle and equipment rules may apply to you?

Check all that apply:

- Are your off-road vehicles or equipment self-propelled and have diesel engines?
See the Regulation for In-Use Off-Road Diesel-Fueled Fleets: Page 2

- Do you operate a diesel off-road fleet with a combined horsepower (hp) of 500 or less?
See the Optional Compliance Schedule overview: Page 7

- Do you operate forklifts, sweeper/scrubbers or airport ground support equipment?
See the Large Spark-Ignition Engine Fleet Requirements Regulation: Page 8

- Does a vehicle pull your equipment?
See the Portable Equipment Registration Program: Page 12

- Do you own or operate two-engine cranes, water-well drilling rigs, or other two-engine diesel vehicles?
See the Two-Engine Vehicle overview: Page 14

Regulation for In-Use Off-Road Diesel-Fueled Fleets

All self-propelled off-road diesel vehicles 25 horsepower (hp) or greater used in California and most two-engine vehicles (except on-road two-engine sweepers) are subject to the Regulation for In-Use Off-Road Diesel-Fueled Fleets (Off-Road Diesel Regulation). This includes rented and leased vehicles. The overall purpose of the Off-Road Diesel Regulation is to reduce emissions of oxides of nitrogen (NO_x) and particulate matter (PM) from off-road diesel vehicles operating within California. The Off-Road Diesel Regulation does the following:

- Requires all vehicles be reported to CARB (online reporting tool, DOORS) and labeled.
- Restricts the adding of older vehicles into fleets starting on January 1, 2014.
- Requires fleet owners to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (VDECS) i.e., exhaust retrofits.
- Imposes limits on idling and requires a written idling policy, and
- Requires a disclosure when selling vehicles.

Table 1: Fleet Size

Category	Description
Small	< 2,500 hp
Medium	2,501 to 5,000 hp
Large	> 5,000 hp

The requirements and compliance dates of the Off-Road Diesel Regulation vary by fleet size. For a fleet owner to determine their fleet size, it must add up all of the off-road diesel horsepower under common ownership or control in the fleet.

Basic Reporting

Reporting – Initial & Annual

Fleet owners must report the vehicle and engine information for all vehicles within their fleets operating in California. Fleet owners must also report owner information. Fleet owners should report using DOORS, which is CARB’s free online reporting tool. For more information on how to report and what information is required, visit arb.ca.gov/offroadzone.

New California fleet owners must report their vehicle and engine information within 30 days of the date of purchase or bringing the vehicles into the state. Fleet owners must report new vehicles, sold vehicles, and retired vehicles within 30 days.

All fleet owners must review and update their information by March 1st of each year. For each annual reporting date, a fleet owner must report any changes to the fleet, hour meter readings (for low-use vehicles and vehicles used a majority of the time, but not solely, for agricultural operations), and submit the Responsible Official Affirmation of Reporting (ROAR) form. Fleet owners submit this information using DOORS or forms available on CARB’s website.

Labeling

After fleet owners report vehicles to CARB, a unique Equipment Identification Number (EIN) is assigned to each vehicle. The fleet owner must label their vehicles within 30 days of receiving EINs. CARB does not issue EIN labels; it is the fleet owner’s responsibility to follow CARB’s label specification and to make or purchase the labels or placards, or paint the EINs on their vehicles. Off-road diesel vehicles must have two labels, one on each side of the vehicle.



Emission Performance Compliance Options

By each annual compliance deadline, a fleet owner must demonstrate that their fleet has met the fleet average target for that year, or completed the Best Available Control Technology (BACT) requirements.

Meeting the Fleet Average Target

The fleet average index is an indicator of a fleet's overall emissions rate determined by the horsepower and model year of each engine in the fleet. If the fleet average index is equal to or less than the fleet average target for a given year, the fleet owner is not required to take further action to reduce emissions from their vehicles.

Complying with BACT Requirements

If a fleet owner cannot, or chooses not to, meet the fleet average target in a given year, it may instead comply with the BACT requirements. A fleet owner may meet the BACT requirements each year by turning over or installing VDECS on a certain percentage (referred to as the BACT rate) of the fleet's total horsepower.

Table 2: Compliance Dates for Annual Reporting and Emission Performance Requirements by Fleet Size

Fleet Size	Annual Reporting ¹	Fleet Average Target or BACT Dates ²
Large	2012 - 2023	2014 - 2023
Medium	2016 - 2023	2017 - 2023
Small	2018 - 2028	2019 - 2028

1 A fleet using BACT to comply may have requirements beyond these dates if the fleet average target is not achieved.

2 A fleet using BACT to comply may have requirements beyond these dates if the fleet average target is not achieved.

Ban on Adding Vehicles

- **Ban on adding Tier 0 Vehicles:** Effective January 1, 2014, a fleet owner may not add a vehicle with a Tier 0 engine to their fleet.
- **Ban on adding Tier 1 Vehicles:** Effective January 1, 2014, for large and medium fleets, and January 1, 2016, for small fleets, a fleet owner may not add any vehicle with a Tier 1 engine.
- **Ban on adding Tier 2 Vehicles:** Effective January 1, 2018, for large and medium fleets, and January 1, 2023, for small fleets, a fleet owner may not add a vehicle with a Tier 2 engine to their fleet. The engine must be Tier 3 or higher.



Table 3: Adding Vehicles Requirements by Fleet Size & Calendar Year³

Fleet Size	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Medium/ Large	T2				T3					
Small	T1		T2				T3			

³ Minimum engine tier allowed to be added to a fleet.

Disclosure for Selling Vehicles

The seller (whether a dealer or a contractor with just one vehicle) must provide disclosure of the Off-Road Diesel Regulation (exact language provided in the regulation) on the bill of sale or invoice, and must keep records that the disclosure was provided for three years after the sale. The seller must also report the vehicle sale to CARB within 30 days of the sale.

Idling Limited to 5 Minutes

Fleet owners must limit their unnecessary idling to five minutes; there are exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or in a queue waiting for work.

Written Idling Policy

Medium and large fleet owners must have a written idling policy.



Optional Compliance Schedule for Fleets with 500 hp or Less

Small fleets with 500 hp or less may comply with the small fleet requirements, or may comply with an optional compliance schedule. The optional compliance schedule allows the fleet owner to phase out Tier 0 and Tier 1 vehicles by 2029 by demonstrating, through annual reporting that the fleet has a minimum percentage of vehicles with a Tier 2 engine. The optional compliance schedule is shown in the table below.

Table 4: Optional Compliance Schedule for Fleets with 500 hp or Less

Compliance Date: January 1 of Year	Percent of Fleet (by hp)
2019	25
2022	50
2026	75
2029	100

By 2029, fleet vehicles must have Tier 2 or higher engines. If small fleet owners with 500 hp or less choose not to pursue this compliance path, they must meet the small fleet requirements.



Off-Road Large Spark-Ignition Engine Fleet Requirements Regulation

All forklifts, floor scrubbers and sweepers, industrial tow tractors, and airport ground support equipment with large spark-ignited (LSI) engines meeting the following requirements are subject to the Off-Road Large Spark-Ignition Engine Fleet Requirements Regulation (LSI Fleet Regulation):

- 25 horsepower (19 kilowatts) or greater, and
- greater than 1 liter displacement.

LSI engines use gasoline, propane, and compressed natural gas as fuel. The LSI Fleet Regulation includes some electric-powered equipment.

The overall purpose of the LSI Fleet Regulation is to reduce emissions of NO_x and hydrocarbons from an estimated 90,000 pieces of equipment in California by accelerating the introduction of cleaner equipment through retrofits and the retirement of older, dirtier equipment. The LSI Fleet Regulation does the following:

- Requires fleets to meet a fleet average emission level (FAEL) standard.
- Requires all equipment subject to the FAEL standard be reported to CARB and labeled.
- Reduces emissions from uncontrolled equipment through engine retrofit or replacement with newer, lower-emission equipped engines or electric-powered equipment.

Small fleets, those fleets with less than four forklifts or less than four non-forklifts, are excluded from the LSI Fleet Regulation.

Basic Reporting

Reporting – Initial & Annual

Fleet operators must report the equipment and engine information for all equipment subject to the FAEL standards to CARB. Fleet operators must also report operator's information. Fleet operators report using DOORS, which is CARB's free online reporting tool for the LSI Fleet Regulation. For more information on how to report and what information is required, visit arb.ca.gov/offroadzone.

Fleet operators were required to complete initial reporting by June 30, 2017. Fleets that are newly subject to the FAEL after June 30, 2017 (for example, a new fleet operating in California or fleet that grew from small to large fleet size), must report within 60 days.

Fleets subject to the FAEL must submit a reporting attestation annually between June 1st and June 30th each year through 2023. The attestation must affirm that the reported information is true, accurate, and complete. Fleet operators must report any changes to the fleet and hour meter readings for low-use vehicles. Fleet operators submit this information using DOORS or forms available on CARB's website.



Fleet Average Emission Level Standards

Fleets were required to meet FAEL standards in accordance to the compliance schedule described in Table 3. The final compliance date for the FAEL standards was January 1, 2013. Fleet operators can reduce their fleet's average emissions by replacing older equipment with used or new equipment that has engines certified to the 2010 emission standard, replacing with zero-emission electric equipment, or by installing retrofits (available for 1990 and newer model year engines).

Table 5: LSI Fleet Regulation Fleet Average Emission Level Standards

Fleet Type	Number of Units	Fleet Average Emission Level g/kW-hr (g/bhp-hr)		
		1/1/2009	1/1/2011	1/1/2013
Large forklift fleet	26+	3.2 (2.4)	2.3 (1.7)	1.5 (1.1)
Medium forklift fleet	4 - 25	3.5 (2.6)	2.7 (2.0)	1.9 (1.4)
Non-forklift fleet	4+	4.0 (3.0)	3.6 (2.7)	3.4 (2.5)

Labeling

After a fleet operator reports their equipment to CARB, CARB assigns each piece of equipment a unique Equipment Identification Number (EIN). The fleet operators must label their equipment within 30 days of receiving EINs. CARB does not issue EIN labels; it is the fleet operator's responsibility to follow CARB's label specification and to make or purchase the labels or placards, or paint the EINs on their vehicles. Off-road LSI equipment must have one label per piece of equipment.

Rental/Lease Equipment

In certain situations, rental and leased equipment may be included in a fleet's FAEL calculation. For example, since this equipment is typically newer, fleet operators may want to include this equipment to lower their FAEL. Fleet operators must report and label any rental or leased equipment that is included in their FAEL calculation in the same manner as the equipment the fleet operator owns.



Agricultural Crop Preparation Service (ACPS) Equipment

Operators of ACPS equipment are subject to emission requirements in the LSI Fleet Regulation. The LSI Fleet Regulation does not require ACPS equipment to be reported and labeled. ACPS equipment is defined as packinghouses, cotton gins, nut hullers and processors, dehydrators, feed and grain mills, and other related activities that fall within the United States Census Bureau's North American Industry Classification System (NAICS) definition for Industry 115114 (Postharvest Crop Activities) (published 2002). For forestry operations, ACPS means milling, peeling, producing particleboard and medium density fiberboard, and producing woody landscape materials and other related activities the NAICS definition for 321113 (Sawmills, published in 2007) and 321219 (Reconstituted Wood Product Manufacturing, published in 2007).

In-Field Agriculture

In-field agricultural equipment is exempt from the LSI Fleet Regulation.

Portable Equipment Registration Program (PERP)

If you own or operate a portable engine 50 hp or greater, you may need a permit or registration to legally operate in California. California has 35 local air districts that are responsible for taking enforcement action against individuals who own or operate portable equipment without a registration or permit.

PERP is a statewide program, established in 1997 with the PERP Regulation that provides an alternative path to registration for portable equipment owners who operate in multiple air districts. Without the uniform statewide program, equipment owners would have to obtain an operating permit from each air district where the engine or equipment unit operates, potentially leading to multiple permits for one piece of equipment. Portable equipment registered in PERP may operate throughout the state without obtaining multiple local air district permits.



Portable Engine Examples

Examples of portable engines include those used in well drilling, service rigs, power generation (excluding cogeneration), pumps, compressors, diesel pile-driving hammers, welding, cranes, wood chippers, dredges, and military tactical support equipment applications. Equipment units are pieces of portable equipment that emit non-combustion-related particulate matter less than 10 microns in diameter (PM_{10}) and are used in activities that include, but are not limited to, confined and unconfined abrasive blasting, concrete batch plants, sand and gravel screening, rock crushing, wood chipping, and unheated pavement recycling and crushing.

Why Regulate Portable Engines?

The Portable Diesel Engine Airborne Toxic Control Measure (ATCM) is a regulation adopted in 2004 that sets emissions requirements for portable engines to reduce exposure to toxic diesel particulate matter and protect public health. The ATCM works in concert with PERP to allow fleets to voluntarily register portable equipment used across California with the state rather than permitting or registering the equipment with each local air district individually.

Learn more about your specific requirements by emailing portable@arb.ca.gov, visiting arb.ca.gov/portable/portable.htm



Two-Engine Vehicles

Two-Engine Vehicles May Be Subject to Two Regulations

CARB has tried to limit the situations in which the engines of a two-engine vehicle are subject to different regulations. In most cases, both engines of a two-engine vehicle are subject to the Off-Road Diesel Regulation. However, there are exceptions to this rule. In certain cases, a two-engine vehicle may be subject to two of the following regulations:

- Truck and Bus Regulation
- Off-Road Diesel Regulation
- Fleet Rule for Public Agencies and Utilities
- Portable Diesel Engine Airborne Toxic Control Measure

CARB has defined two-engine vehicles in the Off-Road Diesel Regulation as “a specially constructed on-road or off-road mobile diesel-powered vehicle that was designed by the original equipment manufacturer to be equipped with two diesel engines: one engine provides the primary source of motive power of the vehicle while the second engine is an auxiliary engine 50 brake horsepower (bhp) or greater that is permanently attached and integrated into the design of the vehicle to perform a specific function, which may include providing auxiliary power to attachments, performing special job functions, or providing additional motive power.”

If a vehicle was originally designed to be able to accommodate an auxiliary engine, but someone other than the original equipment manufacturer installed that engine, the vehicle still qualifies as a two-engine vehicle.

Examples of two-engine vehicles include augers, boom trucks, concrete mixers, concrete pump trucks, cranes, drill rigs, guardrail fence installers, and vacuum pump trucks.

Funding Assistance

Grant funding may be available to help fleets and individuals comply with California regulations earlier or beyond regulatory requirements.

The Carl Moyer Memorial Air Quality Standards Attainment Program

One of the most popular assistance options is the Carl Moyer Program (Moyer program). This grant program funds the incremental cost of cleaner-than-required engines, equipment and other sources of air pollution. The Moyer program complements California's regulatory programs by providing incentives to obtain early or extra emission reductions beyond what is required by regulation.

Implementation of the Moyer program is a partnership between CARB and California's 35 local air districts. Over the Moyer program's history, more than half of the total program funding has gone towards off-road projects.

Funding is available for vehicle replacements, retrofits, zero-emission technologies, and infrastructure. Equipment owners are encouraged to apply as early as possible to maximize potential funding options. Please contact the local air district where you are based to determine if you are eligible for funding or if an opportunity may become available in the future.

FARMER Program

The "Funding Agricultural Replacement Measures for Emission Reductions" (FARMER) Program provides funding for cleaner heavy-duty trucks, tractors, harvesting equipment, agricultural pump engines, utility terrain vehicles, and other equipment used in agricultural operations.

FARMER Program incentive funding is available for participants to purchase cleaner agricultural equipment to help reduce their exposure to harmful diesel emissions, improve local air quality, and lower greenhouse gas emissions. Similar to the Carl Moyer Program, FARMER is administered through California's local air districts.

To learn more about the FARMER program and funding eligibility requirements, potential participants are encouraged to visit CARB's FARMER website at arb.ca.gov/farmer, or contact their local air district.

CORE Voucher Program

The Clean Off-Road Equipment Voucher Incentive Project (CORE) is intended to accelerate deployment of advanced technology in the off-road sector by providing a streamlined way for fleets to access funding that helps offset the incremental cost of such technology. CORE targets commercial-ready products that have not yet achieved a significant market foothold. By promoting the purchase of clean technology over internal combustion options, the project is expected to reduce emissions, particularly in areas that are most impacted; help build confidence in zero-emission technology; and provide other sector-wide benefits, such as technology transferability, reductions in advanced-technology component costs, and larger infrastructure investments.

For more information, visit californiacore.org or arb.ca.gov/calcore.

Quick Tips

- All fleet owners must report and label their off-road diesel vehicles with two Equipment Identification Numbers (EIN).
- All fleet owners must report and label their large spark-ignited engine equipment with one EIN.
- You can access your DOORS account for the Off-Road Diesel and LSI Fleet Regulations with one username and password.
- Remember to update DOORS after you sell a diesel vehicle or LSI equipment within 30 days. Once this you do so, the new owner can enter the vehicle/equipment into their fleet.
- The Responsible Official Affirmation Report (ROAR) for the Off-Road Diesel Regulation can be completed electronically using the e-ROAR in DOORS – saving time, money, and trees.
- Off-road diesel vehicles used 100% of the time in agricultural operations are exempt from the Off-Road Diesel Regulation.
- Off-road LSI equipment used 100% of the time for in-field agricultural operations are exempt from the LSI Fleet Regulation.
- Large and medium off-road diesel fleets can no longer add vehicles with Tier 0, Tier 1, or Tier 2 engines to their fleets.
- Small fleets can add vehicles with Tier 2 diesel engines until January 1, 2023.
- Small off-road diesel fleets with 500 horsepower or less may comply with an optional compliance schedule requiring a percentage of Tier 2 engines in the fleet.
- CARB frequently sends out regulatory reminders to fleets; make sure your contact information is up to date in DOORS so you don't miss this important information.

How do I get assistance with CARB regulations?

For more information or help with the Off-Road Diesel Regulation or the LSI Fleet Regulation, call CARB's toll-free DOORS hotline at (877) 59DOORS (877-593-6677) or email at doors@arb.ca.gov. DOORS may be accessed at: ssl.arb.ca.gov/ssldoors/doors_reporting/doors_login.html.

For more information or assistance with the Portable Equipment Registration Program (PERP), email portable@arb.ca.gov.

Visit the arb.ca.gov/offroadzone to access vital information including program pages for each regulation. These pages contain detailed documents meant to help fleets with their compliance efforts, such as Frequently Asked Questions, User Guides, and compliance forms.

Contact Information

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