

Title 13. California Air Resources Board

Notice of Public Hearing to Consider Proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation

The California Air Resources Board (CARB or Board) will conduct a public hearing at the date and time noted below to consider approving for adoption the Proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation (Proposed Amendments).

Date: November 17, 2022

Time: 9:00 A.M.

In-Person Location:

California Air Resources Board
Byron Sher Auditorium
1001 I Street, Sacramento, California 95814

Remote Option:

Zoom

This public meeting may continue at 8:30 a.m. on November 18, 2022. Please consult the public agenda, which will be posted ten days before the November 17, 2022, Board Meeting, for important details, including, but not limited to, the day on which this item will be considered, how to participate via Zoom, and any appropriate direction regarding a possible remote-only Board Meeting if needed.

Written Comment Period and Submittal of Comments

In accordance with the Administrative Procedure Act, interested members of the public may present comments orally or in writing during the hearing and may provide comments by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on September 23, 2022. Written comments not submitted during the hearing must be submitted on or after September 23, 2022, and received **no later than November 7, 2022**. Comments submitted outside that comment period are considered untimely. CARB may, but is not required to, respond to untimely comments, including those raising significant environmental issues. The Board also encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action. Comments submitted in advance of the hearing must be addressed to one of the following:

Postal mail: Clerks' Office, California Air Resources Board
1001 I Street, Sacramento, California 95814

[Electronic submittal:](https://www.arb.ca.gov/lispub/comm/bclist.php) <https://www.arb.ca.gov/lispub/comm/bclist.php>

Please note that under the California Public Records Act (Gov. Code, §§ 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Additionally, the Board requests, but does not require, that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

Authority and Reference

This regulatory action is proposed under the authority granted in California Health and Safety Code, sections 39002, 39003, 39515, 39516, 39600, 39601, 39602, 39602.5, 39650, 39656, 39658, 39659, 39665, 39667, 39674, 39675, 39730.8(c), 40000, 41511, 42400, 42400.1, 42400.2, 42400.3.5, 42402, 42402.1, 42402.2, 42402.4, 42403, 43000, 43000.5, 43013, 43016, 43018, 43018.2, and 43600. This action is proposed to implement, interpret, and make specific sections 39000, 39002, 39003, 39515, 39516, 39600, 39601, 39602, 39602.5, 39650, 39656, 39657, 39658, 39659, 39665, 39667, 39674, 39675, 39730.8(c), 40000, 41511, 42400, 42400.1, 42400.2, 42402.2, 43000, 43000.5, 43013, 43016, 43018, 43018.2, 43600, 43865, and 43866 of the California Health and Safety Code.

Informative Digest of Proposed Action and Policy Statement Overview (Gov. Code, § 11346.5, subd. (a)(3))

Sections Affected:

Proposed amendments to California Code of Regulations, title 13, sections 2449, 2449.1, and 2449.2.

Documents Incorporated by Reference (Cal. Code Regs., tit. 1, § 20, subd. (c)(3)):

The following document is incorporated in the regulation by reference:

- American Society for Testing Materials (ASTM) International, 2021. "Standard Specification for Diesel Fuel. Designation D975-21," August 1, 2021. Copyrighted.

Background and Effect of the Proposed Regulatory Action:

The purpose of the Off-Road Regulation is to reduce diesel particulate matter (DPM), Oxides of Nitrogen (NOx), and other criteria air pollutants from in-use off-road diesel-fueled vehicles in California (Cal. Code Regs., tit. 13, § 2449, subd. (a)). The Off-Road Regulation addresses emissions from a wide variety of off-road diesel vehicles, ranging from small skidsteer loaders used in residential landscaping to very large mining trucks, dozers, forklifts, cranes, and excavators. These vehicles are often used in construction, mining, industrial operations, and other industries. The existing Off-Road Regulation (Current Regulation) requires fleets to reduce their emissions by retiring older engines and replacing the retired engines with newer engines, repowering older engines, or installing verified diesel emission control strategies in

older engines (VDECS); and by restricting the addition of older vehicles to fleets. The Current Regulation has been effective but is in need of updates as technology continues to advance and California's air quality needs remain serious.

Despite significant improvements in California's air quality over the past decades, major populated regions in California are still not in attainment with the federal national ambient air quality standards (NAAQS) for particulate matter 2.5¹ (PM2.5) and ozone. In addition to emitting PM2.5 and NOx (which is a precursor to ozone), off-road diesel vehicles also emit DPM, which has been identified as a toxic air contaminant (TAC) by CARB and poses a significant public health risk, especially at the local level. Action is needed to reduce DPM at a statewide level to reduce the health risk throughout California, especially in communities that experience disproportionate burdens from exposure to TACs. The Draft 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy) proposes several measures to address these needs for further emissions reductions from the off-road sector, and the Proposed Amendments are identified as one such measure.

The Proposed Amendments, as identified in the Draft 2022 State SIP Strategy, are critical measures needed to achieve further emissions reductions than the Current Regulation from the off-road sector to achieve California's clean air goals. The Proposed Amendments would reduce emissions by requiring fleets to phase out operation of their oldest and highest-emitting off-road diesel vehicles, prohibiting the addition of high-emitting vehicles to a fleet, and requiring the use of R99 or R100 renewable diesel² in off-road diesel vehicles. Below is a list of the major changes included in the Proposed Amendments:

- Phase out the oldest and highest-emitting off-road engines (Tiers 0, 1, and 2) from operation in California. This provision will be implemented by fleet size and engine Tier;
- Restrict the addition of vehicles with Tier 3 and 4 Interim (i) engines, which expands provisions of the Current Regulation that restrict the vehicle engine Tier that can be added to a fleet;
- Require public works awarding bodies and prime contractors to obtain a fleet's Certificate of Reported Compliance prior to awarding a contract to or hiring a fleet;
- Mandate the use of R99 or R100 renewable diesel for all fleets, with some limited exceptions;
- Provide voluntary compliance flexibility options for fleets that adopt zero-emission technology; and
- Include additional requirements to increase enforceability, provide clarity, and provide additional flexibility for permanent low-use vehicles.

¹ PM2.5 is fine particulate matter that are 2.5 microns or less in diameter.

² Fuel that is 99 percent or 100 percent renewable diesel.

CARB may also consider other changes to the sections affected, as listed on page 2 of this notice, or other sections within the scope of this notice, during the course of this rulemaking process.

Existing Regulations: Standards for New Off-Road Engines

CARB's regulatory programs for new off-road diesel engines are largely harmonized with the United States Environmental Protection Agency's (U.S. EPA) for nonroad diesel engines. Since the mid 1990's, emission standards adopted by U.S. EPA and CARB have required new off-road engines to become progressively cleaner. In developing the standards for new engines, staff worked closely with U.S. EPA to develop harmonized federal and California programs. The emission standards are divided into four increasingly stringent levels (Tiers); the allowed emission level and effective dates vary by horsepower (hp). Until the mid-1990s, off-road diesel engines were not subject to emission standards (commonly known as Tier 0 or "uncontrolled"). Starting in 1996, depending on engine size, the tiered standards began to be phased in. Tier 4 standards are divided into two stages for engines with a maximum rated hp of 25 or greater, interim and final. More information on the implementation years for the off-road compression ignition engine emission standards can be found in Chapter I the Staff Report: Initial Statement of Reasons (ISOR).

Objectives and Benefits of the Proposed Regulatory Action:

The primary goal of the Proposed Amendments is to reduce emissions of criteria and toxic air pollutants which hurt public health, welfare, and the environment in California, to meet federal and State ambient air quality standards. An additional goal of the Proposed Amendments is to maintain a level playing field for compliant fleets conducting business in California and ensure that the projected emissions reductions of both the Current Regulation and the Proposed Amendments are achieved. The Proposed Amendments also aim to support the zero-emission goals outlined in the Governor's Executive Order N-79-20 by providing voluntary compliance pathways that offer compliance flexibility to participants when adopting zero-emission technology, which is critical for expanding zero-emission technology in the off-road sector.

Public Rulemaking Process for Development of the Proposed Amendments

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held public workshops and other meetings with interested stakeholders during the development of the Proposed Amendments which were used to make the determination of the proposed action. This extensive public process began in May 2021 and included 3 virtual public workshops, 3 public workgroup meetings, and over 30 individual meetings with stakeholders upon request to gather additional information and feedback during the development of the Proposed Amendments. Staff also established the Proposed Amendments email, ordamendments@arb.ca.gov, so that the public could reach out to CARB staff at any time.

Potential Benefits of the Proposed Amendments

Cumulatively, from 2024 through 2038, the Proposed Amendments are expected to reduce statewide emissions from off-road diesel-fueled vehicles by approximately 31,087 tons

of NO_x and 2,717 tons of particulate matter (PM) beyond the reductions expected from the Current Regulation. About half of the additional NO_x and PM reductions from the Proposed Amendments are expected to be realized within the first five years of implementation. The additional emissions reductions from the Proposed Amendments are expected to reduce the concentration of PM in the communities in which these vehicles operate, benefitting both local residents and the operators of the vehicles alike, as well as reducing the concentration of ozone, which provides regional health benefits. These emission reductions and associated improvements in air quality would be especially beneficial in environmental justice communities that are frequently located in areas with increased exposure to air pollution and toxics from in-use off-road diesel vehicles.

CARB staff estimated the reduction in adverse health outcomes associated with reduced emissions of PM_{2.5} and NO_x due to the Proposed Amendments. These health outcomes include cardiopulmonary mortality, hospital admissions for cardiovascular and respiratory illnesses, and emergency room visits for asthma. Based on the analysis, staff estimates that the total reduction in the number of cases statewide due to the implementation of the Proposed Amendments from 2024 to 2038 would be as follows:

- 571 fewer premature deaths (446 to 699, 95 percent confidence interval),
- 82 fewer hospital admissions for cardiovascular illnesses (0 to 161, 95 percent confidence interval),
- 98 fewer hospital admissions for respiratory illnesses (23 to 173, 95 percent confidence interval), and
- 277 fewer emergency room visits for asthma (175 to 379, 95 percent confidence interval).

The Proposed Amendments would also reduce worker exposure to harmful air pollutants for workers that utilize in-use off-road diesel vehicles at their job. In California alone, it is estimated that 150,000 people are occupationally exposed to off-road heavy-duty diesel vehicles. This includes, but is not limited to, those people working as construction equipment operators, construction laborers, highway maintenance workers, and surface miners.³ The Proposed Amendments will play an important role in reducing the amount of DPM and NO_x emissions to which workers are exposed. The expected results are improved working conditions, fewer lost workdays, and long-term health benefits for workers.

The Proposed Amendments introduce additional requirements for prime contractors and public works awarding bodies that will ensure that these entities only enter into contracts with compliant fleets, therefore making it harder for noncompliant fleets to inappropriately operate in California and applying additional pressure to these fleets to come into compliance if they wish to contract with these entities. These changes achieve implementation and enforcement benefits of maintaining a level playing field for compliant vehicles conducting business in California and reducing the monetary advantage of noncompliant fleets and vehicle owners that try to circumvent the requirements of the Off-Road Regulation.

³ Jobs & Income. (2019). USAFacts. Retrieved July 5, 2022, from https://usafacts.org/data/topics/economy/jobs-and-income/?utm_source=bing&utm_medium=cpc&utm_campaign=ND-Economy&msclkid=298c80e31a941c4490cfe2277aaed3f5.

Although the Proposed Amendments would not require the deployment of zero-emission technology, voluntary provisions have been included to promote this objective. These provisions offer some compliance flexibility for the deployment of zero-emission off-road vehicles. The voluntary provisions support increasing the population of currently available zero-emission off-road vehicles which, in turn, will improve fleet experience with these vehicles and facilitate expansion of the technology into additional off-road vehicle categories.

Comparable Federal Regulations:

Currently, there are no federal regulations that directly address the same issues as CARB's Proposed Amendments. The U.S. EPA has promulgated emission standards for new off-road diesel engines, but has not promulgated federal standards for addressing emission reductions from fleets operating in-use vehicles with off-road (nonroad) engines. Consequently, the Proposed Amendments are not comparable to any federal regulations.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory action, CARB conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing State regulations.

Mandated by Federal Law or Regulations (Gov. Code, §§ 11346.2, subd. (c), 11346.9)

The Proposed Amendments are not identical to one or more corresponding federal regulations.

Disclosure Regarding the Proposed Regulation

Fiscal Impact/Local Mandate Determination Regarding the Proposed Action (Gov. Code, § 11346.5, subds. (a)(5)&(6)):

The determinations of the Board's Executive Officer concerning the costs or savings incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulatory action are presented below.

Under Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Executive Officer has determined that the proposed regulatory action would create costs or savings to any State agency, would not create costs or savings in federal funding to the State, would create costs or mandate to any local agency or school district, whether or not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

Cost to any Local Agency or School District Requiring Reimbursement under section 17500 et seq.:

Pursuant to Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Proposed Amendments are a mandate that would create costs and cost-savings to local agencies and school districts. However, these costs to local agencies are not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500). The direct costs from the Proposed Regulation can generally be categorized into two categories: 1) vehicles and maintenance costs and 2) contracting costs for public works awarding bodies to receive Certificates of Reported Compliance from contractors. The vehicle and maintenance costs are not reimbursable because these apply generally to all entities that own and operate affected vehicles, including local agencies. The contracting requirements apply broadly to all prime contractors and all public works awarding bodies that contract for a project involving the use of vehicles subject to the Off-Road Regulation, which effectively applies to most construction related contracting in the State where vehicles subject to the Off-Road Regulation are operating. Additionally, the contracting requirements do not require a higher level of service from public works awarding bodies because most agencies already require compliance with State law as a condition of getting a contract. Therefore, the Proposed Amendments do not constitute a "Program" imposing any unique requirements on local agencies as set forth in section 17514 of the California Government Code.

Cost or Savings for State Agencies:

The State government owns and operates vehicles subject to the tier phase-out and adding vehicle restrictions of the Proposed Amendments. Using February 2022 data from DOORS, the reporting tool for the Off-Road Regulation, CARB staff determined that the number of vehicles owned by the State government is one percent of the total number of vehicles reported.

The Proposed Amendments would require contracting entities, including public works awarding bodies, verify fleet compliance by obtaining and reviewing the Certificate of Reported Compliance from all known fleets before awarding a contract and only enter into contracts with fleets compliant with the regulation. These requirements have administrative costs that yield direct costs on the State government.

CARB anticipates the need for additional staff (3 Air Pollution Specialists and 4 Air Resources Technician II) to conduct additional enforcement, outreach, compliance assistance and maintenance of compliance assistance tools. This additional staff will have an initial cost of \$1.053 million in 2024 and \$1.046 million in annual ongoing costs.

From 2023 through 2038, State government is estimated to face additional costs of approximately \$46 million, savings of \$13 million, an increase of revenue of \$119 million, and decrease of revenue of \$77 million as a result of these Proposed Amendments, if approved. The vehicle and maintenance costs will not be spread across all State government agencies equally but will instead be directly related to the number of vehicles a State agency owns and operates and to the tier distribution of those vehicles. Based on data reported in DOORS, the California Department of Transportation owns and operates about 40 percent of all the State-owned off-road vehicles reported in DOORS and, along with the California Department

of General Services, does the most public works contracting that would be subject to the Proposed Amendments. Other agencies that will be impacted by the Proposed Amendments include, but are not limited to, the California Department of Forestry and Fire Protection and the California Department of Parks and Recreation, each with approximately 7 percent of reported State-owned off-road vehicles reported in DOORS, and the California Department of Fish and Wildlife, which has approximately 6 percent of reported State-owned off-road vehicles reported in DOORS.

The Proposed Amendments are not anticipated to have current fiscal year (2022-2023) impacts. The impacts in 2023 are anticipated to occur in the second half of 2023, subsequent to the adoption and effective date of the Proposed Amendments.

Other Non-Discretionary Costs or Savings to Local Agencies:

Local agencies own and operate vehicles subject to the tier phase-out and additional vehicle restrictions of the Proposed Amendments. Almost any local agency could own and operate a vehicle subject to the Proposed Amendments, such as a forklift operating in a warehouse or other facility. However, the local agencies that will be most impacted are those that are involved in public works, waste management and sanitation, flood control and water agencies, parks and recreation districts, fire departments, and transportation agencies. The costs will not be spread across all local agencies equally but will instead be directly related to the number of vehicles a local agency owns and operates and to the tier distribution of those vehicles. Using February 2022 data from DOORS, CARB staff determined that the number of off-road vehicles reported in DOORS owned by local governments to be three percent of the total number of vehicles reported to CARB under the Current Regulation.

The Proposed Amendments require that contracting entities, including public works awarding bodies, verify fleet compliance by obtaining and reviewing the Certificate of Reported Compliance from all known fleets before awarding a contract and only enter into contracts with fleets compliant with the regulation. These requirements have administrative costs that affect the direct costs on local governments. The new requirements for public works awarding bodies will be directly proportional to the number of public works projects an agency undertakes. During the development of the cost estimates for this requirement, CARB reviewed the Capital Improvement Plans of different agencies. These plans reveal a trend that entities with larger populations tend to have a larger number of public works projects. Using population as a surrogate, CARB anticipates that agencies located in the most populous areas of the state will be most impacted by this requirement. CARB estimates an annual cost of \$1.2 million associated with this provision, \$18.6 million from 2023 through 2038. More details on these estimated costs can be found in Chapter XI of the ISOR and Appendix B of the ISOR, Standardized Regulatory Impact Assessment.

From 2023 through 2038, the Proposed Amendments, if approved, are estimated to have a total cost to local agencies of \$110 million, a total cost savings of \$40 million, a revenue increase of \$141 million (primarily due to sales tax generated from the sales of off-road vehicles), and a revenue decrease of \$91 million. The Proposed Amendments are not anticipated to have current fiscal year (2022-2023) impacts. The impacts in 2023 are anticipated to occur in the second half of 2023 subsequent to the adoption and effective date of the Proposed Amendments.

Cost or Savings in Federal Funding to the State:

The Proposed Amendments are not expected to impose any costs or savings in federal funding to the State.

Housing Costs (Gov. Code, § 11346.5, subd. (a)(12)):

The Executive Officer has also made the initial determination that the proposed regulatory action will not have a significant effect on housing costs. CARB staff believes that it is unlikely that direct costs would be passed on to residents of new residential housing. CARB staff analyzed the potential indirect impact to new residential construction on a per unit basis based on forecasted production of new residential units and the needed units to meet California's housing needs identified in the 2022 Statewide Housing Plan in Appendix B of the ISOR, Standardized Regulatory Impact Assessment.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. The overall jobs and output impacts are small relative to the baseline employment for the California economy. The largest employment and output decreases in the State are estimated to be about 0.04 percent in 2025, 2026 and 2027. Reductions in output could indicate the elimination of businesses. Conversely, increased output within an industry could signal the potential for additional business creation if existing businesses cannot accommodate all future demand. There is no threshold that identifies the creation or elimination of businesses.

The Proposed Amendments impose requirements equally on all fleets that operate off-road diesel vehicles in California, whether the business that owns or operates them is based in-state or out-of-state. If an out-of-state business wants to operate vehicles subject to the Off-Road Regulation, it would need to comply with all requirements of the regulation, just as an in-state business would. In addition, the work performed by these off-road diesel vehicles is bound to the job site, and requires large infrastructure investments, such as mining and construction activities. Therefore, it is unlikely the directly-impacted businesses will move out of the State. More information on the potential economic impacts of the Proposed Amendments can be found in Chapter XI of the ISOR.

Results of The Economic Impact Analysis/Assessment (Gov. Code, § 11346.5, subd. (a)(10)):

Major Regulation: Statement of the Results of the Standardized Regulatory Impact Analysis (SRIA) (Gov. Code, § 11346.3, subd. (c)):

In May 2022, CARB submitted a SRIA to the Department of Finance (DOF) for its review. CARB has updated the Proposed Amendments since the original SRIA submittal. The revisions are discussed in Chapter XI of the ISOR.

The creation or elimination of jobs within the state.

Regional Economic Models, Inc. (REMI) Policy Insight Plus Version 2.5.0 is used to estimate the macroeconomic impacts of the Proposed Amendments on the California economy. The Proposed Amendments are estimated to have a marginally negative impact on statewide employment from 2023 to 2031, and then a positive impact on statewide employment from 2032 to 2038, when compared to the baseline. The results suggest that the estimated negative employment impact for the initial years is primarily from increased production costs due to increases in vehicle purchase costs, maintenance costs, and contracting costs as a result of the Proposed Amendments. This is caused by the Proposed Amendments' requirement to accelerate the replacement or retirement of vehicles with older engine Tiers between 2023 and 2031, which displaces natural turnover that would have happened after 2031. Overall, the change in total employment is anticipated to be small, relative to the baseline employment for the California economy. The year with the largest employment change is in 2027, which represents a 0.04 percent decrease relative to baseline California employment.

The creation of new businesses or the elimination of existing businesses within the state.

The Proposed Amendments are estimated to not directly result in business creation or elimination. Although the REMI model cannot directly estimate the creation or elimination of businesses the model does predict changes in the number of jobs and output in the California economy which can be used to understand some of the potential impacts to businesses. Initially California will see job losses but the overall impact will be a slight growth in employment which suggests that the Proposed Amendments will have a minimal impact on business operations. As off-road fleets and regulated entities face compliance costs, the potential for some of these businesses to be eliminated cannot be ruled out. The overall jobs and output impacts are small relative to the total California economy. The largest employment and output decreases in the State are estimated to be about 0.04 percent in 2025, 2026 and 2027. Reductions in output could indicate the elimination of businesses. Within the primary industries impacted, mining and construction are estimated to see the greatest negative impact in 2027, with an approximate 0.2 percent decrease in employment relative to baseline employment in 2027. Conversely, increased output within an industry could signal the potential for additional business creation if existing businesses cannot accommodate all future demand. There is no threshold that identifies the creation or elimination of business.

The competitive advantages or disadvantages for businesses currently doing business within the state.

CARB staff do not anticipate impacts to the competitive advantage or disadvantage of businesses currently doing business in the State. The Proposed Amendments impose requirements equally on all fleets that operate off-road diesel vehicles in California, whether the business that owns or operates them is based in-state or out-of-state. If an out-of-state business wants to operate vehicles subject to the Off-Road Regulation, it would need to comply with all requirements of the regulation, just as an in-state business would. In addition, the work performed by these off-road diesel vehicles is bound to the job site, and requires large infrastructure investments, such as mining and construction activities. Therefore, it is unlikely the directly impacted businesses will move out of the State. Additionally, the contracting requirements apply broadly to all prime contractors doing business in the State.

The increase or decrease of investment in the state.

Private domestic investment consists of purchases of residential and nonresidential structures, and of equipment and software, by private businesses and nonprofit institutions. It is used as a proxy for impacts on investments in California because it provides an indicator of the future productive capacity of the economy. Private domestic investment is estimated to show a decrease of \$256 million in 2023 compared to the baseline private investment value. The highest decrease of private investment is about \$806 million in 2027, which is followed by a positive trend resulting in an increase of \$225 million in 2038. In any given year this represents changes of 0.15 percent or less than that of baseline investment.

The incentives for innovation in products, materials, or processes.

The Proposed Amendments will further reduce emissions from off-road diesel equipment operating in California by phasing out the use of the most polluting vehicles. The Proposed Amendments target the removal of vehicles with Tier 0, 1, and 2 engines, and require the vehicles to be replaced with the cleanest available technology. The Tier 4 final engine standard has been in use since the late 2010's. Hence, the Proposed Amendments' requirements can be met with existing technology and will not be driving innovation in terms of engine standards.

However, the Proposed Amendments include an optional flexibility provision for fleets that want to incorporate zero-emission technology into their fleets. CARB staff does not assume any benefits or costs associated with this provision, as it is optional. The Proposed Amendments provide an opportunity for fleets wanting to participate in the beachhead innovation of off-road zero-emission technology to obtain additional compliance flexibility. The compliance flexibility offered in the Proposed Amendments could create a staging ground for fleets to initiate and improve their experience with zero-emission technology. While this provision provides opportunities, the degree to which it will be employed will depend on individual fleets' decisions and are not quantified.

The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.

CARB anticipates the Proposed Amendments will have the following general benefits to Californians:

- The Proposed Amendments are expected to reduce NO_x and PM from off-road diesel-fueled vehicles operating in California beyond what would be achieved under the Current Regulation.⁴ Staff estimate that from 2024 through 2038, the Proposed Amendments would reduce cumulative statewide emissions by approximately 31,087 tons of NO_x and 2,717 tons of PM beyond expected emissions reductions from the base regulation. Reducing these emissions would benefit individuals by reducing incidents of premature death, hospital admissions, and emergency room visits. Staff estimates that the total number of cases statewide that would be reduced (from 2024 to 2038) from the implementation of the Proposed Amendments are as follows: 571 fewer premature deaths, 82 fewer hospital admissions for cardiovascular illnesses, 98 fewer hospital admissions for respiratory illnesses, and 277 fewer emergency room visits for asthma. The total statewide valuation due to avoided health outcomes between 2024 and 2038 would be \$5.74 billion.
- The Proposed Amendments would also reduce worker exposure to harmful air pollutants for workers that utilize in-use off-road diesel vehicles at their job. In California alone, it is estimated that 150,000 people are occupationally exposed to off-road heavy-duty diesel vehicles. This includes, but is not limited to, those working as construction equipment operators, construction laborers, highway maintenance workers, and surface miners⁵. This amendment will play an important role in reducing the amount of DPM and NO_x emissions to which workers are exposed. The expected results are improved working conditions, fewer lost workdays, and long-term health benefits for workers.

Department of Finance Comments and Responses.

DOF Comment #1: The SRIA must disclose disparate impacts, including those on state agencies that may bear proportionately higher costs relative to others. Currently, the SRIA reports separate costs only for the UC and CSU systems, and these cost estimates must be expanded to include other individual agencies that might also use a disproportionately larger number of the state's off-road vehicles.

Staff Response: CARB cannot precisely quantify an individual fleets direct costs since it would be speculative of CARB to assume a specific compliance strategy, and different

⁴ As the engines impacted by the requirements of this regulation are not subject to greenhouse gas certification standards, no GHG analysis was completed for the replacement of these engines. CARB staff did not analyze a potential GHG benefit from the voluntary zero-emission compliance flexibility provision as the degree to which it will be employed will depend on individual fleets' decisions. Furthermore, any GHG benefit derived from the use of renewable diesel is already accounted for in the Low Carbon Fuel Standard and is not evaluated here.

⁵ Jobs & Income. (2019). USAFacts. Retrieved July 5, 2022, from https://usafacts.org/data/topics/economy/jobs-and-income/?utm_source=bing&utm_medium=cpc&utm_campaign=ND-Economy&msclkid=298c80e31a941c4490cfe2277aaed3f5.

compliance strategies have different costs. In Section 4.2 of the SRIA (starting on page 42), CARB attempted to provide an overview of which State agencies owned the most vehicles subject to the Proposed Amendments and therefore could have higher costs. Specifically,

The vehicle and maintenance costs will not be spread across all State government agencies. Based on data reported in DOORS, the California Department of Transportation owns and operates about 40 percent of all the State-owned vehicles and, along with the California Department of General Services, does the most public works contracting that would be subject to the Proposed Amendments. Other agencies that will be impacted by the Proposed Amendments include, but are not limited to, the California Department of Forestry and Fire Protection and the California Department of Parks and Recreation both with approximately 7 percent of reported State-owned vehicles and the California Department of Fish and Wildlife with approximately 6 percent of reported State-owned vehicles.

Actual costs for an individual fleet, including State government fleets, are dependent on many factors, including the current fleet makeup (e.g. higher percentage of Tier 0, Tier 1, or Tier 2 vehicles) and size of the fleet. Fleets that would have a higher cost burden are:

- Larger fleets (i.e., those with more vehicles),
- Fleets that have a relatively high percentage of vehicles subject to the Tier 0, Tier 1, or Tier 2 phase-out requirements of the Proposed Amendments, and
- Fleets that must comply with the large fleet requirements.⁶

Based on these assumptions and using information self-reported to CARB⁷ by the agencies, CARB has identified the State and local agencies that CARB believes may have a higher cost burden. There are limitations to this approach, however, since an individual fleet chooses their compliance strategy.

CARB has added four tables to Appendix C of the ISOR that present the top ten State and local agency fleets by the absolute number of impacted vehicles (those vehicles that are reported as Tier 0, Tier 1, or Tier 2 and subject to the tier phase-out requirement in the Proposed Amendments), and by the proportion of impacted vehicles in their fleets, two of the possible criteria that may identify fleets subject to greater impacts. CARB estimates that State agencies own one percent and local agencies own three percent of the statewide population off-road vehicles subject to this regulation.

The new requirements for public works awarding bodies will be directly proportional to the number of public works projects an agency undertakes. During the development of the cost estimates for this requirement, CARB reviewed the Capital Improvement Plans of different agencies. These plans reveal a trend that entities with larger populations tend to have a larger number of public works projects. Using population as a surrogate, CARB anticipates that agencies located in the most populous areas of the State will be most impacted by this requirement. CARB has added a table to Appendix C of the ISOR that displays the counties

⁶ All state agencies are required to comply with the large fleet requirements of the Off-Road Regulation.

⁷ Data recovered from DOORS, the reporting tool for the Off-Road Regulation, on July 1, 2022.

with the highest projected populations in 2024, when this requirement begins to take effect⁸. Compliance costs for this requirement will vary, based on the internal policies and procedures of each affected organization. CARB has attempted to align these requirements with the reporting required by the Department of Industrial Relation's public works programs in an effort to minimize the compliance burden by mirroring procedures these agencies are already undertaking. More details on how CARB estimated this cost can be found in Appendix B of the ISOR, Standardized Regulatory Impact Assessment.

DOF Comment #2: The SRIA assumes that incidence-per-ton factors calculated for the period from 2014 to 2016 will hold in the future, while it may be that additional years of data may change these factors and/or causal relationships and hence change the estimated benefits. Or provide an explanation for why the period only from 2014 to 2016 is the most appropriate one to use.

Staff Response: The SRIA uses the most updated incidence-per-ton (IPT) factors available to estimate future health benefits. CARB will consider potential updates to the IPT factors and underlying data in the future, but additional analyses would be needed to ensure that the IPT factors for human-made sources of air pollution are not affected by events such as the occurrence of high wildfire seasons after 2016, analyses which are not available yet. There is a strong body of epidemiological research supporting the causal and likely causal relationships between particulate matter 2.5 (PM2.5) exposure and the adverse health outcomes we evaluated, and this research has grown over the years. Additionally, recent studies continue to show that exposures to even low PM2.5 concentrations, below the levels of current air quality standards, can lead to adverse health outcomes. Therefore, the causal and likely causal relationships reflect the most recent science.

DOF Comment #3: The SRIA assumes that vehicle and engine activity profiles from 2020 are the most representative profiles. However, 2020 may not be the most appropriate year to measure vehicle activity (as opposed to 2021, if available, or 2019) as construction activity was unusually low for due to the COVID-19 Pandemic, and the SRIA should demonstrate that the 2020 profiles are not an outlier or use more representative data.

Staff Response: CARB staff believes that the comment about the vehicle and engine activity profiles being based on 2020 activity is from the following statement on page 31 of the SRIA in the list of data sources incorporated into the 2022 CARB Construction, Industrial, Mining and Oil Drilling Emissions Inventory:

Activity hours profiles created from the results of the 2020 Off-Road Activity Survey, an optional survey conducted via the DOORS online reporting system.

CARB provides further explanation of this data source below. The 2020 Off-Road Activity Survey was an optional survey that was conducted via DOORS, the reporting tool for the Off-Road Regulation, in the summer of 2020, with questions about fleets, their vehicles, and vehicle activity regarding the time period between January 1, 2019 and December 31, 2019. There was, additionally, one free-response question about how the fleet's business had been affected in 2020. The responses to this survey reflect 2019 activity, prior to the circumstances

⁸ Department of Finance, P-2A Total Population for California and Counties. Accessed July 7, 2022 <https://dof.ca.gov/forecasting/Demographics/projections/>

of 2020, and can be considered representative data. The 2019 data is the most recently available data. More information about this survey can be found in Appendix F of the Staff Report for the Public Hearing to Consider Proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation.

DOF Comment #4: The SRIA assumes that under current law, operators would replace enough vehicles every year to keep the average fleet age the same as it was in 2013. As operators' vehicle replacement rates could significantly affect both the costs and the benefits, the SRIA should either base its estimated replacement rate on the most relevant data or justify why the 2013 benchmark is the most appropriate target age.

Staff Response: To establish a baseline for comparison for the Proposed Amendments, CARB modeled a baseline that reflects implementation and full compliance with existing federal and State emission standards for new off-road diesel engines and diesel fuel, as well as with the current Off-Road Regulation which applies to fleets operating in-use off-road engines, as amended in 2010 (current law). Under current law, the Off-Road Regulation's final compliance occurs when a fleet meets its final fleet average target. The current law establishes a date on which fleets are to meet this final target or turn over a minimum of 10 percent of the fleet's total fleet horsepower every year until that final fleet average target is met. The final fleet average target dates set in current law are January 1, 2023, for large and medium fleets, and January 1, 2028, for small fleets. After the fleet meets its final fleet average target, the current law only requires that it maintain its fleet average target in subsequent years; no further vehicle replacements are required. Based on data reported to CARB in DOORS, CARB has observed that the average age of fleets dropped noticeably during the regulatory period after 2013 to comply with current law. For example, large fleets had an average age of 9.2 years in 2013, and by 2020 that average age dropped to 7.8. To model a baseline scenario through 2038, CARB needed to assume a rate at which a fleet would replace its vehicles in a situation with no law requiring them to replace vehicles. CARB assumed fleets would return to business practices that they were implementing prior to the initial compliance requirements of the current law.

The current law reflects amendments that were adopted in 2010, with initial performance requirements starting in 2014 for large fleets, 2017 for medium fleets, and 2019 for small fleets. The 2013 benchmark is the most appropriate average age target because it was prior to the initial performance requirements' compliance dates, and it was the earliest year that CARB had a comprehensive dataset of reported vehicles in DOORS. Using a benchmark year after 2013 would have the effect of establishing an average age that is artificially younger than fleets would have been prior to the current law taking effect, and the CARB baseline model would have fleets replacing vehicles at a younger age than what was modeled in the SRIA. Using a benchmark year prior to 2013 was also not practical, as CARB's fleet dataset was less comprehensive and less accurate, and no other entity requires fleets report this information, so there is no other data available as a surrogate.

Business Report (Gov. Code, §§ 11346.5, subd. (a)(11); 11346.3, subd. (d)):

In accordance with Government Code sections 11346.5, subdivisions (a)(11) and 11346.3, subdivision (d), the Executive Officer finds the reporting requirements of the proposed

regulatory action which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Cost Impacts on Representative Private Persons or Businesses (Gov. Code, § 11346.5, subd. (a)(9)):

In developing this regulatory proposal, CARB staff evaluated the potential economic impacts on representative private persons or businesses. The Proposed Amendments will result in direct cost impacts to owners of off-road diesel vehicles, as well as prime contractors. The total cost of the Proposed Amendments is estimated to be \$3.12 billion from years 2023 through 2038. The net cost, which includes cost-savings, is estimated to be approximately \$1.84 billion from years 2023 through 2038, which is less than the approximate \$5.7 billion in expected monetized health benefits. The direct costs include capital costs for new Tier 4 final off-road diesel vehicles, used Tier 4 final off-road diesel vehicles, annual costs for maintenance of Tier 4 final vehicles, and contracting and signage costs for the prime contractor provisions. A detailed discussion on the methodology and cost impact to typical businesses can be found in Appendix B and Chapter XI of the ISOR.

The Proposed Amendments would not result in any direct costs on a representative private person or individual. CARB staff anticipates that the Proposed Amendments could result in indirect costs to individuals to the extent that compliance costs are passed through to consumers of construction, mining, industrial, government, and other industries. The costs incurred by affected businesses and the public sector would cascade through the economy and affect individuals.

Effect on Small Business (Cal. Code Regs., tit. 1, § 4, subds. (a) and (b)):

The Executive Officer has determined under California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses. A small business, for the purpose of the Proposed Amendments, is defined as off-road diesel vehicle fleets with less than 500 total horsepower (ultra-small fleets) operating in California. The methodology and full details for estimating the cost impact to a small business subject to the Proposed Amendments are provided in Appendix B of the ISOR.

Consideration of Alternatives (Gov. Code, § 11346.5, subd. (a)(13)):

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law. As explained in the accompanying ISOR, the Proposed Amendments are the most cost-effective and least burdensome means of achieving the purposes of the proposal.

State Implementation Plan Revision

If adopted by CARB, CARB plans to submit the proposed regulatory action to the United States Environmental Protection Agency (U.S. EPA) for approval as a revision to the California State Implementation Plan (SIP) required by the federal Clean Air Act (CAA). The adopted regulatory action would be submitted as a SIP revision because it amends regulations intended to reduce emissions of air pollutants in order to attain and maintain the National Ambient Air Quality Standards promulgated by U.S. EPA pursuant to the CAA.

Environmental Analysis

CARB, as the lead agency for the proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation, has concluded that this proposed action is exempt from California Environmental Quality Act (CEQA), as described in CEQA Guidelines §15061, because the action is both an Action Taken by Regulatory Agencies for Protection of the Environment (as described in CEQA Guidelines §15308 for "class 8" exemptions); this proposed action is also exempt as described in CEQA Guidelines §15061(b)(3) ("common sense" exemption) because it can be seen with certainty that there is no possibility that the proposed action may result in a significant adverse impact on the environment. A brief explanation of the basis for reaching this conclusion is included in Chapter IX of the ISOR.

Special Accommodation Request

Consistent with California Government Code section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; and
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerks' Office at cotb@arb.ca.gov or (916) 322-5594 as soon as possible, but no later than ten business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alternativo u otro idioma; y
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al cotb@arb.ca.gov o (916) 322-5594 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

Agency Contact Persons

Inquiries concerning the substance of the proposed regulatory action may be directed to the agency representative, Nathan Dean, Air Pollution Specialist, Advanced Emission Control Strategies Section, at ordamendments@arb.ca.gov or (951) 542-3139, or (designated back-up contact) Johanna Levine, Air Resources Supervisor I, Off-Road Implementation Section, at (916) 570-7888.

Availability of Documents

CARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: Public Hearing to Consider the Proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on CARB's website listed below, on September 20, 2022. Please contact Chris Hopkins, Regulations Coordinator, at chris.hopkins@arb.ca.gov or (279) 208-7347, if you need physical copies of the documents. Because of current travel, facility, and staffing restrictions, the California Air Resources Board's offices have limited public access. Pursuant to Government Code section 11346.5, subdivision (b), upon request to the aforementioned Regulations Coordinator, physical copies would be obtained from the Public Information Office, California Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814.

Further, the agency representative to whom non-substantive inquiries concerning the proposed administrative action may be directed is Chris Hopkins, Regulations Coordinator, (279) 208-7347. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

Hearing Procedures

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may take action to approve for adoption the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also approve for adoption the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action. If this occurs, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before final adoption.

The public may request a copy of the modified regulatory text from CARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814.

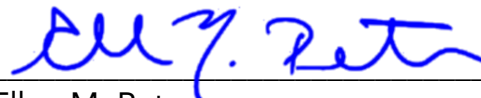
Final Statement of Reasons Availability

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on CARB's website listed below.

Internet Access

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on CARB's website for this rulemaking, at <https://ww2.arb.ca.gov/rulemaking/2022/off-roaddiesel>.

California Air Resources Board



Ellen M. Peter
Acting Executive Officer

Date: September 6, 2022

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see [CARB's website](http://www.arb.ca.gov) (www.arb.ca.gov).