

State of California  
**Air Resources Board**

**BOARD ITEM SUMMARY**

**ITEM # 20-6-3:           Public Hearing to Consider the Proposed Advanced Clean Trucks Regulation**

**STAFF RECOMMENDATION:**

The California Air Resources Board (CARB or Board) staff recommends that the Board adopt the Board Resolution and the changes to the proposed regulation . This is the final of two public hearings on this item. The first public hearing was held on December 12, 2019, when staff first presented the proposed Advanced Clean Trucks Regulation.

**DISCUSSION:**

CARB is responsible for protecting the public from the harmful effects of air pollution and developing programs and actions to fight climate change. Meeting these public health goals necessitates the transition from internal combustion engines in both light- and heavy-duty applications toward zero-emission vehicle (ZEV) technology.

The proposed Advanced Clean Trucks (ACT) Regulation was first identified as the “Last Mile Delivery” measure in the 2016 State Implementation Plan 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, there are more than one hundred different medium- and heavy-duty zero emission vehicle models 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 and 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 to support their ZEVs in operation from smaller startup companies. 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 will inform future strategies, help ensure a level playing field, and determine where there may be a need for exemptions or flexibilities. This information will 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.

CARB staff has held eight public workshops, five public workgroup meetings, and more than 100 individual meetings with more than 50 stakeholders. CARB staff also participated in two joint meetings with the California Governor's Office of Business and Economic Development (GO-Biz) in which fleets, manufacturers, and utilities discussed medium- and heavy-duty electrification. CARB is part of a collaborative effort with GO-Biz, sister agencies, utilities, and various stakeholders to address the need for large scale infrastructure to support widespread adoption of ZEV technologies. Additionally, staff has engaged in frequent discussions with ZEV technology providers, electric utilities, fuel providers, and non-governmental environmental organizations during various outreach events such as technology symposiums and expositions. To facilitate the exchange of information, CARB staff created an informal comment submittal docket for interested parties to submit comments on ACT during the pre-notice development stage. CARB staff has also held the first public workshop and held several stakeholder meetings on the future Advanced Clean Fleets regulation that would complement the ACT proposal by ensuring that fleets incorporate available ZEVs into their operations.

## **SUMMARY AND IMPACTS:**

The primary purpose of the proposed ACT Regulation is to accelerate the market for zero-emission medium- and heavy-duty on-road vehicles in applications that are well suited for their use. The proposed ACT Regulation sets clear requirements on manufacturers to sell zero-emission trucks and requires large entities including

retailers, manufacturers, and government agencies to report information that would be used for developing future strategies that would require the use of zero-emission trucks.

Medium- and heavy-duty vehicle manufacturers would be required to start producing and selling ZEVs beginning with the 2024 model year, with ZEV sales increasing through the 2035 model year. The second part of the proposed ACT Regulation would require one-time reporting of information from large businesses, government agencies, and other large entities about their medium- and heavy-duty vehicle fleet. Vehicle owners with 50 or more trucks and brokers that dispatch 50 or more trucks in California would also need to provide information about their vehicle operations. Information collected from these companies will help CARB structure future regulatory strategies, ensure a level playing field, and help staff determine any appropriate exemptions or flexibilities.

The proposed ACT Regulation will result in reductions in criteria pollutants, toxic air contaminants, and greenhouse gas (GHG) emissions at the statewide, regional, and local levels. It is part of California's strategy to address federal air quality mandates, to protect the public health of all Californians, and to meet sustainability goals.

From 2020 to 2040, the proposed ACT Regulation is expected to reduce GHG emissions by a cumulative 17.4 million metric tons carbon dioxide equivalent. For tailpipe emissions of oxides of nitrogen (NOx) and fine particulate matter (PM), the proposed ACT Regulation is estimated to result in cumulatively 58,313 tons and 1,916 tons of emission reductions, respectively, for the same time period. The majority of these benefits will be in the State's most populated and impacted areas and where major ports are located. These areas include the South Coast, Bay Area, San Joaquin Valley, San Diego, and the Sacramento Air Basins.

CARB, as the lead agency for the proposed ACT Regulation, has prepared a final environmental analysis (Final EA) which analyzes the proposed ACT Regulation in accordance with the requirements of its regulatory program certified by the Secretary of Natural Resources. The Final EA provides a programmatic environmental analysis of an illustrative, reasonably foreseeable compliance scenario that could result from implementation of the proposed ACT Regulation. CARB also prepared the Response to Comments on the Draft Environmental Analysis, which includes responses to CEQA related comments received during the 45-day comment period, the subsequent comment period on the proposed modifications, and the Board hearing.

The Final EA states that implementation of the proposed ACT Regulation could result in beneficial impacts to GHG, PM, and NOx through substantial reductions in emissions from medium- and heavy-duty vehicles in California, long-term beneficial impacts to air quality through reductions in criteria pollutants, and beneficial impacts to energy demand.

Implementation of the proposed ACT Regulation could result in an increase in manufacturing and associated facilities to increase the supply of zero-emission trucks, along with construction of new hydrogen fueling stations and electric vehicle charging stations to support heavy-duty ZEV operations and associated increase in hydrogen fuel supply and transportation. Increased deployment of heavy-duty ZEVs could result in a relatively small increase in production of electricity and hydrogen fuel, reduce rates of oil and gas extraction, and result in associated increases in lithium and platinum mining and exports from source countries or other states. This could result in increased rates of disposal of lithium batteries and hydrogen fuel cells; however, disposal would need to be in compliance with California law, including but not limited to California's Hazardous Waste Control Law and implementation regulations. For lithium-ion batteries, it is anticipated they still have a useful life at the end of truck life and are likely to be repurposed for a second life. To meet an increased demand of refurbishing or reusing batteries and fuel cells, new facilities, or modifications to existing facilities, could be constructed to accommodate recycling activities. Fleet turnover would largely be unaffected since the regulation only results in changes at the time of normal vehicle purchase.

As a result, the proposed ACT Regulation has the potential to result in less than significant impacts to: odor impacts, short-term energy demand, short-term GHG emissions, short-term impact on mineral resources, population, employment, housing, public services, and recreation. Additionally, the proposed regulation has the potential to result in potentially significant and unavoidable adverse impacts to: aesthetics, conversion of agricultural and forest resources, short-term air quality, biological resources, cultural resources, geology and soil, hazardous materials and impacts, hydrology and water quality, long-term mineral resources, noise, traffic and transportation, and demand for utility services.

While many impacts associated with the proposed ACT Regulation could be reduced to a less-than-significant level through conditions of approval applied to project-specific development, the authority to apply that mitigation lies with land use agencies or other agencies approving the development projects, not with CARB.

Consequently, the Environmental Analysis takes the conservative approach in its significance conclusions and discloses, for California Environmental Quality Act compliance purposes, that impacts from the development of new facilities or modification of existing facilities associated with reasonably foreseeable compliance responses to the proposed ACT Regulation could be potentially significant and unavoidable.

ZEVs are currently more expensive upfront than vehicles with internal combustion engines but provide operational savings in terms of lower fuel and maintenance costs. Therefore, if all of the costs are assumed to be borne in California, the proposed ACT Regulation is expected to result in a total cost saving of \$5.9 billion to truck transportation 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. It does not include any vehicle or infrastructure rebates or grants. The estimated total statewide health benefits derived from criteria emission reductions are estimated to be an additional \$8.9 billion in savings.