

# Title 13. California Air Resources Board

## Notice of Public Hearing to Consider Proposed Advanced Clean Fleets Regulation

The California Air Resources Board (CARB or Board) will conduct a public hearing at the date and time noted below to consider the proposed Advanced Clean Fleets regulation.

Date: October 27, 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 October 28, 2022. Please consult the public agenda, which will be posted ten days before October 27, 2022, for important details, including, but not limited to, the day in which this item will be considered and how the public can participate via Zoom.

## 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 2, 2022. Written comments not submitted during the hearing must be submitted on or after September 2, 2022 and received **no later than October 17, 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 proposed regulation 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 38505, 38510, 38560, 38566, 39010, 39500, 39600, 39601, 39602.5, 39650, 39658, 39659, 39666, 39667, 43013, 43018, 43100, 43101, 43102, and 43104. This action is proposed to implement, interpret, and make specific sections 38501, 38505, 38510, 38560, 38566, 38580, 39000, 39003, 39010, 39500, 39600, 39601, 39602.5, 39650, 39658, 39659, 39666, 39667, 39674, 39675, 43000, 43000.5, 42400, 42400.1, 42400.2, 42402.2, 42410, 43013, 43016, 43018, 43023, 43100, 43101, 43102, 43104, 43105, 43106, 43153, 43154, 43211, 43212, and 43214 of the Health and Safety Code.

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

### **Sections Affected:**

Proposed adoption of sections 2013, 2013.1, 2013.2, 2013.3, and 2013.4, 2014, 2015, 2015.1, 2015.2, 2015.3, 2015.4, 2015.5, and 2015.6, and 2016, California Code of Regulations, title 13.

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

The following documents would be incorporated in the proposed regulation by reference as specified by the following sections:

- “California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles,” as last amended September 9, 2021, incorporated by reference in title 13, California Code of Regulations sections 2013(b) and 2015(b).
- Code of Federal Regulations 49, Chapter V, Parts 565, 566, and 571, as they existed on [August 1, 2022], incorporated by reference in title 13, CCR sections 2013(b), 2014(b), and 2015(b).

### **Background and Effect of the Proposed Regulatory Action:**

The proposed Advanced Clean Fleets (ACF) regulation, or “proposed regulation,” is critical to meeting California’s public health and climate goals and meeting State and federal air quality standards. Mobile sources are the greatest contributor to emissions of criteria pollutants and greenhouse gases (GHG) in California, accounting for about 80-percent of ozone precursor emissions and approximately 50-percent of statewide GHG emissions, when

accounting for transportation fuel production and delivery.<sup>1</sup> Medium- and heavy-duty vehicles make up a quarter of transportation GHG emissions and a third of transportation oxides of nitrogen (NOx) emissions, a disproportionately high share considering these vehicles represent only about 1.8 million trucks among the 30 million registered vehicles in the state. The emission reductions from this proposed regulation are critical to achieving multiple State programs and policies for reducing emissions and stabilizing the climate. The reductions are necessary to reach carbon neutrality by 2045 according to the draft 2022 Scoping Plan Update.<sup>2</sup> The 2022 State Strategy for the State Implementation Plan (SIP) Strategy also relies on reducing criteria pollutant emissions to attain the federal ambient ozone standards, including NOx from vehicles necessary to attain the smog standard for ozone by 2037 in the South Coast air basin.<sup>3</sup>

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 proposed regulatory process.

## **Objectives and Benefits of the Proposed Regulatory Action:**

The proposed regulation would build on the progress already being made to accelerate the deployment of lower emitting medium- and heavy-duty vehicles, and especially of medium- and heavy-duty zero-emission vehicles (ZEVs), would support existing policies and regulations through a phased-in fleet transition of medium, heavy, and light-duty package delivery vehicles to ZEVs from 2024 through 2042, and would set a clear end date for combustion-powered new vehicle sales in California by requiring all new medium- and heavy-duty vehicle sales to be ZEVs starting in 2040. The primary objectives of this proposal include the following:

- Achieve criteria and GHG emissions reductions consistent with the goals identified in the SIP Strategy and Scoping Plan, including supporting compliance with state and federal ambient air quality standards.
- Provide criteria pollutant and toxic air contaminant emissions reductions in disadvantaged communities (DAC), which is consistent with CARB's statewide strategy to reduce these emissions in communities affected by a high cumulative exposure burdens under Assembly Bill (AB) 617 (C. Garcia, Stats. 2017, ch. 136) (AB 617).
- Support the 100 percent zero-emission (ZE) targets set by the Board in Resolution 20-19, which calls for the following ZE targets:
  - Drayage trucks, last mile delivery, and government fleets by 2035.
  - Refuse trucks, local buses, and utility fleets by 2040.
  - All trucks and buses where feasible by 2045.

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<sup>1</sup>CARB 2021. California Air Resources Board. 2021. "2020 Mobile Source Strategy." Released September 28, 2021. Accessed May 31, 2022. [https://ww2.arb.ca.gov/sites/default/files/2021-09/Proposed\\_2020\\_Mobile\\_Source\\_Strategy.pdf](https://ww2.arb.ca.gov/sites/default/files/2021-09/Proposed_2020_Mobile_Source_Strategy.pdf).

<sup>2</sup> For more information, see CARB Scoping Plan Website: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan>

<sup>3</sup> CARB 2022. California Air Resources Board. 2022. "Draft 2022 State Strategy for the State Implementation Plan." Released January 31, 2022. Accessed May 31, 2022. [https://ww2.arb.ca.gov/sites/default/files/2022-01/Draft\\_2022\\_State\\_SIP\\_Strategy.pdf](https://ww2.arb.ca.gov/sites/default/files/2022-01/Draft_2022_State_SIP_Strategy.pdf).

- Support the goals of Executive Order N-79-20, which calls for accelerated ZEV deployment with these targets:
  - 100 percent ZE drayage by 2035.
  - 100 percent ZE trucks and buses where feasible by 2045.
- Ensure requirements, such as ZEV deployment schedules and related infrastructure build-out, are technologically feasible, cost-effective, and support market conditions.
- Lead the transition away from petroleum fuels and towards electric drivetrains.
- Contribute towards achieving carbon neutrality in California pursuant to Senate Bill 100,<sup>4</sup> and in accordance with Executive Order B-55-18.
- Complement the Advanced Clean Trucks (ACT) regulation<sup>5</sup> to enhance widespread ZEV deployment.
- Mindfully set requirements to allow time for public ZE infrastructure buildout for smaller fleets or for regional haul applications who would be reliant on a regional network of public chargers.
- Ensure manufacturers and fleets work together to place ZEVs in service suitably and successfully as the market expands.
- Complement current and existing programs to achieve emissions reductions that are real, permanent, quantifiable, verifiable, and enforceable.
- Establish a fair and level playing field among fleet owners.
- Craft requirements in a way that ensures institutional capacity for CARB to manage, implement, and enforce requirements.

The estimated cumulative statewide benefits for emissions, cost-savings, and avoided premature deaths expected from full implementation of the proposed regulation through calendar year 2050 include the following:

- 418,943 tons in NO<sub>x</sub> reductions.
- 8,638 tons in PM<sub>2.5</sub> reductions.
- 307 MMT CO<sub>2</sub> in GHG reductions.
- 5,519 avoided cardiopulmonary mortalities.
- \$57.8 billion in health benefit savings.
- \$9 billion to \$36.4 billion in social cost of carbon savings.
- \$22.2 billion in net fleet cost savings.

The proposed regulation is projected to significantly increase the number of medium- and heavy-duty ZEVs in California beyond the ZEV sales expected from the ACT regulation. The estimated number of ZEVs would increase from about 320,000 to about 510,000 in 2035, from about 780,000 to about 1,230,000 ZEVs by 2045, and from about 950,000 to about 1,590,000 ZEVs by 2050.

## Summary of Proposed Regulation

The proposed regulation would require State and local government fleets, drayage trucks, high priority fleets, and federal fleets to phase in medium- and heavy-duty ZEVs, and light-duty package delivery ZEVs over time. As a backstop, the proposed regulation sets a clear

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<sup>4</sup> Senate Bill 100 (De León, Stats. 2018 ch. 312); Public Utilities Code §§ 399.11, 399.15, 399.30, and 454.53.

<sup>5</sup> Cal. Code Regs., tit. 13, § 1963 through 1963.5 and 2012 through 2012.2

end date for combustion-powered new medium- and heavy-duty vehicle sales in California. The proposed regulation includes four components: three sets of fleet requirements for State and local government fleets, drayage trucks, and high priority and federal fleets, and a ZEV sales requirement for medium- and heavy-duty truck manufacturers. The following provides information on each of the proposed components.

## **1. State and Local Government Fleets**

- Applies to California cities, counties, public utilities, special districts, and State government agencies that own Class 2b-8 vehicles.
  - Excludes federal agencies, which are regulated under the high priority and federal fleet requirements.
- When adding vehicles to their California fleet, affected fleet owners must only add ZEVs per the following schedule:
  - Fleets outside designated low-population counties: 50 percent of the total number of vehicle additions must be ZEVs beginning January 1, 2024, increasing to 100 percent beginning January 1, 2027.
  - Fleets in designated low-population counties: 100 percent of the total number of vehicle additions must be ZEVs beginning January 1, 2027.
- Compliance exemptions for backup vehicles, daily usage, infrastructure construction delays, ZEV unavailability, and mutual aid assistance.
- Annual reporting, starting April 1, 2024, with recordkeeping requirements.

## **2. Drayage Trucks**

- Applies to Class 7-8 heavy-duty trucks transporting containerized, bulk, or break-bulk goods, empty containers or chassis' to and from California's intermodal seaports and railyards.
- All drayage trucks added to CARB's Online System must be a ZEV beginning January 1, 2024.
  - All drayage trucks must visit a regulated seaport or intermodal railyard at least once each calendar year to remain in CARB's Online System.
  - Existing internal combustion engine (ICE) drayage trucks that exceed their minimum useful life will not remain in the CARB's Online System.
  - All drayage trucks entering seaports and intermodal railyards would be required to be ZE by 2035.
- Compliance exemptions for dedicated use uni-body vehicles (e.g., auto transports), infrastructure construction delays, and ZEV vehicle delivery delays.
- Annual reporting starting January 1, 2024, with reporting or recordkeeping requirements for truck owners, seaports, railyards, and marine terminals.

## **3. High Priority and Federal Fleets**

- Applies to fleets that meet the following criteria:
  - Any fleet owner who owns, operates, or directs 50 or more Class 2b-8 vehicles, including vehicles under common ownership and control and that operates at least 1 Class 2b-8 vehicle or off-road yard tractor in California.

- Any entity with \$50 million or more in annual revenue and operates at least 1 affected vehicle in California.
- Federal government agencies that own, operate, or direct one or more affected vehicle in California.
- Affected vehicles include all Class 2b-8 on-road vehicles, off-road yard tractors, and light-duty package delivery vehicles in the fleet.
- High priority and federal fleets must meet the Model Year Schedule, or opt-in to the ZEV Milestones Option:
  - Model Year Schedule: Beginning January 1, 2024, all additions to the fleet must be ZEVs, and all ICE vehicles must be removed from the California fleet at the end of their useful lives.
  - ZEV Milestones Option: ZEV phase-in requirement where a portion of the fleet must be ZE-based. This option is separated into three distinct schedules as follows:
    - Group 1: Box trucks, vans, two-axle buses, yard trucks, light-duty delivery vehicles:
      - 10 percent by 2025, increasing to 100 percent by 2035.
    - Group 2: Work trucks, day cab tractors, three-axle buses:
      - 10 percent by 2027, increasing to 100 percent by 2039.
    - Group 3: Sleeper cab tractors and specialty vehicles:
      - 10 percent by 2030, increasing to 100 percent by 2042.
- Compliance exemptions for backup vehicles, daily usage, infrastructure construction delays, vehicle delivery delays, ZEV unavailability, declared emergency events, and mutual aid assistance.
- Annual reporting due starting February 1, 2024, with recordkeeping requirements.

#### **4. 100 Percent ZEV Sales Requirement**

- Beginning 2040 MY, all medium- and heavy-duty vehicles sold in California must be ZEV.

From 2024 to 2050, the proposed regulation is estimated to result in 418,943 tons reduction in NO<sub>x</sub>, 8,638 tons reduction in PM<sub>2.5</sub>, and 307 million metric tons (MMT) reduction of carbon dioxide (CO<sub>2</sub>), relative to the Legal Baseline. The Legal Baseline includes emission reductions modeled for already adopted medium- and heavy-duty vehicle regulations including the Advanced Clean Trucks, Innovative Clean Transit, Zero-Emission Airport Shuttle Bus, and Heavy-Duty Omnibus regulations. The total CO<sub>2</sub> emissions are derived using a tank-to-wheel (TTW) emissions accounting methodology that is focused on the vehicle emissions and does not account for upstream emissions associated with producing and delivering the fuel or energy source to the vehicle that are addressed by other measures and policies to reduce those emissions. However, the proposed regulation would show greater PM, NO<sub>x</sub>, and GHG reductions if upstream emissions were accounted for since production and delivery of electricity and hydrogen as fuel and energy sources have much lower upstream emissions when compared to conventional combustion fuels like gasoline, diesel, and natural gas.<sup>6</sup>

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<sup>6</sup> California Air Resources Board, *Advanced Clean Cars II SRIA*, 2022 (web link: <https://dof.ca.gov/wp-content/uploads/Forecasting/Economics/Documents/ACCII-SRIA.pdf>, last accessed May 2022).

The proposed regulation would result in a net direct cost savings to fleets of \$22.2 billion between 2020 and 2050 when compared to the Legal Baseline scenario. These cost savings do not include indirect health cost-savings or avoided costs associated with reduced GHG emissions. The proposed regulation will lead to an estimated 5,519 fewer cardiopulmonary deaths; 873 fewer hospital admissions for cardiovascular illness; 1,042 fewer hospital admissions for respiratory illness; and 2,537 fewer emergency room visits for asthma. These health outcomes result in a total cost savings of \$57.8 billion which can be attributed to the reduced PM2.5 and NOx emissions from 2024 through 2050. The avoided social cost of carbon (SC-CO<sub>2</sub>) is the sum of the annual TTW CO<sub>2</sub> emissions reductions multiplied by the SC-CO<sub>2</sub> in each year. These benefits range from about \$9.4 billion to \$36.4 billion from 2024 through 2050, depending on the chosen discount rate of 2.5 to 5 percent.<sup>7</sup>

## **Comparable Federal Regulations:**

There are currently no federal requirements for fleets to purchase or use ZE technologies for vehicles greater than 8,500 lb. Gross Vehicle Weight Rating (GVWR), or ZE light duty package delivery vehicles. There are also no federal requirements for manufacturers to sell ZEVs greater than 8,500 lb. GVWR.

## **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.

## **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 and savings to any State agency, would not create costs or savings in federal funding to the State, and would create costs and savings 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.

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<sup>7</sup> Interagency Working Group on the Social Cost of Carbon, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 13990*, 2021 (web link: [https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument\\_SocialCostofCarbonMethaneNitrousOxide.pdf](https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf), last accessed January 2022).

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, this regulatory action will result in a mandate that would create costs and cost-savings to local agencies and school districts. However, these costs are not reimbursable by the State pursuant to Government Code, title 2, division 4, part 7 (commencing with section 17500), because this action neither compels local agencies to provide new governmental functions (i.e., it does not require such agencies to provide additional services to the public), nor imposes requirements that apply only on local agencies or school districts.<sup>8</sup> Instead, this regulatory action establishes requirements that apply to all individuals and entities that own or operate regulated vehicles. This action also does not compel local agencies to increase the actual level or quality of services that they already provide the public.<sup>9</sup> For the foregoing reasons, any costs incurred by local agencies to comply with this regulatory action are not reimbursable.<sup>10</sup>

Background on Cost or Savings for State and Local Agencies

The State, counties, and cities could see some changes to revenue due to the proposed regulation. Many cities and counties in California levy a Utility Users Tax on electricity. By increasing the amount of electricity used, there will be an increase in the amount of utility user tax revenue collected. Fuel taxes are collected on gasoline and diesel fuel and fund transportation improvements at the State, county, and local levels. Displacing gasoline and diesel fuels with electricity will result in a reduction in fuel tax revenue since less fuel will be purchased. The decrease in diesel tax revenue corresponding with reduced consumption would reduce government spending without any offsetting revenues. Sales taxes are levied in California to fund a variety of programs at the state and local level. The proposed regulation will require the sale and purchase of ZEVs and installation of associated infrastructure with higher upfront costs than purchasing internal combustion engine (ICE) vehicles, which will result in direct increase in sales tax revenue collected by local governments. Overall, local sales tax revenue may increase less than the direct increase from vehicle sales if overall business spending does not increase. The state collects registration fees to fund transportation improvements at the state, county, and local levels. The fee structure for ZEVs is different from diesel vehicles with some fees such as the Vehicle License Fee being higher and others such as weight fees being lower. These differences result in lower registration fees for the ZEVs. These lower fees result in reduced revenue collected by the state for use in transportation services.

The proposed regulation will set ZE requirements for fleets and focus on strategies to ensure that the cleanest vehicles are deployed by government, business, and other entities in California to meet transportation needs. State and local governments that are required to purchase ZEVs would face capital costs associated with the incremental cost to purchase a ZEV rather than an ICE vehicle, as well as infrastructure upgrades and equipment because of an accelerated transition to ZEVs. These entities would also face ongoing costs and cost-

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<sup>8</sup> County of Los Angeles v. State of California (1987) 43 Cal.3d 46, 56.

<sup>9</sup> San Diego Unified School Dist. v. Commission on State Mandates (2004) 33 Cal.4th 859, 877.

<sup>10</sup> County of Los Angeles v. State of California, 43 Cal.3d. 46, 58.



savings associated with changes in maintenance costs and changes in gasoline, diesel, natural gas, electricity, and hydrogen use. Compared to gasoline, diesel, or natural gas vehicles, ZEVs generally have higher upfront capital costs today but lower operating costs, which results in an overall savings throughout the vehicle's useful life. There would also be costs incurred by local and state governments for reporting and workforce training.

Cost or Savings for State Agencies:

To implement the proposed regulation, CARB would need permanent staffing resources. This would be met through a combination of new staffing resources and redirecting existing staffing resources. In addition to staffing needs, the proposed regulation would require modifying and upgrading existing reporting systems.

The State government fleet is estimated to make up about 19 percent of the vehicles in California's public fleet based on the total public fleet population and information from the Department of General Services. A proportionate amount of the total costs would be assumed to pass-through the State governments.

The proposed regulation's fiscal impact, revenues minus costs, to state government is estimated to be a reduction of \$357 million over the first 3 years of the proposed regulation and a reduction of \$33.8 billion over the regulatory analysis period to 2050. After the first five years of the proposed regulation, upfront costs for ZEV purchase and infrastructure development are outweighed by lower operational costs associated with ZEVs. However, loss of revenue from state fuel taxes, depreciation (loss of corporate income tax revenue) and vehicle registration fees are not balanced by the increased revenue from sales tax or energy resource fees. These foregone revenue sources support important government programs and may eventually be replaced by other fees and taxes, in which case these negative impacts to state and local governments would be diminished.

Other Non-Discretionary Costs or Savings on Local Agencies:

The local government fleet is estimated to make up roughly 81 percent of California's public fleet. All local government fleets are subject to the proposed regulation with requirements beginning for most fleets in 2024. Fleets located in designated counties would face their first requirements in 2027. A proportional amount of the total costs outlined in would be assumed to pass-through to local governments.

The fiscal impact of the proposed regulation in revenues minus costs to local governments is estimated to be an increase of \$225 million over the first 3 years of the proposed regulation and an increase of \$4.5 billion over the regulatory analysis period to 2050. After the first five years of the proposed regulation upfront costs for ZEV purchase and infrastructure development are outweighed by lower operational costs associated with ZEVs. Additionally, loss in fuel tax revenue is outweighed by an increase to utility user and sales tax revenue sources until the 2040-42 timeframe. The overall fiscal impact remains positive throughout the regulatory analysis period to 2050.

Cost or Savings in Federal Funding to the State:

The proposed regulation is 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.

## **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.

## **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 regulation since the original SRIA submittal, and to address DOF comments. The revisions are discussed in Appendix C of the Staff Report: Initial Statement of Reasons (ISOR).

#### *i. The Creation or Elimination of Jobs Within the State.*

The proposed regulation is estimated to initially result in a slightly positive employment impact through about 2026 after which the trend reverses with a negative employment impact through rest of the regulatory horizon. These changes in employment do not exceed 0.2 percent of baseline California employment across the entire regulatory horizon. As the requirements of the proposed regulation go into effect, employment is projected to increase in the construction sector as businesses install infrastructure and make other facility upgrades, and in the electric power sector due to increased demand. The directly affected fleets, which primarily operate in the transportation and warehousing sector, may see a decrease in employment due to higher vehicle costs, but as those vehicles operational savings build up over time these small employment losses would be mitigated. The reduced spending on maintenance and repair costs for ZEV results in a downward trend in employment for that industry. The largest decrease in employment results is from the public sector, which is based on the projected decrease in fuel and sales tax revenue and registration fees. We note that, though outside of this specific analysis, the transition towards ZEVs and its impacts on some of these revenues, are the subject of continued policy development given the importance of the services funded. Thus, though this analysis does not assume the creation of new specific revenue-raising measures, such measures, such as roadway pricing strategies, are not unlikely.

ii. The Creation of New Businesses or the Elimination of Existing Businesses Within the State.

The overall jobs and output impacts of the proposed regulation would be small relative to the total California economy, representing changes of no greater than 0.2 percent. The decreasing trend in demand for gasoline and diesel fuel following from this proposed regulation has the potential to result in the elimination of businesses in this industry and downstream industries, such as gasoline stations and vehicle repair businesses, if sustained over time. Staff anticipates growth in industries that manufacture or support ZEVs, including ZEV manufacturer and component suppliers, infrastructure installers, electrical vehicle technicians, and others. This growth would strengthen the ZEV supply chain, foster a ZEV market, and promote technology growth sooner than would have otherwise occurred.

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

The proposed regulation has three primary regulatory components for different fleet types and each component addresses competitive advantage or disadvantage differently. The public fleet requirement would not be anticipated to create a competitive advantage or disadvantage. Public agencies do not compete against each other, and each agency would be able to identify the strategy which allows them to comply within their allocated budgets.

The drayage truck requirement would also not be anticipated to create a competitive advantage or disadvantage since the proposed regulation applies equally to all drayage trucks that enter seaports and railyards and applies equally to California companies as well as companies headquartered out-of-state that operate drayage trucks in California.

The high priority and federal fleet requirement would not be anticipated to create a significant change in competitive advantage or disadvantage. First, federal agencies do not compete with other fleets and would not have a competitive advantage or disadvantage. For high priority fleets, the milestone requirements apply to all trucks that operate in California regardless of where the truck or company is headquartered and would be phased in by truck type. This ensures that all vehicles in these fleets would be subject to the same requirements. Fleets that do not meet the fleet size or revenue threshold would not be initially regulated by this proposed regulation, but the risk of creating a competitive advantage or disadvantage is mitigated as these fleets would become subject to the proposed regulation if their revenue or fleet size increases above the thresholds established in the proposed regulation. In addition, the fleet size for determining which fleet would be subject to the proposed regulation includes all medium- and heavy-duty vehicles that are operated under common ownership and control. This ensures a level playing field between businesses that compete for the same work regardless of their business model. Ultimately, all fleets that purchase new medium- and heavy-duty vehicles in California would be affected by the component of the proposed regulation that requires all such vehicle sales to be ZEV beginning in 2040.

The 100 percent manufacturer ZEV sales requirement would not be anticipated to create a significant change in competitive advantage or disadvantage. This requirement affects entities that are headquartered both within California and outside the state. However, all of the costs from deploying the number of ZEVs required by the proposed regulation are assumed to be borne in California. This approach shows the full estimated cost to California

for deploying the same number of ZEVs required by the regulation. As shown in the cost analysis, these proposed regulations are expected to have a positive economic impact on affected entities. Fleets and California businesses are expected to see a net reduction in costs through reduced spending on fuel costs and vehicle maintenance as shown Chapter VIII of the Staff Report.

iv. *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. The relative changes to growth in private investment for the proposed regulation are show a decrease of private investment of about \$1.0 billion in 2030, which trends towards an increase of \$2.49 billion in 2050. These changes in investment do not exceed 0.4 percent baseline investment across the regulatory horizon.

v. *The Incentives for Innovation in Products, Materials, or Processes.*

The proposed regulation will lead to a growth in industries supporting ZEVs, including ZEV manufacturer and component suppliers, infrastructure installers, electrical vehicle technicians, and others. This growth could also occur along the entire ZEV supply chain since this proposed regulation promotes technology growth sooner than would have otherwise occurred. The increase in the production and usage of ZEVs would be expected to also benefit various businesses related to the ZEV component supply chain, including those involved with batteries, fuel cells, infrastructure and electric drivetrains.

vi. *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.*

From 2024 to 2050, the proposed regulation is estimated to result in 418,943 tons reduction in NO<sub>x</sub>, 8,638 tons reduction in PM<sub>2.5</sub>, and 307 MMTCO<sub>2</sub>, relative to the Legal Baseline. These emission reductions will lead to an estimated 5,519 fewer cardiopulmonary deaths; 873 fewer hospital admissions for cardiovascular illness; 1,042 fewer hospital admissions for respiratory illness; and 2,537 fewer emergency room visits for asthma. These health outcomes result in a total cost savings of \$57.8 billion. The avoided SC-CO<sub>2</sub> benefits range from about \$9.4 billion to \$36.4 billion over this same timeframe.

ZEVs are anticipated to lead to other unquantified benefits such as worker safety and operational efficiencies that may contribute to a fleet owner's choice to purchase a ZEV over an ICE vehicle. ZEVs are anticipated to increase worker safety since ZEVs produce less vibration in the cab which leads to a reduction in "driver's fatigue," a root cause of deadly

accidents.<sup>11, 12, 13</sup> ZEVs also reduce harmful emissions that contribute to air toxics hot spots at workplaces such as truck mechanic shops, loading docks, and inside truck cabs, resulting in better quality air for workers to breathe.<sup>14</sup> ZEVs are quiet and allow for improved communication at job sites, compared to conventional internal combustion engine powered vehicles. Some examples of operational efficiencies that may increase overall productivity for businesses that operate ZEVs over ICE vehicles, include the ability to make deliveries at night where noise ordinances are in effect, and the ability to plug in power tools and to export power or to serve as back-up power.

Lastly, trucking companies and others that have ZEV fleets might choose to advertise themselves as being environmentally friendly and make partnerships or sign contracts with other companies that want to support the movement toward replacing fossil fuel-burning trucks and buses with those that produce no tailpipe emissions, resulting in better public health. Also, the Securities and Exchange Commission proposed rule called *The Enhancement and Standardization of Climate-Related Disclosures for Investors* would require a domestic or foreign registrant to include certain climate-related information in its registration statements and periodic reports starting for fiscal year 2023.<sup>15</sup> Under SEC's proposed rule, emissions from a fleet owner's ICE vehicles are considered scope 1 emissions since they are direct GHG emissions that occur from sources owned or controlled by the company and would need to be reported. The information could influence investor decisions.

vii. *Department of Finance Comments and Responses.*

**1. Some state and local government entities may be disproportionately impacted**

DOF Comment: The SRIA must include comprehensive estimates of disparate impacts, including on identifiable government entities if some State and local government entities own a larger share of the government fleets and are therefore expected to bear a disproportionate share of the government ownership costs. The SRIA currently reports statewide costs for State and local government but does not discuss fleet costs for disproportionately impacted agencies.

Response: CARB staff are not able to precisely predict how the purchase and ownership of ZEVs may have disparate impacts on state and local government agencies. Our cost analysis shows that the higher upfront costs are offset by lower expected fuel and maintenance savings that result in lower total cost of ownership. Staff expects the change in costs for state and local government fleets would be proportional to the number of vehicles in each fleet.

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<sup>11</sup> Institute of Transport Economics, *Experiences from Battery-Electric Truck Users in Norway*, 2020 (web link: <https://www.mdpi.com/601754>, last accessed January 2022).

<sup>12</sup> Bose Corporation, *The impact of different seats and whole-body vibration exposures on truck driver vigilance and discomfort*, 2017 (web link: <https://doi.org/10.1080/00140139.2017.1372638>, last accessed January 2022).

<sup>13</sup> RAND Corporation, *Evaluating the Impact of Whole-Body Vibration (WBV) on Fatigue and the Implications for Driver Safety*, 2015 (web link: [www.rand.org/t/rr1057](http://www.rand.org/t/rr1057), last accessed January 2022).

<sup>14</sup> National Library of Medicine, *Potential air toxics hot spots in truck terminals and cabs*, 2012 (web link: <https://pubmed.ncbi.nlm.nih.gov/23409510/>, last accessed January 2022).

<sup>15</sup> Securities and Exchange Commission. Proposed Rule *The Enhancement and Standardization of Climate-Related Disclosures for Investors*, 87 Fed. Regs. 36594 (June 17, 2022), 17 C.F.R. Parts 210, 229, 232, 239, and 249 (web link: <https://www.sec.gov/rules/proposed/2022/33-11042.pdf>, last accessed June 2022).

However, larger fleets may have additional cost savings opportunities per vehicle due to their size. First, they are likely to have more depots, and have more choices on prioritizing where vehicle infrastructure will be placed over the next 10 to 20 years. They are also more likely to get lower price per vehicle in bids than other agencies due to their larger procurements.

The State departments that own the greatest number of medium to heavy-duty vehicles include the Department of Transportation, Department of Forestry and Fire Protection, and Department of Corrections and Rehabilitation. In 2020, these departments each owned over 10 percent of the medium to heavy-duty vehicles within the California State Vehicle Fleet.<sup>16</sup> Data from the Department of Motor Vehicles and the ACT Large Entity Reporting survey responses indicate the largest local government agencies affected by this proposed regulation include the City of Los Angeles, City and County of San Francisco, the City of Sacramento, the City of San Diego, Los Angeles Department of Power and Water, and the County of Los Angeles.<sup>17</sup> Note that emergency vehicles are exempt from the proposed regulation.

## **2. Justify assumption that fleets will be able to purchase the required ZEVs**

DOF Comment: The SRIA assumes that the purchase requirements of the proposed regulation will complement the sales requirements of the existing Advanced Clean Trucks (ACT) regulation, yet also states that the ACT is expected to result in proportionately fewer zero-emission tractors relative to lighter vehicle classes and that the proposed regulation places higher requirements on heavier vehicle classes, especially tractors. Such differences in timing between ACT and the proposed regulation may hinder compliance of fleets that utilize heavier vehicle classes. The SRIA should include a sensitivity analysis to show how impacts may vary if the ACT and the proposed regulations take longer to harmonize or justify the current assumption that the fleets will be able to purchase the required zero-emission vehicles as produced under the ACT.

Staff response: CARB staff believe the assumptions made are appropriate for a number of reasons. First, there are more manufacturers that exclusively produce ZEVs than produce ICE vehicles, and they are not subject to the ACT regulation that begins in 2024. Today, there are already more than 130 different medium to heavy-duty ZEV models available in all weight class categories. The ACT regulation requires large manufacturers to produce ZEVs which ensures additional models will be available. Once manufacturers have made the investments to produce ZEVs, it is in their interest to sell as many vehicles as possible to recoup their costs. Second, from experience with the Innovative Clean Transit regulation that the zero-emission bus purchase requirement is successfully being implemented without a corresponding manufacturer requirement. Third, the proposed regulation has been updated since the SRIA to include a number of exemptions or extensions to minimize concerns where certain vehicle configurations may not be available as a ZEV, or if there are extended delays in receiving a ZEV. The ZEV unavailability exemption allows a fleet owner to purchase an ICE vehicle if a ZEV is not commercially in the configuration that is needed. The vehicle delivery delay extension allows a regulated fleet to continue operating their existing vehicle as long

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<sup>16</sup> California Department of General Services. California State Fleet, 2015-2020. (web link: <https://data.ca.gov/dataset/california-state-fleet> June 2, 2022). Accessed June 20, 2022.

<sup>17</sup> CARB, Large Entity Reporting Data, 2021 (web link: <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/large-entity-reporting>, last accessed May 2022).

as it takes to receive a ZEV that is ordered a year in advance of the next compliance deadline. In summary, we believe that having both the proposed ACF regulation and ACT regulation are complementary policies but that each can be successfully implemented on its own.

**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 proposed regulation, CARB staff evaluated the potential economic impacts on representative private persons or businesses. The proposed regulation would require fleets to replace their gasoline, diesel, natural gas, and other ICE vehicles with medium- and heavy-duty ZEVs. Staff assumes the costs to California includes the upfront capital costs for the ZEVs and their associated infrastructure, changes to operating expenses, and other cost elements associated with this technology transition. This approach shows the full estimated cost to California for deploying the number of ZEVs as required by the proposed regulation.

The estimated direct costs from the proposed regulation and the Legal Baseline scenario include upfront capital costs of the vehicles, infrastructure, and ongoing operating costs which include fueling, maintenance, and low carbon fuel standard (LCFS) revenues, where applicable. Compared to gasoline, diesel, or natural gas vehicles, ZEVs generally have higher upfront capital costs today but lower operating costs, which results in an overall savings in staff's analysis over the useful life of the vehicles. These costs and impacts are discussed in more detail in the Economic Impact Assessment chapter in the Initial Statement of Reason (ISOR).

Individuals or private persons will be indirectly affected by the 100 percent manufacturer ZEV sales requirement for medium- and heavy-duty vehicles beginning in 2040 as many Class 2b-3 pickups are purchased by individuals. Staff have prepared a cost estimate for an individual purchasing a net savings and rapid payback to the vehicle purchaser. For more information, refer to the Economic Impact Assessment Chapter in the ISOR. Individuals are also expected to see health benefits due to ZEVs displacing ICE vehicles and providing local, regional, and statewide emissions benefits.

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

The Executive Officer has also determined under California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses. The methodology and full details for estimating the cost impact to an example small business owner-operator operating a tractor in drayage service is provided in Chapter VIII 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 Chapter XI of the ISOR, the proposed regulation is the most effective and least burdensome means of achieving the purposes of the proposal.

The Executive Officer analyzed several alternatives to the proposed regulations and summarized the findings of this analysis in Chapter XI of the ISOR, and the rationale behind rejecting them in favor of the proposed regulation. The following is a brief summary of the major alternatives proposed and the rationale for rejecting such major alternatives:

Alternative 1 is rejected because it is less effective at reducing emissions of criteria pollutants and GHGs as the proposed regulation. Alternative 1 achieves minimal reductions of PM<sub>2.5</sub> and GHGs and achieves significantly less reductions of NO<sub>x</sub> emissions than the proposed regulation. Alternative 1 also does not effectively advance the deployment of heavy-duty ZEVs as compared to the proposed regulation and is accordingly not consistent with the goals established by the Governor in multiple Executive Orders and by the Board.

The Accelerated ZEV Transition alternative is rejected as the more aggressive timeframe raises questions about feasibility for certain fleets in the near-term while the ZEV market is still developing. With an accelerated timeframe, smaller tractor fleets would not have the opportunity to learn from the experiences of early adopters and larger fleets. Smaller fleets are more likely to rely on publicly available charging infrastructure and independent maintenance and service technicians that is still in the process of being developed and may not be available where needed in all cases. Additionally, smaller fleets are more likely to purchase used vehicles, which may not be available as ZEVs due to this alternative's accelerated timeframe. The 2040 end date provides more than ample time for a steady transition to the clean energy economy utilizing the natural rate of attrition and job sector shifts. Additionally, California endorses the Global Memorandum of Understanding (MOU) on Medium- and Heavy-Duty ZEV, which established the same target of 100 percent sales by 2040 to enable a full transition. However, staff will continue to investigate the pros and cons of accelerating the 100 percent ZEV date from 2040 to an earlier date.

## **State Implementation Plan Revision**

If adopted, 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) (42 U.S.C. 7401 et seq.). The adopted regulatory action would be submitted as a SIP revision because it adopts 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 regulation, has prepared a draft environmental analysis (EA) under its certified regulatory program (Cal. Code Regs., tit. 17, §§ 60000 through 60008) to comply with the requirements of the California Environmental Quality Act (CEQA) (Public Res. Code § 21080.5). The EA concluded implementation of the proposed regulation could result in: beneficial impacts to air quality (long-term operational-related), energy (long-term operational-related), GHG (long-term operational-related); less than significant impacts, or no impacts, to energy (short-term construction-related), and greenhouse gas (short-term operational-related), land use planning, mineral resources, population and housing, public services, recreation, and wildfire; and potentially significant [indirect/secondary] adverse impacts to aesthetics, agriculture and forestry resources, air quality (short-term construction-related), biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation/traffic, tribal cultural resources, and utilities and service systems. The Draft EA, included as Appendix D to the ISOR, is entitled Draft Environmental Analysis for the Proposed Advanced Clean Fleets Regulation. Written comments on the Draft EA will be accepted during a 45-day public review period starting on September 2, 2022, and ending on October 17, 2022.

## 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](mailto: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](mailto: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 Craig Duehring, Manager, In-Use Control Measures Section, at (279) 208-7369 or (designated back-up contact) Paul Arneja, Air Resources Engineer, at (279) 208-7342.

## 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 proposed regulation. The report is entitled: Advanced Clean Fleets Regulation.

Copies of the ISOR and the full text of the proposed regulatory language may be accessed on CARB's website, listed below, on August 30, 2022. Please contact Bradley Bechtold, Regulations Coordinator, at [Bradley.Bechtold@arb.ca.gov](mailto:Bradley.Bechtold@arb.ca.gov) or (279) 208-7266 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 nonsubstantive inquiries concerning the proposed administrative action may be directed is Bradley Bechtold, Regulations Coordinator, (279) 208-7266. The Board staff has compiled a record for this proposed regulatory action, which includes all the information upon which the proposed regulation 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 vote on a resolution directing the Executive Officer to: make any proposed modified regulatory language that 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, and any additional supporting documents and information, available to the public for a period of at least 15 days; consider written comments submitted during this period; and make any further modifications as may be appropriate in light of the comments received available for further public comment. The Board may also direct the Executive Officer to: evaluate all comments received during the public comment periods, including comments regarding the Draft Environmental Analysis, and prepare written responses to those comments; and present to the Board, at a subsequently scheduled public hearing, the final proposed regulatory language, staff's written responses to comments on the Draft Environmental Analysis, along with the Final Environmental Analysis for action.

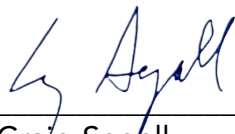
## Final Statement of Reasons Availability

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 the proposed regulation at <https://ww2.arb.ca.gov/rulemaking/2022/acf2022>

California Air Resources Board



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Craig Segall  
Deputy Executive Officer

Date: August 16, 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).*