

**State of California**  
**Air Resources Board**  
**Board Item Summary**

**Item # 21-13-3: Public Hearing to Consider the Proposed Heavy-Duty Inspection and Maintenance Program**

**Staff Recommendation:**

Staff recommends that the California Air Resources Board (CARB or Board) approve for adoption the Proposed Heavy-Duty Inspection and Maintenance Program (Proposed Regulation) to better ensure that emissions control systems on heavy-duty vehicles driven in California are operating as designed and are repaired in a timely manner when they malfunction.

**Discussion:**

On-road heavy-duty vehicles are major contributors to statewide mobile air pollution even though this sector makes up only a small portion of California's total on-road vehicle fleet. On-road heavy-duty vehicles represent about 3 percent of total on-road vehicles yet, in 2020, emitted approximately 52 percent of the statewide on-road mobile source oxides of nitrogen (NOx) emissions, an ozone precursor, and about 54 percent of the statewide on-road mobile source fine particulate matter (PM2.5) emissions. About 70 percent of Californians still breathe unhealthy air. Significant NOx and PM emissions reductions from on-road heavy-duty vehicles are needed to meet federal ambient air quality standards and attainment deadlines for ozone and fine particles.

In September 2019, Governor Gavin Newsom signed Senate Bill (SB) 210 (Leyva, Chapter 5.5, Statutes of 2019) into law. SB 210 directed CARB to develop a new, comprehensive Heavy-Duty Inspection and Maintenance (HD I/M) program to control emissions more effectively from non-gasoline on-road heavy-duty vehicles with a gross vehicle weight rating greater than 14,000 pounds operating in California.

With SB 210 requirements as its framework, the Proposed Regulation aims to ensure in-use heavy-duty vehicles operate with low emissions throughout their useful lives and to achieve equitable clean air for all Californians, which will benefit those in major populated regions and economically-disadvantaged communities near heavy trucking traffic areas.

Resulting from SB 210, the Proposed Regulation would replace the existing Heavy-Duty Vehicle Inspection Program (HDVIP) and Periodic Smoke Inspection Program (PSIP). A more comprehensive inspection and maintenance program is necessary because: (1) NOx emissions are not comprehensively monitored under the existing HDVIP and PSIP, (2) single-vehicle and out-of-state vehicle fleets operating in California are exempt from the current PSIP periodic testing requirements, (3) more frequent periodic inspections are needed to ensure vehicles' malfunctioning emissions-related components are identified and repaired in a timely manner, and (4) enhanced enforcement tools are needed to enhance compliance rates with the Proposed Regulation.

The Proposed Regulation was developed in an open public process that included public workshops, workgroup meetings, and other meetings with the heavy-duty trucking industry, component suppliers, non-governmental organizations, trade associations, environmental organizations, community groups, and local and state air agencies. These meetings provided an opportunity for stakeholders to engage CARB staff in an open discussion to achieve a technologically feasible and cost-effective regulatory proposal.

### **Summary and Impacts:**

The Proposed Regulation is projected to reduce statewide NO<sub>x</sub> and PM emissions from heavy-duty vehicles operating in California by approximately 680,333 tons and approximately 6,023 tons, respectively, from 2023 through 2050. Staff estimates statewide tons per day (tpd) NO<sub>x</sub> and PM emissions reductions will be about 30.3 tpd and 0.32 tpd, respectively, for 2024, and 71.6 tpd and 0.66 tpd, respectively, for 2031. The Proposed Regulation is the most significant early NO<sub>x</sub> reduction measure in CARB's State Strategy for the State Implementation Plan.

The reductions in toxic PM<sub>2.5</sub> from diesel exhaust and NO<sub>x</sub> emissions, a precursor to ozone and secondary PM<sub>2.5</sub> formation, would benefit California residents by reducing exposure to emissions that lead to adverse health impacts. Through 2050, staff estimates the Proposed Regulation would prevent more than 7,500 cardiopulmonary-related deaths, nearly 2,500 hospital visits for cardiovascular illness and respiratory illness, and 3,500 emergency room (ER) visits for asthma. The estimated total statewide monetized health benefits from 2023 through 2050 are estimated to be \$75.8 billion, with \$75.7 billion resulting from reduced premature cardiopulmonary mortality and \$143 million resulting from reduced hospitalizations and ER visits.

The Proposed Regulation would impose an annual \$30.00 compliance fee on heavy-duty vehicles operating in California and result in direct cost impacts to owners of heavy-duty vehicles operating in California, due to additional reporting, vehicle testing, vehicle tester training requirements, and additional vehicle repair costs, relative to the current heavy-duty vehicle inspection programs. The Proposed Regulation is projected to cost \$4.12 billion from 2023 through 2050, with a maximum annual cost of \$350 million in 2024. Most of the costs stem from compliance fees, vehicle testing, and vehicle repair costs. Staff estimates the cost effectiveness of the Proposed Regulation would be about \$62.27/pound PM and \$1.84/pound NO<sub>x</sub>.

The Proposed Regulation is expected to increase demand for vehicle testing devices and services, thus creating more business opportunities for heavy-duty vehicle emissions testing equipment manufacturers, vehicle emissions testers, and telematics service providers. Heavy-duty vehicle repair shops may benefit from the increased demand in vehicle repairs, which would also increase the demand for parts and increase sales volume for parts manufacturers and suppliers. Finally, truck drivers and other workers near high volume trucking areas, such as ports and warehouses, would likely experience reduced occupational exposure to harmful pollutants, resulting in fewer sick days and an increase in economic productivity.