

## UPDATED INFORMATIVE DIGEST

### **Sections Affected:**

Proposed adoption of sections 1963, 1963.1, 1963.2, 1963.3, 1963.4, and 1963.5, title 13, California Code of Regulations. Additionally, proposed adoption of sections 2012, 2012.1, and 2012.2, title 13, California Code of Regulations, codified under new article 3.1.

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

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

- 40 CFR section 86.1803-01, amended on July 1, 2011, incorporated by reference in section 1963(c)(15)(A).

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

Mobile sources and the fossil fuels that power them are the largest contributors to the formation of ozone, greenhouse gas (GHG) emissions, fine particulate matter (PM<sub>2.5</sub>), and toxic diesel particulate matter (PM). In California, the transportation sector alone accounts for 41 percent of total GHG emissions (50 percent when upstream emissions from fuel is included) and is a major contributor to oxides of nitrogen (NO<sub>x</sub>) and PM emissions. The Proposed ACT Regulation will help California achieve its criteria pollutant and GHG reduction mandates and cleaner technology targets.

The purpose of the Proposed ACT Regulation is to accelerate the use of zero-emission vehicles (ZEVs) in the medium- and heavy-duty truck sector and reduce harmful emissions from on-road mobile sources. ZEVs are needed to meet goals identified in the State Implementation Plan (SIP), the 2017 Climate Change Scoping Plan, and the 2016 ZEV Action Plan that supports the Governor's Executive Orders B-16-12 and B-48-18, which call for 1.5 million ZEVs in California by 2025 and 5 million ZEVs by 2030, and establishes several milestones on the pathway towards meeting these targets. In 2018, Executive Order B-55-18 set a target to achieve carbon neutrality in California no later than 2045, and to achieve and maintain net negative emissions thereafter. In 2020, Executive Order N-79-20 was signed directing CARB to develop regulations to achieve a 100 percent ZE drayage fleet by 2035 and transition the state's medium- and heavy-duty vehicle fleet to 100 percent zero-emission where feasible by 2045. The Proposed ACT Regulation directly supports achieving these goals through the required sale of ZEVs in California from all large medium- and heavy-duty vehicle manufacturers. It also requires the one time

reporting of fleet information that will inform future efforts to accelerate the market for ZEVs.

### Background and Program Overview

Zero-emission trucks and buses can meet the needs of most local and regional operations with technology that is available today. Studies have shown that most straight trucks (all axles on a single chassis), particularly those used in local delivery applications, do not travel more than 100 miles per day. A wide assortment of zero-emission trucks and buses are commercially available today that exceed 100 miles of available range. In addition, several battery electric and fuel cell models are being demonstrated with range capabilities that exceed 200 miles.

The Proposed ACT Regulation was first identified as the “Last Mile Delivery” measure in the 2016 Mobile Source Strategy, which is part of the SIP and the 2017 Climate Change Scoping Plan. This measure is needed for California to achieve established near- and long-term air quality and climate mitigation targets. Last mile delivery fleets are well suited for introducing zero-emission technology because they operate in urban centers, have stop and go driving cycles, and are centrally maintained and fueled. Therefore, development of the Proposed ACT Regulation began with an initial focus on these pickup-and-delivery applications. However, zero-emission technology for trucks has continued to improve rapidly, and costs continue to come down. Zero-emission trucks and buses are now being offered in a wide variety of configurations, vehicle classes and utility. Today, over one hundred different medium- and heavy-duty zero-emission vehicle models are commercially available in California with more to come.

Zero-emission technology deployments are needed in the medium- and heavy-duty market to meet the state’s emission reduction goals, but to date, the major truck manufacturers have been relatively absent in this space. For the past decade, smaller startup truck manufacturers have stepped in to fill market demand and have been designing and marketing zero-emission trucks. These startup companies have significantly advanced the technology. However, they do not yet have broad dealer networks or regional service facilities that can be leveraged quickly to provide support and maintenance services for large numbers of ZEVs. Most lack the ability to deliver very large orders for major fleets that have been interested in operating zero emission trucks. This has hampered ZEV market expansion for early adopter fleets. At public workshops, a number of fleets that have been operating zero-emission trucks for years expressed concern about their experience in securing service and repairs from smaller startups companies to support their ZEVs in operation. In a few cases, orders for a large number of ZEVs were placed and not fulfilled. In addition, some of these fleets also had early experiences with ZEV products that were launched

by large manufacturers that were also discontinued due to issues with their ZEV component suppliers.

The Proposed ACT Regulation is focused on requiring large truck manufacturers to sell zero-emission trucks in California to broaden the market and to send a clear signal that medium- and heavy- duty ZEVs will be a major part of California's overall strategy to reduce criteria emissions, climate impacts, and petroleum use. The Proposed ACT Regulation would also require one-time reporting from large entities about their fleets and how they use them. Information collected from the fleets would inform future strategies, help ensure a level playing field, and determine where there may be a need for exemptions or flexibilities. This information would be used in developing future regulations designed to further accelerate the purchase and use of ZEVs in fleets. Using both approaches of requiring manufacturers to build ZEVs and requirements to use them, in combination with early market support from funding programs, will significantly accelerate the market for ZEV technology.

### Summary of Proposal

The Proposed ACT Regulation includes two primary elements. First, it requires manufacturers to sell ZEVs as a percentage of annual truck and bus sales in California. Second, it requires one-time reporting of information from large organizations including retailers, manufacturers, and government agencies, about their medium- and heavy-duty vehicle fleet.

### **ZEV Sales Requirement**

#### Applicability

- ZEV sales requirement applies to manufacturers that certify incomplete chassis or complete vehicles greater than 8,500 lbs. gross vehicle weight rating (GVWR)
- Manufacturers with less than 500 average annual California sales for the three prior model years beginning 2021 MY are exempt, but may opt-in to earn credits for selling ZEVs

#### Sales Percentage

- ZEV sales are phased-in as a percent of total California sales from the 2024 model year (MY) to the 2035 MY and remain constant past 2035
- For Class 2b-3, ZEV sales begin at 5 percent and increases to 55 percent by the 2035 MY
- For the Class 4-8 Group, ZEV sales begin at 9 percent and increase to 75 percent in 2035 MY
- For Class 7-8 tractors, ZEV sales begin at 5 percent and increase to 40 percent by the 2032 MY and remain flat after 2032

### Credits

- Manufacturers can earn credits early starting with the 2021 MY
- Starting with the 2024 MY, Zero Emission Powertrain Certification would be required, where applicable, for ZEVs to earn credits
- Compliance would be based on a credit and deficit system.
- Manufacturers would have the flexibility to sell more ZEVs in one category and fewer in another, subject to limitations for Class 7 and 8 tractors
- Credits may be banked and traded
- Near-zero-emission vehicles (plug-in hybrids with some all-electric range) would earn partial credits through 2035 MY, and the credits could be used to offset up to half of each manufacturer's annual deficits

### Manufacturer Reporting

- Manufacturers would need to report annually to demonstrate compliance, and to report details about credit trade transactions

### **Large Entity Reporting Requirement**

- Entities that own or operate one or more vehicles over 8,500 lbs. under common ownership and control must report if:
  - They are a government agency, or
  - Received more than \$50 million in total annual gross revenue in 2019 and operated a facility in California, or
  - Operated 50 or more Class 2b and greater vehicles under common ownership or control and operated a facility in California, or
  - Directed 50 or more Class 2b and greater vehicles in 2019
- Fleet information must be reported by April 1, 2021.

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

The purpose of the Proposed ACT Regulation is to accelerate the use of ZEVs in the medium-and heavy-duty truck sector and to reduce harmful emissions from on-road mobile sources.

The primary objectives of the proposed ACT regulation include the following:

- Accelerate first wave of zero-emission truck deployments in best suited applications;
- Lay the groundwork for 100 percent zero-emission pickup-and-delivery in local applications by 2040;
- Support the Ports of Los Angeles and Long Beach Clean Air Action Plan for 100 percent zero-emission drayage trucks by 2035;
- Support AB 739 requirements for California state government fleets to purchase ZEVs;

- Enable a large-scale transition to zero-emission technology;
- Maximize the total number of ZEVs deployed;
- Provide environmental benefits, especially in disadvantaged communities thereby supporting the implementation of AB 617;
- Ensure requirements are technologically feasible and cost effective; and
- Foster a self-sustaining zero-emission truck market.

*Environmental Benefits*

The Proposed ACT Regulation would assist in attaining air quality standards, reducing health risks to individuals living in California, and meeting climate change targets. The emission reductions achieved by staff’s proposal will contribute to the reduction of cumulative risk of mortality and morbidity from mobile source emissions in the state. The majority of these benefits will be in the state’s most populated and impacted areas near ports and city centers. These areas include the South Coast, San Francisco Bay Area, San Joaquin Valley, San Diego County, and the Sacramento Air Basins.

The Proposed ACT Regulation is expected to result in significant NOx, PM2.5, and GHG emission reductions due to replacing internal combustion powered vehicles with zero-emission technology. ZEVs produce no tailpipe emissions, reduce brake wear PM emissions, and have lower associated upstream emissions. Table 1 summarizes the expected criteria emission benefits in 2031 and 2040. These emission reductions contribute to the State SIP Strategy and Climate Change Scoping Plan.

**Table 1 - Expected Emission Reductions of the Proposed ACT Regulation**

<b>Calendar Year</b>	<b>NOx (tpd)</b>	<b>PM<sub>2.5</sub> (tpd)</b>	<b>WTW GHG (MMT/yr)</b>
2031	6.9	0.24	0.5
2040	27.9	0.85	2.9

*Economic Impacts*

ZEVs are more expensive upfront but provide operational savings in terms of lower fuel and maintenance costs. The Proposed ACT Regulation is expected to result in a total cost saving of \$5.9 billion to truck transportation in California compared to Business as Usual from 2020 through 2040, mostly due to fuel cost savings. This estimate includes infrastructure cost, higher cost of the vehicles, maintenance and fuel savings, and cost savings due to the Low Carbon Fuel Standard. Our analysis does not assume vehicle or infrastructure incentives. Incentive programs such as the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), utility investments, and other funding may be used to offset some potential cost to consumers. The total statewide health benefits derived from criteria emission reductions are estimated to be an additional \$8.9 billion in savings from 2020 through 2040.

The Proposed ACT Regulation requires that manufacturers must build and sell more costly zero-emission trucks, certify their powertrain using the Zero-Emission Powertrain Certification procedure, and report information to CARB as part of their regulatory requirements. The research, manufacture, certification, and development of ZEVs by manufacturers will contribute to the companies' costs associated with the Proposed ACT Regulation. However, the required ZEV sales can also count towards compliance with the existing California and federal Phase 2 GHG regulations simultaneously. Reporting requirements for vehicle manufacturers are not expected to be significant since most of the information needed is already reported as part of Phase 2 GHG compliance. It is not straightforward to predict how these costs and cost-savings would be passed on to consumers. Vehicle pricing is complex, and different manufacturers could use different strategies to pass on these costs. It is possible that manufacturers may pass on incremental ZEV costs through the price of ZEVs themselves, through the rest of their non-ZEV fleet, or some combination thereof. Consumers may also be affected by the increased cost of taxes due to potentially higher cost of vehicles but may benefit from the operational cost savings.

The Proposed ACT Regulation also requires one-time reporting for large companies and government agencies who would need to report about their California facility locations, and how they and their contractors move freight and perform other services. Large fleet owners would also need to report information about what vehicles they own, and how they operate. The cost of complying with this one-time reporting requirement is not expected to be significant.

### *Challenges and Long-Term Benefits*

Although ZEV technology has advanced rapidly in recent years, there are still challenges fleets and manufacturers have to address to successfully deploy ZEVs. Common challenges for deploying zero-emission technologies include high upfront capital costs for both vehicle purchase and fueling/charging infrastructure expansion, and challenges with scalability, managing electricity costs, vehicle operation flexibility, and workforce training.

Continued improvements in ZEV costs and performance are still needed to facilitate the full transition to zero-emission technology. However, the transition to zero-emission technology is essential for California to meet its long-term air quality and climate protection goals.

The Proposed ACT Regulation provides sufficient time for manufacturers to bring new ZEVs to the market, aided by several major funding programs to support early demonstrations and to kick start the market by reducing the incremental costs of commercial zero-emission technologies. Fleet owners can also benefit from Low Carbon Fuel Standard credits to significantly reduce operating and maintenance costs while supporting the low carbon fuel market. As ZEV sales increase, technology improves, and incremental costs decline, a self-sustaining

medium- and heavy-duty ZEV market is achievable in a wide range of applications.

**Comparable Federal Regulations:**

There are no comparable 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.