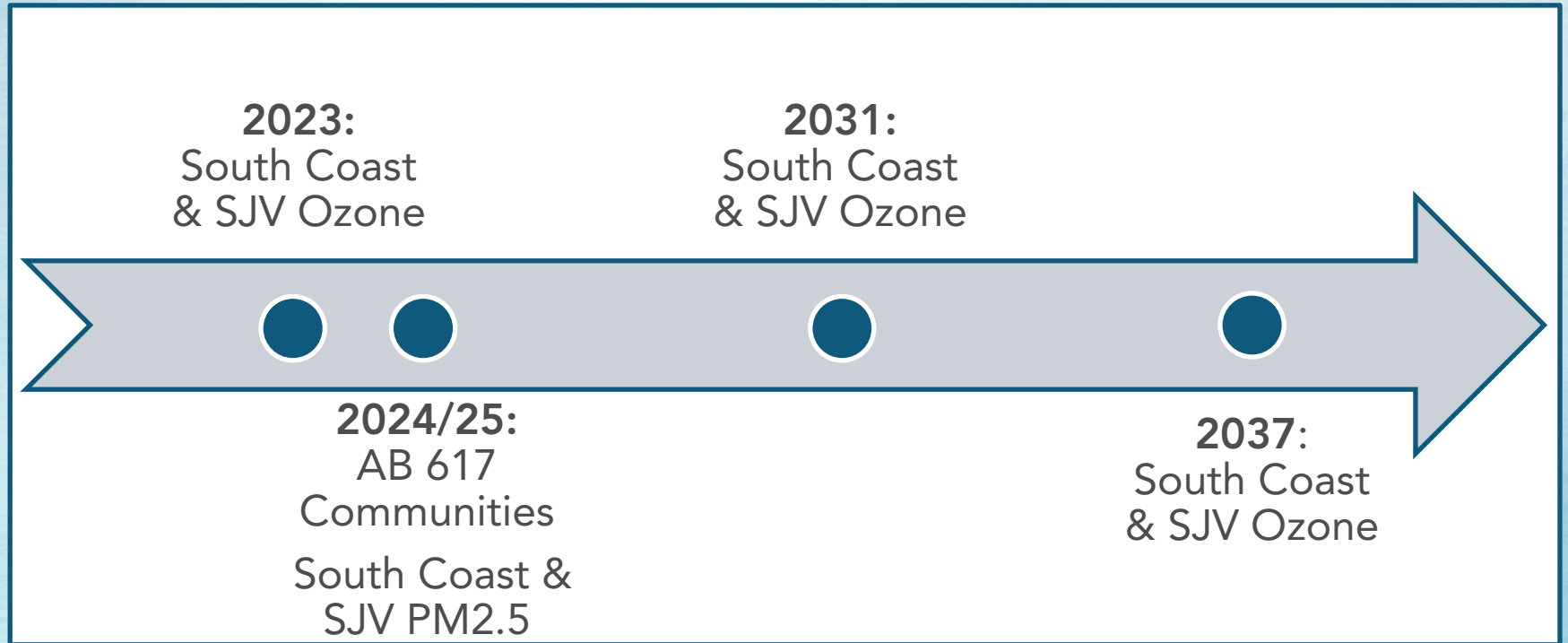




Potential Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation

Second Workshop
December 14, 2021

California's Air Quality Goals



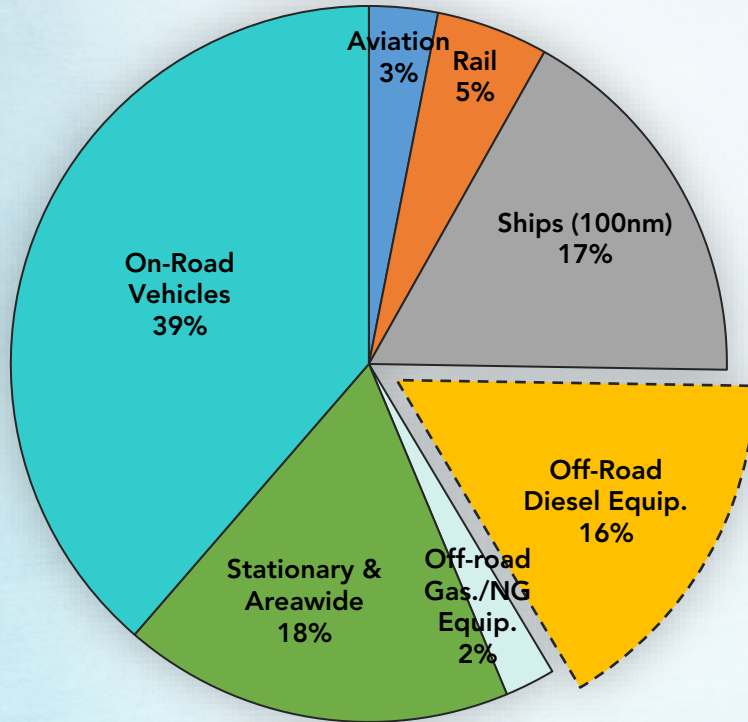
Additional Progress is Needed to Meet Ozone Standard

- EPA revised the 8-hour ozone standard to 70 ppb in 2015
- 19 areas in California are designated nonattainment

Nonattainment Area	Classification
South Coast Air Basin	Extreme
San Joaquin Valley	Extreme
Western Mojave Desert	Severe
Coachella Valley	Severe
San Diego County	Severe
Ventura County	Serious
Sacramento Metro	Serious*
Eastern Kern County	Serious*
Western Nevada County	Serious*

*Pending EPA approval

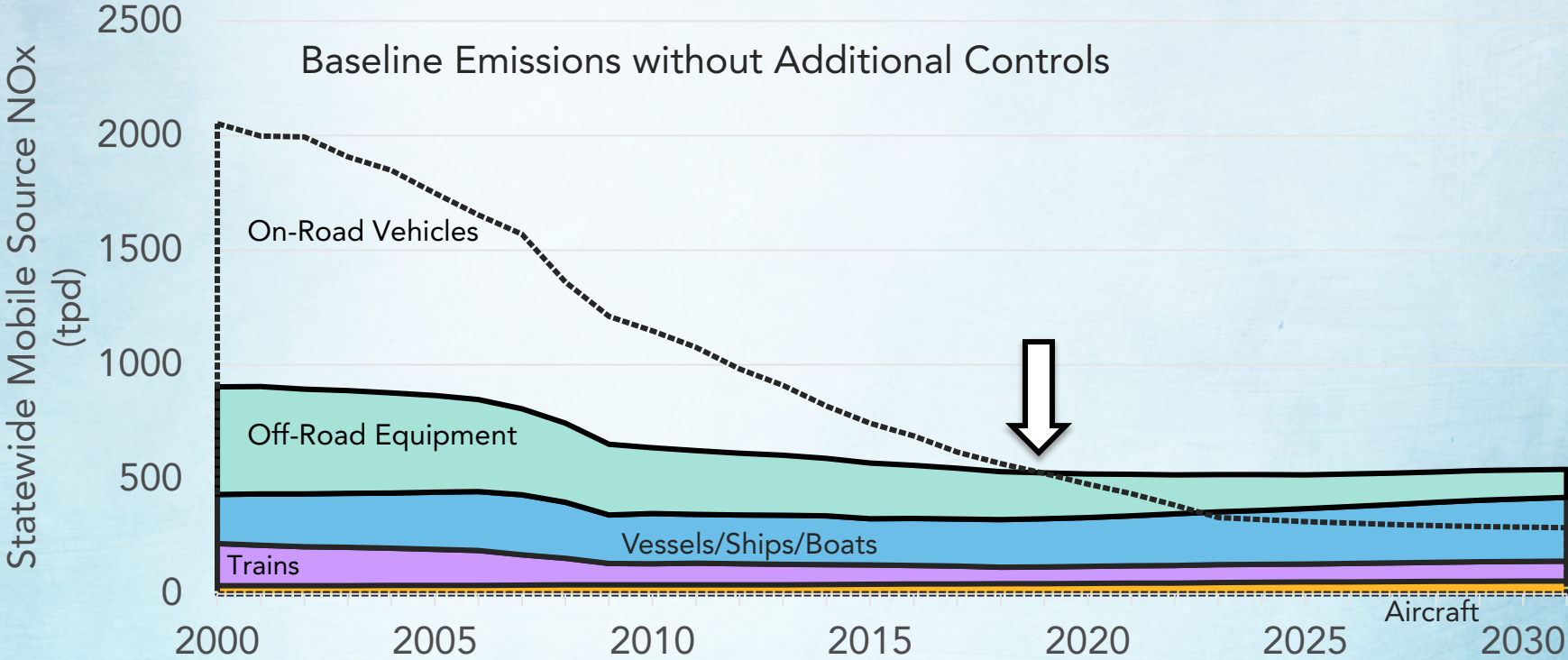
NOx Contribution from Off-Road Diesel Equipment



Off-Road Diesel Equipment

- Construction and mining, industrial, agriculture, cargo handling, transport refrigeration units, portable, ground support, etc.
- 16% of NOx emissions and 1% of GHG emissions in California

Growing Importance of Off-Road



Off-Road Strategies Board Date Timeline

2021

- Small Off-Road Engines (SORE) Zero-Emissions

2021

- Clean Off-Road Equipment (CORE) – Construction Funding

2022

- Amendments to the In-Use Off-Road Diesel Regulation

2022

- Zero-Emission Forklift Regulation

2024

- Clean Off-Road Fleet Recognition Program

2024/5

- Tier 5 Off-Road Diesel New Engine Regulation

2025

- Targeted Manufacturer Rule

Concept Language Discussion

The purpose of the concept language is to foster discussion with stakeholders

This language is not the final regulatory language proposal

Proposed modifications are shown in underline to indicate potential additions and ~~strikeout~~ to indicate potential deletions

For a comprehensive look at the potential changes please refer to the ORD Amendment Proposed Concept Language document

Operational Backstop: Tiers 0 to 2

Reference:
Page 66-67

All fleets must comply with the operational backstop requirements described in sections 2449.1(c)(1) through (3) below.

Any special provision vehicles, as described in section 2449(e), with an engine that is subject to these operational backstops must be designated as a special provision vehicle by December 31 of the year prior to the operational backstop's effective date.

(1) Operational Backstop for Large Fleets

- a. Beginning on January 1, 2024, a large fleet shall not operate a vehicle with a Tier 0 engine or a model year 1994 or earlier on-road engine in California.
- b. Beginning on January 1, 2026, a large fleet shall not operate a vehicle with a Tier 1 engine or a model year 1999 or earlier on-road engine in California.
- c. Beginning on January 1, 2028, a large fleet shall not operate a vehicle with a Tier 2 engine or a model year 2003 or earlier on-road engine in California.

Medium:

- a. In 2026
- b. In 2028
- c. In 2030

Small:

- a. In 2028
- b. In 2030
- c. In 2032

Operational Backstop: T0 Low-Use and Jobs Corps

Reference:
Page 67

(4) Operational Backstop for Permanent Low-Use Vehicles and Jobs Corps Vehicles

Beginning on January 1, 2036, no fleet shall operate a vehicle designated as permanent low-use or as a jobs corps vehicle with a Tier 0 engine or a model year 1994 or earlier on-road engine in California.

Operational Backstop: Ultra-Small Fleets

Reference:
Page 37/67

Fleets with 500 hp or less may meet the operational backstop requirements in section 2449.1(c)(5) instead of the small fleet operational backstop requirements in section 2449.1(c)(3).

(5) Optional Operational Backstop for Fleets with 500 HP or Less

Fleets that choose to comply with the requirements of 2449(e)(16) are not subject to the small fleet operational backstop requirements in section 2449.1(c)(1) – (4) above. Instead, beginning on January 1, 2036, these fleets shall not operate a vehicle with a Tier 2 engine or a model year 2003 or earlier on-road engine in California.

Vehicle Adding: Tiers 3 and 4i

Reference:
Page 24-25

(D) Ban on adding Tier 3s – Beginning [upon adoption], for large, medium, and small fleets, a fleet may not add a vehicle with a Tier 3 engine to its fleet. The engine tier must be Tier 4 interim or higher.

(E) Ban on adding Tier 4 interims – Beginning January 1, 2024, for large and medium fleets, and January 1, 2028, for small fleets, a fleet may not add a vehicle with a Tier 4 interim engine to its fleet. The engine tier must be Tier 4 final or higher.

Vehicle Adding: On-Road Engines

Reference:
Page 25

(F) Ban on adding vehicles powered by model year 2006 or earlier on-road engines – Beginning January 1, 2024 for large and medium fleets, and January 1, 2028 for small fleets, a fleet may not add a vehicle powered by a model year 2006 or earlier on-road engine to its fleet. A vehicle powered by an on-road engine being added to the fleet would need to be powered by an on-road engine that is model year 2007 or later.

Vehicle Adding: Tier 0 Special Provisions

Reference:
Page 25

(G) Ban on adding Tier 0s to special provisions – Beginning January 1, 2024, for large, medium, and small fleets, a fleet may not add a vehicle with a Tier 0 engine to its fleet as a vehicle designated as a dedicated snow removal vehicle, a vehicle used for emergency operations, or a job corps vehicle as described in section 2449(e).

Vehicle Adding: California Certified

Reference:
Page 25

(H) Beginning January 1, 2028, for large, medium, and small fleets, a fleet may not add any model year 2028 or later engine or vehicle of any Tier to its fleet unless the engine is California-certified or certified to the California-equivalent emission standards applicable to model year 2028 and later equipment. This requirement also applies to model year 2028 and later replacement engines produced under the provisions of 40 CFR §1068.240. Except as required or allowed by federal law, this requirement does not apply to new engines smaller than 175 horsepower that are used in construction equipment or vehicles, or used in farm equipment or vehicles.

Low-Use: Add Rolling Average to Permanent

Reference:
Page 10

(F) Three-year rolling average – Beginning January 1, 2024, a vehicle operated only in California for three consecutive years and owned by the same owner during that period may be considered permanent low-use if it is operated an average of 200 hours or fewer per year during the three-year period.

Low-Use: Removing Year-by-Year

Reference:
Page 31

No vehicle will be considered a year-by-year low-use vehicle on or after January 1, 2024.

Low-Use: Changes to Reporting

Reference:
Page 44-45

(C) Engine Hour Meter Readings – Engine hour meter readings must be reported for each engine in the following cases in (C)(1)-(4), below. Each report must include a photo of the engine hour meter showing the engine hour at the time of the reading being reported.

after December 31 of the prior year. For vehicles for which fleets are using the three-year rolling average definition of permanent low-use, report two hour meter readings: one from on or before January 1 of the first year of the three-year period and one from on or after December 31 of the third year of the three-year period.

Low-Use: Report Hour Meter Alterations

Reference:
Page 45

d. If a vehicle hour meter on a permanent or year-by-year low-use vehicles is replaced or changed or altered in any way, the fleet must notify CARB of the replacement or changes made during the following engine hour reporting period. Reporting of replacements or changes must include the hour meter replacement and/or change date, the hour meter reading of the replaced meter on the date of replacement and/or change, and the hour meter reading of the replacement and/or changed meter at the time of reporting.

Renewable Diesel: Reporting

Reference:
Page 46

(D) Renewable Diesel Use Reporting –Starting on January 1, 2024, in each year that annual reporting is required, a fleet shall submit to CARB an affirmation signed by its responsible official or designated official that the fleet complied with the performance requirements outlined in section 2449.1(e).

Renewable Diesel: Recordkeeping

Reference:
Page 48

(10) Renewable Diesel Usage – Each fleet must document its fuel purchases to demonstrate compliance with the renewable diesel performance requirements outlined in section 2449.1(e). Such documentation may include receipts of fuel purchases, fueling contracts, or other documentation that demonstrates compliance with section 2449.1(e)(1). Such documentation shall be maintained according to section 2449.1(h)(11).

Fleets must also maintain records in accordance with the requirements defined in section 2449.1(e)(2) if at any point renewable diesel becomes unavailable.

Renewable Diesel: Performance Requirements

Reference:
Page 69

(e) Renewable Diesel Requirements

(1) Starting on January 1, 2024, all fleets subject to this regulation are required to use R99 renewable diesel fuel in all vehicles subject to this regulation, subject to the exemptions provided in section 2449.1(e)(2) below.

(2) The following fleets are exempt from the renewable diesel requirements in section 2449.1(e)(1):

- a. Any fleet that is designated as a captive attainment area fleet, as described in section 2449(c)(6); and
- b. Any fleet that is comprised entirely of vehicles with Tier 4 final engines or model year 2007 or newer on-road engines.

Renewable Diesel: Availability Issues

Reference:
Page 69

(3) If at any point renewable diesel becomes unavailable within a 25-mile radius from the fleet's job site, storage site, or regular driving route, and a fleet wishes to assert inability to comply with section 2449.1(e)(1) due to this unavailability, the fleet must have documentation showing the unavailability of renewable diesel within a 25-mile radius from the fleet's job site, storage site, or regular driving route and their attempts to obtain renewable diesel. This documentation may include, but is not limited to, communications from fuel providers, contract bids, or maps of fueling stations near a job site. If renewable diesel is unavailable, fleets must make reasonable attempts to obtain renewable diesel, at a minimum, on a quarterly basis or when vehicles move to a new job site.

If the Executive Officer finds that renewable diesel is unavailable, then the Executive Officer may grant a fleet an extension to comply with the renewable diesel requirements in section 2449.1(e)(2). If such unavailability affects a group of fleets, the Executive Officer may issue an extension to all fleets with similar characteristics. Any such unavailability must be documented with independently verifiable information demonstrating the unavailability of renewable diesel from the fleet in accordance with the recordkeeping requirement in section 2449(h)(10), from the fuel provider, or from the fuel distributor.

Off-Road Diesel Vehicle Certificates

(o) CARB Off-Road Diesel Vehicle Certificates

(1) An Off-Road Diesel Vehicle Certificate will be created for each individual vehicle that is reported to CARB and is in a fleet that is compliant with this regulation as of March 1 of each year.

(2) Each Off-Road Diesel Vehicle Certificate will include, at a minimum, the name of the fleet in which the vehicle is reported, the DOORS ID of the fleet in which the vehicle is reported, the effective date of the certificate, the vehicle make, the vehicle model, the vehicle's engine tier, the operational backstop date for vehicles with Tier 0 to Tier 2 engines, the compliance status of the fleet in which the vehicle is reported, whether the vehicle is a special provision vehicle as described in 2449(e), and whether a vehicle is using the optional zero-emission provision described in 2449.1(d).

(3) If a fleet is in compliance with the requirements of this regulation and reports a vehicle addition to its fleet, then an Off-Road Diesel Vehicle Certificate will be created for that new vehicle upon reporting.

Reference:
Page 53

Prime Contractors: Intro and Fleet Certificates

Reference:
Page 49

(i) Prime Contractor Requirements

Prime Contractors, as defined in section 2449(b)(65), are subject to the requirements described in section 2449(i)(1) – (2) below. These requirements take effect on June 1, 2024.

(1) Record Keeping and Review

- a. Prior to hiring a fleet subject to this regulation, a prime contractor must obtain a copy of the fleet's Certificate of Reported Compliance, as described in section 2449(n).

Prime Contractors: Review of Vehicle Certificates

Reference:
Page 49

- b. During the entirety of a job, the prime contractor must obtain Off-Road Diesel Vehicle Certificates for all vehicles on the job site. The prime contractor must perform and document a review of the Off-Road Diesel Vehicle Certificates, as outlined in section 2449(i)(1)(b)(i) – (iv) below. The prime contractor shall review the certificates and vehicles on the job site to:
- i. Ensure the EIN noted on the certificate and the EIN label affixed to the vehicle entering the job site match,
 - ii. Ensure the vehicle make noted on the certificate and the vehicle make of the vehicle entering the job site match,
 - iii. Ensure the vehicle model noted on the certificate and the vehicle model of the vehicle entering the job site match, and
 - iv. Ensure the effective date on the certificate is valid at the time the vehicle is performing work at the job site.

Prime Contractors: Cannot Allow Noncompliance

Reference:
Page 49

c. If, for any vehicle, the fleet does not provide its Off-Road Diesel Vehicle Certificate to the prime contractor or the review by the prime contractor reveals discrepancies between the fleet's submitted Off-Road Vehicle Certificate and the vehicle on the job site, the prime contractor must deny entry of that vehicle onto the job site and cannot allow that vehicle to perform any work on the job site until either the fleet provides its Off-Road Diesel Vehicle Certificate or the fleet cures the discrepancies between the fleet's submitted Off-Road Diesel Vehicle Certificate and the vehicle on the job site.

Prime Contractors: New Vehicle Purchases

Reference:
Page 50

d. If the fleet can provide dated bill or receipt of sale that the vehicle was purchased within the 60 days before the vehicle is to be brought on the job site, the prime contractor must obtain this documentation and can allow the vehicle onto the job site to perform work during that 60-day period only. Once the vehicle purchase date has exceeded 60 days from the date of sale on the bill or receipt of sale, the prime contractor must obtain the Off-Road Diesel Vehicle Certificate or the prime contractor must prohibit the vehicle from entering the job site or performing any work for the job.

Prime Contractors: Record Retention

Reference:
Page 50

- e. The prime contractor must collect new Certificates of Reported Compliance, as defined in section 2449(n), and Off-Road Diesel Vehicle Certificates, as defined in section 2449(o), for all fleets and vehicles subject to this regulation that are doing work on a project for the prime contractor on June 1 of each year for the duration of each project for which the vehicle is doing work.
- f. The prime contractor must retain all records they collect under this regulation in accordance with section 2449(i)(1), either electronically or in hard copy, for a minimum of three years after project completion.

Prime Contractors: Report Noncompliance

Reference:
Page 50

(2) Other Requirements

- a. The prime contractor must report to CARB, in a format determined by CARB, any vehicle subject to this regulation that the prime contractor discovers does not have an Off-Road Diesel Vehicle Certificate, does not have an EIN label, or has discrepancies between the fleet's submitted Off-Road Diesel Vehicle Certificate and the vehicle on the job site. The report must include, at a minimum, the vehicle owner's name, business name, business address, email, and phone number; vehicle information, such as make and model; and the location of the job site.
- b. The prime contractor must report to CARB, in a format determined by CARB, any fleet subject to this regulation that the prime contractor discovers does not have a Certificate of Reported Compliance as defined in section 2449(n). The report must include, at a minimum, the fleet name, email, address, and phone number; DOORS ID; and the location of the job site.

Prime Contractors: Other

Reference:
Page 51

- c. Upon request by CARB at the job site, the prime contractor must immediately disclose ownership information of all vehicles subject to this regulation operating at the job site.
- d. Upon request by CARB, the prime contractor must provide records within five business days of the request.
- e. The requirements of section 2449(i) do not apply to emergency operations and the prime contractor must retain records verifying work is performed for emergency operations.

Public Work Awarding Bodies: Verify Fleet Compliance

Reference:
Page 51

(j) Public Works Awarding Bodies Requirements

Public works awarding bodies are subject to the requirements described in section 2449(j)(1) – (3) below. These requirements take effect on January 1, 2024.

(1) Prior to awarding a public works contract for a public works project in California, a public works awarding body must obtain copies of the Certificate of Reported Compliance, as described in section 2449(n), for each fleet participating in the bid or used to determine the bid and retain these records for three years. No public works awarding body shall select a bid for which it does not have a Certificate of Reported Compliance for each fleet participating in the bid or used to determine the bid.

Public Work Awarding Bodies: Report to CARB

Reference:
Page 51-52

(2) All public works awarding bodies must report, in a format to be determined by CARB, at a minimum, the following project information to CARB for all public works contracts that are required to report to the Department of Industrial Relations under California Labor Code Division 2 Part 7 Chapter 1 Article 2 Section 1773.3 and that include the operation of any vehicles subject to this regulation:

- a. The Department of Industrial Relations project number;
- b. Information on the prime contractor and all subcontractors working on the public works project, which must include:
 - i. The contractor's company name,
 - ii. DOORS ID (if applicable), and
 - iii. Contact Information, including legal name, email, and phone number;
- c. The location of the public works project;
- d. The Public Works Awarding Body's contact information, including legal name, email, and phone number;
- e. The estimated start date and end date of the project; and
- f. The public works awarding body shall report any modifications to any of the above information within 5 days.

(3) The reporting described in section 2449(j)(2)(a) – (e) above must be reported to CARB within 30 days of the public work award and in no event later than the first day in which a contractor has workers employed upon the public work.

Voluntary Zero-Emission Flexibility: Delay of Operational Backstop

Reference:
Page 68

(d) Delay of Operational Backstops for Addition of Zero-Emissions Vehicles

Effective January 1, 2024, for each zero-emission vehicle added to a fleet, the fleet may delay the operational backstop in section 2449.1(c) applicable to one vehicle with a Tier 1 or Tier 2 engine for two years, if all of the following conditions are met:

Voluntary Zero-Emission Flexibility:

ZE Vehicle Requirements

Reference:
Page 68

(1) Requirements for zero-emission vehicle:

- a. The owner can demonstrate that the zero-emission vehicle added to its fleet will be operated by the fleet, performs a function and work equivalent to that of diesel vehicles, and is used for a purpose for which diesel vehicles are predominantly used in the fleet;
- b. The zero-emission vehicle added to the fleet is used predominately outdoors;
- c. The zero-emission vehicle added to the fleet has a maximum power rating of 25 hp or greater;
- d. The zero-emission vehicle added to the fleet must be purchased and placed in-service prior to the year in which the operational backstop for the vehicle with a Tier 1 or Tier 2 engine will take effect and remains in the fleet for the two years that the Tier 1 or Tier 2 engine is receiving the delay of the operational backstop.
- e. The vehicle is labeled in accordance with section 2449(f); and
- f. The zero-emission vehicle is of similar max power rating to the vehicle with a Tier 1 or Tier 2 engine to which the delay in operational backstop will apply, and within the following categories: 25-174 hp, 175-599 hp, 600 hp and above.

Voluntary Zero-Emission Flexibility: Reporting

Reference:
Page 68-69

(2) For each zero-emission vehicle, fleets must report the following information to CARB, in a format determined by CARB, by December 31 of the year prior to the year in which the operational backstop for the vehicle with a Tier 1 or Tier 2 engine will take effect:

- a. Vehicle type;
- b. Vehicle manufacturer;
- c. Vehicle model;
- d. Vehicle model year;
- e. Vehicle serial number;
- f. Motor manufacturer;
- g. Motor model;
- h. Motor model year;
- i. Motor serial number;
- j. Max Power Rating;
- k. Purchase date; and
- l. The in-service date.

Voluntary Zero-Emission Flexibility:

Other

Reference:
Page 69

- (3) Fleets must verify the information in section 2449.1(d)(A)2. above remains accurate and report any changes to the operation of the zero-emission vehicle, including out of service date if the vehicle leaves the fleet, in accordance with the annual reporting requirements in section 2449(g)(2).
- (4) Fleets must report to CARB, in a format determined by CARB, which vehicle with a Tier 1 or Tier 2 engine to which the delay in operational backstop will apply by December 31 of the year prior to the year in which the operational backstop for the vehicle with a Tier 1 or Tier 2 engine will take effect. This vehicle must be reported in the fleet to CARB prior to January 1, 2023 to be eligible for the delay of the operational backstop. If the fleet is a new fleet, it must be reported in accordance with section 2449(g)(3).

Other Potential Modifications

- Clarification throughout
- New Definitions: Page 15
- Newly Reported Fleet Requirements: Page 22
- Change Taxpayer ID to Federal Employer ID: Page 39
- Eliminate VDECS Exemption: Page 59
- Allow BACT Carry-Over Credit After Target Dates: Page 27

Potential Statewide Emissions Reductions

Potential Amendment Provision	NOx/PM Reduction in tpd (2025)	NOx/PM Reduction in tpd (2031)	NOx/PM Reduction in tpd (2037)
Operational Backstop and Vehicle Adding	4.1 / 0.2	5.6 / 0.3	2.7 / 0.1
Low-Use Changes (T0 backstop in 2036)	0	0	1.1 / 0.07
Renewable Diesel Requirement	2.2 / 0.4	0.6 / 0.1	0.2 / 0.03

Potential South Coast Emissions Reductions

Potential Amendment Provision	NOx/PM Reduction in tpd (2025)	NOx/PM Reduction in tpd (2031)	NOx/PM Reduction in tpd (2037)
Operational Backstop and Vehicle Adding	1.6 / 0.1	2.2 / 0.1	1.1 / 0.1
Low-Use Changes (T0 backstop in 2036)	0	0	0.4 / 0.03
Renewable Diesel Requirement	0.9 / 0.2	0.2 / 0.05	0.07 / 0.01

Survey Results: General Statistics

Received 19 total responses

Received cost information for 440 off-road vehicles

Received responses from a mix of public and private, and from a mix of large and small fleets (one medium)

Survey Results: Compliance Actions

	Retire Old Vehicle and Replace it	Retire Old Vehicle and Don't replace it	Designate Old Vehicle as Low-Use
Small Fleets (9 responses)	65%	15%	20%
Large and Medium Fleets (9 responses)	86%	4%	10%

If anyone has more feedback related to these compliance options, please reach out so we can best reflect stakeholder input.

Cost Update: Used Vehicle Cost Estimates

T4I & TF Equipment	5-Year-old Auction Data 2020 Dollars
25-49 hp	\$42,000
50-74 hp	\$55,000
75-99 hp	\$58,000
100-174 hp	\$73,000
175-299 hp	\$92,000
300-599 hp	\$109,000

Ritchie Bros data used, as presented in the October 15, 2021, cost workgroup

Cost Update: New Equipment Cost Estimates

T4I & TF Equipment	Moyer Data 2020 Dollars	Survey Data 2020 Dollars
25-49 hp	\$49,000	\$61,000
50-74 hp	\$81,000	\$75,000
75-99 hp	\$120,000	\$106,000
100-174 hp	\$184,000	\$175,000
175-299 hp	\$359,000	\$288,000
300-599 hp	\$771,000	\$659,000

New equipment Cost for 600hp<

Current Cost Data

Only a handful of Carl Moyer Data points and one survey response.

Majority of data falls in the 600 - 749 hp bin and scrapers are the most popular high hp type of equipment

Plan to Collect More Cost Data

We are currently searching for more high horsepower cost data information online, from DOORS fleets, and from equipment manufacturers

Request for Alternatives

- Pursuant to SB 617, CARB welcomes public input on alternatives to the potential concept language discussed in this workshop.
- In particular, CARB encourages public input on alternative approaches that:
 - May yield the same or greater benefits than those associated with the potential concept language, or
 - May achieve the objectives of the potential amendments at a lower cost.

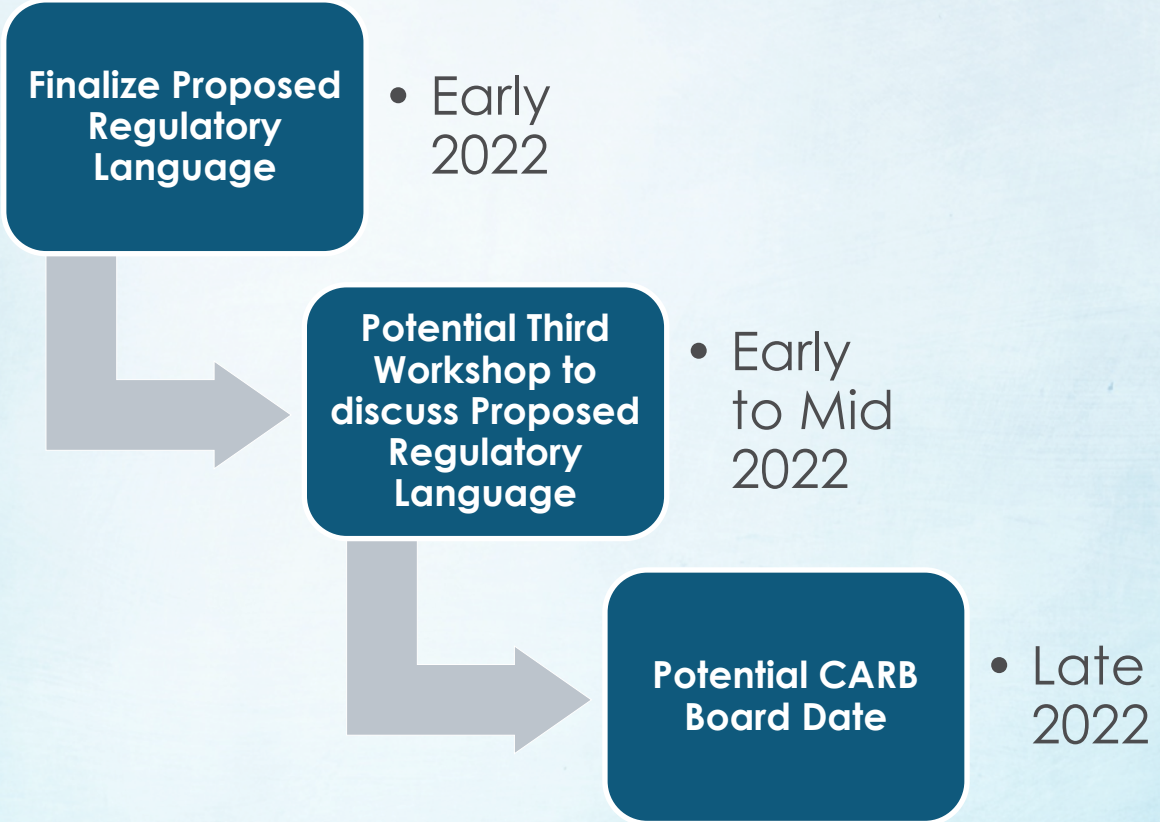
Request for Alternatives

- Please ensure the submission discusses the alternative's ability to fulfil the objectives of the potential concept language as CARB has presented it.
- Please submit cost and benefit information associated with the alternative, data sources, and a clear description of the basis for any cost calculations.

Request for Alternatives

- The deadline for submission of alternatives is January 14, 2022
- Alternatives may be submitted via email to ordamendments@arb.ca.gov

Next Steps



Questions or Comments???

Here is a brief overview of your webinar controls.

Hide/Un-Hide the Controls →

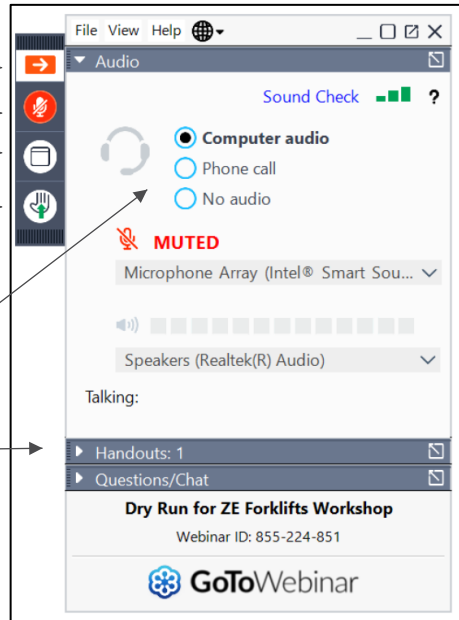
Mute/Un-Mute →

View in Full Screen →

Raise/Lower Hand →

Choose the Computer Audio or Phone Call Option →

Handouts →



Questions: May be typed in this section. We will respond to questions and comments after the presentation.

If you wish to comment through audio instead, please raise your hand. Please keep your hand raised until we call on you to speak. When called, please state your name and organization.

Contacts

Rulemaking

- Lead: Nathan Dean, Air Pollution Specialist
- Johanna Levine, Manager, Off-Road Implementation Section
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