

Proposed
State of California
Air Resources Board

Proposed In-Use Locomotive Regulation

Resolution 23-12

April 27, 2023

Agenda Item No.: 23-4-1

Whereas, sections 39600 and 39601 of the Health and Safety Code authorize the California Air Resources Board (CARB or Board) to adopt standards, rules, and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

Whereas, section 38560 of the Health and Safety Code authorizes the Board to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas (GHG) emission reductions from sources;

Whereas, sections 39658, 39659, and 39666 of the Health and Safety Code authorize the Board to establish airborne toxic control measures for substances identified as toxic air contaminants;

Whereas, in section 39650 of the Health and Safety Code, the Legislature finds and declares that it is the public policy of the State that emissions of toxic air contaminants should be controlled to levels which prevent harm to the public health;

Whereas, on August 27, 1998, the Board identified particulate matter (PM) from diesel-fueled engines as a toxic air contaminant pursuant to article 3 (commencing with section 39660), division 26, part 2, chapter 3.5 of the Health and Safety Code;

Whereas, in identifying diesel PM (DPM) as a toxic air contaminant, the Board determined that there is not sufficient scientific evidence to support identification of a threshold level for DPM below which no significant adverse health effects are anticipated; this is codified in title 17, California Code of Regulations (CCR), section 93000;

Whereas, DPM is a toxic air contaminant that can substantially increase the risk of developing cancer and other health problems such as increased respiratory illnesses, risk of heart disease, and premature death;

Whereas, DPM can be inhaled into the upper airways and lungs, creating respiratory ailments leading to public health concerns;

Whereas, in addition to DPM, the diesel exhaust emitted from locomotives contains over 40 substances that are listed as hazardous air pollutants by the United States Environmental Protection Agency (U.S. EPA) and as toxic air contaminants by CARB.

Whereas, in 2001, U.S. EPA listed, as hazardous air pollutants, twenty-one compounds that are “known or suspected to cause cancer or other serious health effects,” including volatile organic compounds (VOCs) and metals, diesel PM, and diesel exhaust organic gases (66 Fed. Reg. 17,230 (Mar. 29, 2001) (40 C.F.R. pts. 80 and 86)), and observed that “mobile sources account for almost all diesel PM emissions” (66 Fed. Reg. at 17,239);

Whereas, sections 43013 and 43018 of the Health and Safety Code authorize the Board to adopt standards and regulations for the control of air contaminants and sources of air pollution from off-road or non-vehicle engine categories, including locomotives, to attain state air quality standards by the earliest practicable date;

Whereas, section 39602.5 of the Health and Safety Code directs the Board to adopt rules and regulations pursuant to the authority of Health and Safety Code section 43013 that, in conjunction with other measures, will achieve federal ambient air quality standards by applicable attainment dates;

Whereas, section 38597 of the Health and Safety Code authorizes the Board to adopt a schedule of fees to be paid by the sources of GHG emissions;

Whereas, section 43019.1 of the Health and Safety Code authorizes CARB to adopt a schedule of fees to cover its reasonable costs associated with the certification, audit, and compliance of off-road or nonvehicular engines and equipment, aftermarket parts, and emissions control components sold in the State;

Whereas, the Legislature enacted Assembly Bill (AB) 32 (Nuñez, Chapter 488, Statutes of 2006), which declares that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California, and requires a comprehensive multi-year program to reduce California’s GHG emissions to 1990 levels by 2020, and to maintain the emission levels and continue reductions thereafter;

Whereas, the Legislature enacted Senate Bill (SB) 32 (Pavley, Chapter 249, Statutes of 2016), to expand upon AB 32 to reduce GHG emissions to 40 percent below the 1990 level by 2030;

Whereas, in December 2022, the Board adopted the 2022 Scoping Plan for Achieving Carbon Neutrality, which includes an action to require 100 percent of new passenger/other and line-haul locomotive to be zero-emission by 2030 and 2035, respectively.

Whereas, on September 22, 2022, the Board adopted the 2022 State Strategy for the State Implementation Plan (SIP), which includes the Proposed In-Use Locomotive Regulation as a CARB measure to achieve established near and long-term air quality and climate mitigation targets;

Whereas, the 2022 State SIP Strategy relies on the Proposed In-Use Locomotive Regulation, to meet federal ambient air quality standards for ozone and fine particulate matter (PM_{2.5}) in several areas of the State, including the South Coast Air Basin and San Joaquin Valley. The Proposed Regulation would, by 2037, reduce the total NO_x emissions in the South Coast Air Basin and San Joaquin Valley by 12 percent and 48 percent, respectively;

Whereas, the near-term targets for these areas are a 2023 deadline for attainment of the 80 parts per billion (ppb) 8-hour ozone standard, 2024 deadline for the 35 micrograms per cubic meter (µg/m³) 24-hour PM_{2.5} standard, and 2025 deadline for the 12 µg/m³ annual

PM2.5 standard. There are also mid-term attainment years of 2031 and 2037 for the more recent 8-hour ozone standards of 75 ppb and 70 ppb, respectively;

Whereas, the U.S. EPA has proposed to lower the PM2.5 standard, which will spur the need for even more stringent emission controls;

Whereas, locomotive DPM emissions have not been reduced by federal regulation as expected due to remanufacturing practices, as discussed in the Initial Statement of Reasons;

Whereas, the Legislature enacted AB 617 (C. Garcia, Chapter 136, Statutes of 2017), which highlights the need for further air emission reductions in communities with high cumulative exposure burdens, such as those located near facilities where locomotives operate;

Whereas, the October 2018 Community Air Protection Blueprint (Blueprint), adopted by the Board to implement AB 617, identifies cleaner requirements for older locomotives and restrictions on idling to reduce air emissions and exposure to toxic air contaminants in disproportionately burdened communities throughout the State;

Whereas, pursuant to AB 617 and consistent with the Blueprint, multiple Community Emissions Reduction Programs adopted by air districts and approved by the Board, include specific measures to reduce air emissions and exposures to toxic air contaminants from locomotives and railyards;

Whereas, many of the communities near facilities where locomotives operate suffer disproportionate health burdens, such as premature mortality from cardiac and pulmonary illnesses, due to their close proximity to air emissions and toxic air contaminants from the diesel engines that power most locomotives;

Whereas, the estimated statewide average air emissions level of diesel locomotives is Tier 1+, and locomotive operators could reduce the mortalities and illness caused by locomotive operations by over 80 percent, by operating Tier 4 locomotives;

Whereas, Executive Order N-79-20 set a goal for 100 percent zero-emission from off-road vehicles and equipment by 2035 where feasible to put the State on the path to carbon neutrality;

Whereas, the Proposed Regulation would achieve air emission reductions and health risk reductions by requiring the transition to zero-emission capable locomotives;

Whereas staff conducted research on the best available control technologies and the development status and timelines for zero-emission locomotive technologies;

Whereas staff concluded that locomotive operators could comply with the Proposed Regulation through use of locomotives operating at current U.S. EPA emission standards in addition to retrofitting existing in-use locomotives or new locomotives to ensure zero emission operation where applicable;

Whereas, staff estimates that the Proposed Regulation would reduce statewide locomotive air emissions by approximately 7,390 tons of PM2.5, 386,283 tons of oxides of nitrogen (NOx), and 21.9 million metric tons of GHGs from 2023 to 2050;

Whereas, staff estimates that the PM2.5 and NOx emission reductions as a result of the Proposed Regulation would provide a benefit of approximately \$32 billion in avoided premature death and health costs from 2024 to 2050;

Whereas, staff performed a health risk characterization to evaluate the benefits of the Proposed Regulation regarding potential cancer risk resulting from direct exposure to toxic DPM from locomotives operating at California railyards;

Whereas, staff estimates that the Proposed Regulation would reduce potential individual residential cancer risk from toxic air contaminants resulting from locomotive operations at railyards by approximately 90 percent by 2040 and reduction in individual risk would continue to progress toward 100 percent as the transition to zero-emission operations continue;

Whereas, staff estimates that the total benefits in avoided damages caused by GHG emission reductions as a result of the Proposed Regulation range from \$604 million to \$2.38 billion from 2023 to 2050, using the Social Cost of Carbon;

Whereas, the Board has considered the analysis of economic impact of the Proposed Regulation as identified in the Standardized Regulatory Impact Assessment (SRIA), which is estimated to be \$13.8 billion in total cost from 2023 to 2050;

Whereas, the Proposed Regulation includes an annual administrative payment per locomotive, excepting historic and zero-emission locomotives;

Whereas, staff met and worked with members of impacted communities, environmental justice advocates, local air districts, locomotive owners and operators, trade associations, locomotive manufacturers, and the public in developing the Proposed Regulation;

Whereas, staff held four public workshops, and over 330 meetings with stakeholders during the regulatory development process;

Whereas, staff in designing this Proposed In-Use Locomotive Regulation as an airborne toxic control measure, have considered the factors set forth at Health and Safety Code section 39665(b), and have designed the Proposed In-Use Locomotive Regulation accordingly to reduce toxic air emissions to the lowest level achievable based on an assessment of risk and evaluation of available control technologies, control methods, and alternative reduction methods;

Whereas, staff has proposed the In-Use Locomotive Regulation, as set forth in Appendix A to the Initial Statement of Reasons, released to the public on September 20, 2022;

Whereas, CARB's regulatory program that involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans has been certified by the Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA; California Code of Regulations, title 14, section 15251(d)), and CARB conducts its CEQA review according to this certified program (California Code of Regulations, title 17, sections 60000-60007);

Whereas, CARB prepared a draft environmental analysis under its certified regulatory program for the Proposed Regulation entitled *Draft Environmental Analysis for the Proposed In-Use Locomotive Regulation* (Draft EA), and circulated it as Appendix D to the Staff Report for 45 days from September 23, 2022 through November 7, 2022;

Whereas, the final environmental analysis concluded that implementation of the Proposed Regulation has the potential to result in: beneficial impacts to air quality, GHG emissions, and climate change; less than significant impacts, or no impacts, to air quality, energy demand, energy resources, GHG emissions, land use and planning, mineral resources, population and

housing, public services, recreation, and wildfire; and potentially significant impacts to aesthetics, agriculture and forest resources, air quality (primarily due to construction impacts), biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, noise, transportation and traffic, tribal cultural resources, and utilities and service systems;

Whereas, on November 18, 2022, the Board conducted a public hearing on the Proposed In-Use Locomotive Regulation and the Draft EA prepared for the proposal;

Whereas, during the November 18, 2022, hearing, the Board directed staff to collaborate with transit agencies to transition to zero emission operations, increase ridership, and minimize repayment of public grant funds;

Whereas the Board directed the Executive Officer to make any appropriate conforming modifications, available for public comment, with any additional supporting documents and information, for a period of at least 15 days following the public hearing. The Executive Officer was further directed to consider written comments submitted during the public review period and to make any additional appropriate conforming modifications available for public comment for at least 15 days, evaluate all comments received during the public comment periods, including comments on the Draft EA, and prepare written responses to EA comments as required by CARB's certified regulations at California Code of Regulations, title 17, sections 60000–60007 and Government Code section 11346.9(a). The Executive Officer was directed to present to the Board, at a subsequently scheduled public hearing, staff's written responses to any comments on the Draft EA, along with the Final EA, for consideration for approval, and the finalized regulation for consideration for adoption;

Whereas, following the Board hearing, the modified regulatory language and supporting documentation were circulated for 15-day public comment period, with the changes to the originally proposed text clearly indicated, according to provisions of California Code of Regulations, title 1, section 44 and Government Code section 11340.85, from March 1, 2023, through March 16, 2023;

Whereas, staff reviewed written comments received on the draft EA and prepared written responses to those comments in a document entitled *Response to Comments on the Environmental Analysis Prepared for the In-Use Locomotive Regulation* (Response to EA Comments);

Whereas, on April 14, 2023, staff posted on the rulemaking page the Final EA, which includes minor revisions, and the Response to EA comments;

Whereas, at the public hearing held on April 27, 2023, staff presented the Final EA and the Response to EA Comments, as released to the public on April 14, 2023, to the Board for consideration;

Whereas, a public hearing and other administrative proceedings have been held according to the provisions of Chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code; and

Whereas, in consideration of the Initial Statement of Reasons, written comments, and public testimony, the Board finds that:

The Proposed Regulation meets the statutory requirements to establish airborne toxic control measure for substances identified as toxic air contaminants as identified in sections 39658, 39659, and 39666 of the Health and Safety Code;

The Proposed Regulation is expected to reduce statewide locomotive air emissions by approximately 7,390 tons of PM_{2.5}, 386,283 tons of NO_x, and 21.6 million metric tons of GHGs from 2023 to 2050;

The Proposed Regulation is estimated to result in a total net cost of \$13.8 billion compared to an estimated health benefit of \$32 billion in avoided premature death and health costs from 2023 to 2050;

The Proposed Regulation is expected to reduce potential individual residential cancer risk one mile from California railyards by approximately 90 percent by 2045;

The Proposed Regulation is expected to provide an estimated benefit in avoided damages caused by GHG emissions of between \$604 million to \$2.38 billion from 2023 to 2050, using the Social Cost of Carbon;

Based on the assessed risk of DPM to the public, and on the lack of a safe level of exposure, locomotives that do not meet the most stringent U.S. EPA emission standard should be restricted from further operation in California as soon as practicable.

The Proposed Regulation was developed in an open public process, in consultation with affected parties, through numerous public workshops, individual meetings, and other outreach efforts, and these efforts are expected to continue;

No reasonable alternatives to the Proposed Regulation considered to date, or that have otherwise been identified and brought to the attention of CARB, would be more effective at carrying out the purpose for which the Proposed Regulation is proposed or would be as effective and less burdensome to affected entities than the Proposed Regulation; and

The Proposed Regulation is consistent with CARB's environmental justice policies and does not disproportionately impact people of any race, culture, or income.

Now, therefore, be it resolved that the Board hereby certifies that the Final EA, as released to the public on April 14, 2023 to this resolution, was completed in compliance with CARB's certified regulatory program to meet the requirements of CEQA, reflects the agency's independent judgment and analysis, and was presented to the Board, whose members reviewed and considered the information therein before taking action to approve the regulation.

Be it further resolved that the Board approves the Response to EA Comments as released to the public on April 14, 2023.

Be it further resolved that, in consideration of the Final EA, the Response to EA Comments, and the entirety of the record, the Board adopts the Findings and Statement of Overriding Considerations.

Be it further resolved that the Board hereby adopts California Code of Regulations, Title 13, section 2478, as released to the public on April 14, 2023.

Be it further resolved that the adopted regulatory text may be further revised with non-substantial or grammatical changes, which will be added to the rulemaking record and indicated as such.

Be it further resolved that the Board directs the Executive Officer to determine if additional sufficiently-related modifications to the regulations are appropriate, and that if no additional modifications are appropriate, the Executive Officer shall take CARB's final step for final approval of such amendments through submittal of the Board-approved rulemaking package to the Office of Administrative Law. The Executive Officer may revise the adopted regulations with grammatical and other non-substantial changes, indicate them as such, and add them to the rulemaking record. If the Executive Officer determines that additional sufficiently-related substantial modifications are appropriate, the modified regulatory language shall be made available for public comment, with any additional supporting documents and information, for at least 15 days, and the Executive Officer shall consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days. The Board delegates to the Executive Officer the authority to both (1) either approve or disapprove proposed changes in regulatory language under Government Code section 11346.8(c), and (2) conduct any appropriate further environmental review associated with such changes, consistent with the Board's Certified Regulatory Program regulations, at California Code of Regulations, title 17, sections 60000-60008, for those sufficiently-related substantial modifications. Alternatively, rather than taking action on the proposed modifications, the Executive Officer may instead present the modifications, and any appropriate further environmental review associated with the modifications, to the Board for further consideration, if the Executive Officer determines further Board consideration is warranted.

Be it further resolved that due to the high toxicity level of DPM created by the operation of diesel locomotives, the health impacts of exposure to toxic DPM, and the proximity of locomotive operations to sensitive receptors and disadvantaged communities, zero emission locomotive operations are necessary to prevent an endangerment of public health;

Be it further resolved that the Board hereby determines that the regulations adopted herein, will not cause California off-road engine emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards.

Be it further resolved that the Executive Officer may, upon adoption, forward the regulations to the Environmental Protection Agency with a request for an authorization or confirmation that the regulations are within the scope of an existing authorization pursuant to section 209(e)(2)(A) of the Clean Air Act, as appropriate.

Be it further resolved that CARB staff shall continue outreach efforts to ensure that affected industry are aware of the requirements of the Proposed Regulation, with a focus on Class III and industrial operators, and available incentive funding opportunities.

Be it further resolved that the Board directs staff to monitor the implementation of the Proposed Regulation, including progress made in zero emission locomotive technologies and associated infrastructure, and monitor locomotive idling times. The report may include recommendations for potential amendments when warranted to resolve any implementation problems that may arise or to provide additional emission reduction opportunities, such as a reduction in idling time, if data supports such actions.

Be it further resolved that the Board directs staff to continue to work with the U.S. EPA and offer technical assistance as needed, to advocate for the development new nationwide standards for new locomotives that reflect emerging zero emission technologies.

Be it further resolved that the Board hereby adopts the regulation as revisions to the California SIP.

Be it further resolved that the Board hereby directs the Executive Officer to submit the regulations, together with the appropriate supporting documentation, to the U.S. EPA for approval as a revision to the California SIP, to be effective, for purposes of federal law, upon approval by U.S. EPA.

Be it further resolved that the Board directs the Executive Officer to work with the U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submission.

Be it further resolved that the Board authorizes the Executive Officer to include in the SIP submittal any technical corrections, clarifications, or additions that may be necessary to secure U.S. EPA approval.

Be it further resolved that the Board certifies pursuant to Code of Federal Regulations, title 40, section 51.102 that the proposed SIP revision was adopted after notice and public hearing as required by Code of Federal Regulations, title 40, section 51.102.