APPENDIX

Comments of the California Air Resources Board in Response to the United States Environmental Protection Agency's Request for Comments on Notice of Proposed Rulemaking:
Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines
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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym/ Abbreviation	Definition
ATCM	Airborne Toxic Control Measure
CAA	Clean Air Act
CARB	California Air Resources Board
C.F.R.	Code of Federal Regulations
Daimler or DTNA	Daimler Truck North America
DEF	Diesel Exhaust Fluid
DPM	Diesel Particulate Matter
EMFAC	CARB's On-Road Motor Vehicle Emissions Inventory Model
EPA	United States Environmental Protection Agency
EU	European Union
g/bhp·hr	Grams per Brake Horsepower Hour
GVWR	Gross Vehicle Weight Rating
HD	Heavy-Duty
HDE	Heavy-Duty Engine
IARC	International Agency for Research on Cancer
IPT	Incidence-Per-Ton
ISA	Integrated Science Assessment
lb.	Pound
mg/hp·hr	Milligram Per Brake Horsepower Hour

mi/hr	Miles Per Hour
MIL	Malfunction Indicator Light
MY	Model Year
NCP	Nonconformance Penalty
NO2	Nitrogen Dioxide
NAAQS	National Ambient Air Quality Standard(s)
NOx	Oxides of Nitrogen
NPRM	Notice of Proposed Rulemaking
OBD	On-Board Diagnostic
OEHHA	Office of Environmental Health Hazard Assessment
Omnibus	On-Road Heavy-Duty Engine and Vehicle Omnibus
PM2.5	Fine Particulate Matter
R&D	Research and Development
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
Staff Report or ISOR	Initial Statement of Reasons
SwRI	Southwest Research Institute
Tier 4	Off-Road Compression-Ignition Regulations
UQS	Urea Quality Sensors
U.S. or US	United States
µg/m³	Micrograms per Cubic Meter

1. INTRODUCTION

This document contains comments of the California Air Resources Board (CARB) on the U.S. Environmental Protection Agency's (EPA) proposed "Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines." The proposed rule is also referred to as the notice of proposed rulemaking (NPRM).[1] CARB submits this comment document in support of the comments of the States and Cities opposing the NPRM, which are incorporating this comment document by reference.[2]

CARB has serious concerns with this proposed rule, opposes it in many regards, and urges EPA not to finalize the proposed rule. In general, EPA has declined to quantify the emissions impacts of various components of the proposed rule, and has failed to adequately quantify or analyze health impacts associated with increased oxides of nitrogen (NOx) emissions from the proposed regulation, departing from decades of established analytical practice without adequate justification. EPA must provide a transparent, quantitative assessment of the emissions and health impacts associated with the proposed regulation and make its analysis available for public comment before finalizing the rule.

Many of the EPA's proposed rule changes are harmful and will lead to excess deaths and illnesses. These deaths and illnesses will disproportionately impact communities along transportation and freight corridors across the United States (U.S.) CARB estimates that, in California, just three components of the many proposed rule amendments could potentially increase NOx emissions by half a million tons. These additional NOx emissions will exacerbate challenges for California in its efforts to attain the health-based National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter (PM2.5), as NOx is the primary precursor to both of these NAAQS pollutants. CARB estimates that the increased PM2.5 exposure from these rule amendments will lead to an additional 4,000 premature deaths and cause $66 billion (2025$) of combined mortality and morbidity impacts in calendar years 2027 through 2050 in the state. Nationwide, the cumulative impacts of increased deaths and illnesses due to the proposed rule changes will be several times greater than those in California and may strain healthcare systems and reduce preventative care as the added morbidities require both acute care and long-term disease management. Notably, the nationwide public health costs will far exceed the $12 billion (2024$) net savings to manufacturers estimated in the NPRM.

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[1] EPA. Proposed Rule: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. 91 Fed. Reg. 43154. (July 14, 2026) (hereinafter "NPRM")

[2] Comments of the States and Cities on Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines.

The following are additional key concerns with the NPRM identified by CARB, which are discussed in more detail below:

- The proposed removal of derate requirements from the selective catalytic reduction (SCR) inducement schedules is not needed and creates pathways for operators to use water instead of diesel exhaust fluid (DEF), thereby leading to higher tailpipe emissions from trucks and off-road equipment. Without the use of DEF, tailpipe NOx emissions could increase by roughly two orders of magnitude. The harm would extend not just to model year (MY) 2027 and newer trucks, but also to all trucks and equipment equipped with SCR, going all the way back to the 2013 MY engines for trucks and 2015 MY for off-road equipment.

- Nonconformance penalties (NCPs) are not needed and will weaken the 35 milligrams per brake horsepower hour (mg/hp·hr) NOx standard. Other flexibility provisions such as family emission level caps, averaging, banking and trading program included in the original rule titled "Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards"[3] provide sufficient flexibility to manufacturers to comply. The regulatory criteria for establishing NCPs have not been met. Therefore, CARB does not believe that NCPs are needed or appropriate, and views the penalties in this case as effectively a pay-to-pollute scheme.

- Shorter warranty periods and postponement of the longer useful life requirements lead to higher exhaust emissions as shown in the emissions inventory analysis by EPA,[4] and as explained in more detail by CARB below. Furthermore, the estimated cost savings per truck in the analysis are misleading. This proposal only shifts the responsibility for future repair costs from the manufacturers to heavy-duty (HD) vehicle owners. Therefore, CARB does not believe that the proposal would lead to actual cost savings for consumers and in fact would raise the cost to consumers.

- CARB does not support resurrection of the 2004-2009 MY NOx emission credits. It should be noted that these credits were accrued from engines that did not deploy any NOx aftertreatment technologies. Therefore, the magnitude of these credits is very large (compared to credits accrued in the 2022-2024 MY period). Resurrection of the older credits would lead to additional delays in the implementation of the new emission

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[3] EPA. Final Rule: *Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards.* 88 Fed. Reg. 4296. (January 24, 2023)

[4] EPA. Draft Regulatory Impact Analysis: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. EPA-420-D-26-002. (July 2026)

standards, thereby increasing health risks to the public.

- CARB opposes the proposal to modify the limited production volume allowance to eliminate the 2023 Final Rule's requirement to use NOx credits to offset deficits for certifying above the standard. While other engines certified to family emission levels above the emission standards would be required to offset excess emissions, limited production volume allowance engines would not be required to do so. EPA does not provide sufficient rationale for this proposal.

CARB's comments are organized by chapter. Given the substantial additional health burdens that Californians would bear as a result of changes proposed in the NPRM, CARB is summarizing in Chapter 2 the health harms associated with the excess NOx emissions that CARB estimates would result from the proposal. Chapters 3 through 8 provide comments regarding different elements of the NPRM. For example, Chapter 3 focuses on comments regarding the proposed inducement revisions for on-road engines while Chapter 5 focuses on NCPs. For Chapters 3 through 8, each comment is referenced to specific pages of the proposed rule as published in the Federal Register. Chapters 9 and 10 describe CARB's methods to estimate emission impacts and health impacts, respectively, and summarize these estimated impacts. Some Chapters of this comment include the commenter identifiers that the NPRM requested that commenters use to note that a comment is relevant to a particular comment solicitation in the NPRM.[5]

A lack of comment here should not be considered as CARB's agreement with any particular element of the proposed rule. Also note that in some instances, responses apply to more than one EPA request for comment.

For the reasons explained below, CARB believes that the proposed rule should not be finalized and that the 2023 Final Rule should remain fully effective.

2. OVERVIEW OF HEALTH IMPACT CONCERNS

Heavy-duty (HD) trucks and off-road equipment powered by diesel fuel produce dangerous air pollution, especially NOx that can react in the atmosphere to form PM2.5 and ozone. These pollutants are associated with a wide range of adverse health effects and pose significant risks to public health. In addition, toxic air pollutants co-emitted from HD trucks and off-road equipment (such as diesel exhaust) can contribute to serious long-term health effects, including cancer. Reducing NOx and other harmful emissions from HD trucks and

[5] NPRM, 91 Fed. Reg. 43154, 43213

off-road equipment is therefore essential for improving air quality and protecting the health and well-being of Americans.

A. Oxides of Nitrogen

Oxides of Nitrogen (NOx), primarily monitored as nitrogen dioxide (NO2) as an indicator pollutant used for the primary ambient air quality standard for the broader group of NOx, is also commonly used in epidemiological studies to evaluate health impacts associated with NOx exposure. Extensive scientific evidence demonstrates that exposure to NO2 can cause adverse health effects, particularly those affecting the respiratory system.[6] The EPA's Integrated Science Assessment (ISA) for NOx determined that short-term NO2 exposure has a causal relationship with respiratory effects, with key evidence showing that "*short-term NO2 exposure independently can trigger an asthma attack.*"[7] The ISA also concludes that long-term NO2 exposure is likely to be causally related to respiratory outcomes (e.g., asthma, development of respiratory allergies, and reduced lung function and development). The strongest evidence supporting these conclusions, and the basis for the ambient air quality standard for NO2, comes from controlled human exposure studies[8,9] and consistent epidemiological findings demonstrating that NO2 exposure can intensify responses to allergens in allergic asthmatics. Beyond respiratory effects, the ISA report identifies suggestive evidence associating NO2 exposure with a range of other adverse health outcomes, including cardiovascular effects, diabetes, total mortality, adverse birth outcomes (e.g., low birth weight, pre-term birth), and cancer. Certain populations are particularly vulnerable to NO2 exposure. Infants and children may experience disproportionately higher exposures because of their higher breathing rates relative to body weight and generally greater time spent outdoors. Individuals with chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease, are also at elevated risk of adverse health effects from NO2 exposure. Communities experiencing multiple environmental stressors or bearing disproportionate impacts of climate change such as heat waves and wildfires are more vulnerable to health effects. Notably, EPA released a draft ISA[10] for external review in July 2026 as part of updating the 2016 publication. In this draft, EPA notes that due to newer scientific evidence, shifting emission sources, and improved models and tools available since the publication of the 2016 ISA, there is additional evidence supporting the

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[6] CARB. *Nitrogen Dioxide & Health* (2026)
[7] EPA. *Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria, EPA/600/R-15/068* (January 2016)
[8] J. S. Brown. *Nitrogen dioxide exposure and airway responsiveness in individuals with asthma*, 27 Inhalation toxicology 1-14 (2015), doi:10.3109/08958378.2014.979960
[9] J. E. Goodman, et al, *Meta-analysis of nitrogen dioxide exposure and airway hyper-responsiveness in asthmatics*, 39 Critical reviews in toxicology 719 (2009), doi:10.3109/10408440903283641
[10] EPA. *Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria (External Review Draft, 2026), EPA/600/R-25/232* (July 2026)

previously established causality for short-term asthma exacerbation and new epidemiologic cohort studies to update the causality for long-term respiratory effects from *likely to be causal* to *causal*.

In addition to the direct health impacts of NO2 exposure, NOx contributes to the formation of PM2.5 and ground-level ozone. Therefore, CARB is also summarizing the health effects associated with PM2.5 and ozone.

B. Fine Particulate Matter

Among the common air pollutants, PM2.5 is responsible for the greatest proportion of adverse health effects related to air pollution, both in the U.S. and world-wide based on the World Health Organization's Global Burden of Disease Project.[11] Per EPA's 2019 ISA for particulate matter and its 2022 Supplement, exposure to PM2.5 has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days.[12,13] This ISA concludes that the evidence supporting causal relationships between PM2.5 exposure and mortality and cardiovascular effects is consistent and robust across a large body of scientific literature. In addition, the International Agency for Research on Cancer (IARC) concluded in 2015 that particulate matter in outdoor air pollution causes lung cancer.[14] Research further indicates that older adults with chronic heart or lung disease, children, and individuals with asthma are among the populations most susceptible to adverse health effects from particulate matter exposure.

Importantly, CARB and the Office of Environmental Health Hazard Assessment (OEHHA) carried out a comprehensive review of the scientific literature published since 2021 (i.e., studies released after the 2022 ISA Supplement to the 2019 ISA for particulate matter) to evaluate the health impacts of long-term PM2.5 exposure at concentrations near or below 12 micrograms per cubic meter (μg/m³). This review was conducted in response to EPA announcing[15] in March 2025 that the agency will reconsider the PM2.5 National Ambient Air Quality Standards established in 2024 (9 μg/m³) based on extensive review of new scientific

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[11] Institute for Health Metrics and Evaluation (IHME), *Global Burden of Disease 2023: Findings from the GBD 2023 Study* (2025)
[12] EPA. *Integrated Science Assessment for Particulate Matter: Final Report, EPA/600/R-19/188* (December 2019) (containing errata sheet created September 2021)
[13] EPA. *Supplement to the 2019 Integrated Science Assessment for Particulate Matter: Final Report*, EPA/600/R-22/028 (May 2022)
[14] Int'l Agency for Research on Cancer. *Outdoor Air Pollution,* 109 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans (2016)
[15] Press Release, EPA. *EPA Launches Biggest Deregulatory Action in U.S. History* (March 12, 2025)

evidence,[16] and will potentially roll back the standard to the level established in 2013 (12 µg/m³). CARB and OEHHA's evaluation reaffirmed the prior conclusions of the EPA's own rigorous scientific assessments, including the 2019 ISA, the 2022 ISA Supplement, and the 2022 Policy Assessment,[17] which found strong evidence linking PM2.5 exposure to premature mortality and a wide range of adverse health outcomes. Furthermore, it strengthens the evidence that harmful health effects occur even at PM2.5 concentrations below both the previous annual standard of 12 µg/m³ and the current annual standard of 9 µg/m³.[18,19,20,21,22,23,24] Notably, the growing body of evidence does not identify a clear safe threshold below which health risks are absent. Collectively, thousands of peer-reviewed studies conducted worldwide consistently link PM2.5 exposure and mortality, as well as a wide range of other health effects, underscoring the substantial public health burden attributable to PM2.5 pollution.

C. Ozone

Inhalation of ground-level ozone causes inflammation and irritation of the tissues lining the human airways, leading to and exacerbating a variety of respiratory symptoms.[25] Exposure to ozone can reduce lung function, resulting in shortness of breath and decreased respiratory capacity. Ozone in sufficient doses can increase the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The latest EPA ISA for

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[16] EPA. *Reconsideration of the National Ambient Air Quality Standards for Particulate Matter*. 88 Fed. Reg. 5558. (January 27, 2023)
[17] EPA. *Policy Assessment for the Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, EPA-452/R-22-004* (May 7, 2022)
[18] J. Chen et al., *Long-term exposure to low-level PM2. 5 and mortality: investigation of heterogeneity by harmonizing analyses in large cohort studies in Canada, United States, and Europe*, 131 Env't Health Perspectives 127003 (2023), doi:10.1289/EHP12141
[19] J. D. Schwartz et al. *A self-controlled approach to survival analysis, with application to air pollution and mortality*, 157 Env't Int'l 106861 (2021), doi:10.1016/j.envint.2021.106861
[20] F. Kazemiparkouhi et al. *The impact of Long-Term PM2. 5 constituents and their sources on specific causes of death in a US Medicare cohort*, 159 Env't Int'l 106988 (2022), doi:10.1016/j.envint.2021.106988
[21] M. R. Rojas et al. *Long-term exposure to ambient PM2. 5 and mortality: A comparison of between-subjects and within-subjects survival analysis*. 9 Env't Epidemiology: e378 (2025), doi:10.1097/EE9.0000000000000378
[22] Z. Zhang et al. *Long-term exposure to air pollution and mortality in a prospective cohort: The Ontario Health Study*, 154 Env't Int'l 106570 (2021), doi:10.1016/j.envint.2021.106570
[23] H. Chen et al. *Impact of lowering fine particulate matter from major emission sources on mortality in Canada: a nationwide causal analysis*,119 Proceedings of the National Academy of Sciences e2209490119 (2022), doi:10.1073/pnas.2209490119
[24] S. Weichental et al. *How low can you go? Air pollution affects mortality at very low levels*, 8 Science Advances eabo3381 (2022), doi:10.1126/sciadv.abo3381
[25] CARB. *Ozone & Health: Health Effects of Ozone* (2026)

ozone[26] concludes that short-term ozone exposure has a causal relationship with respiratory effects (e.g., worsening asthma, reduced lung function, respiratory infection), while long-term exposure is likely to be causally related to respiratory effects. Emerging evidence also supports a likely causal relationship between short-term ozone exposure and metabolic effects (e.g., insulin resistance, Type 2 diabetes, obesity). In addition, the ISA reports suggestive evidence linking ozone exposure to impacts on the cardiovascular (e.g., heart failure) and nervous systems (e.g., dementia, Autism Spectrum Disorder), reproductive and developmental outcomes (e.g., low birth weight, pre-term birth), and mortality. The occurrence and severity of health effects from ozone exposure vary widely among individuals, even when exposure levels and durations are similar. Adults and children who spend more time outdoors engaging in vigorous physical activity are at greater risk of experiencing adverse health effects from ozone exposure.

D. Diesel Particulate Matter and Other Pollutants

In addition to NOx, diesel exhaust is a complex mixture of air pollutants consisting of other gaseous pollutants (e.g., volatile organic compounds), and particulate matter, including diesel particulate matter (DPM).[27] DPM is typically composed of black carbon and numerous organic compounds, including more than 40 known carcinogenic substances. Examples include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. CARB identified DPM as a toxic air contaminant in 1998 based on scientific evidence linking diesel exhaust exposure to lung cancer and other adverse health effects. In 2012, the IARC classified diesel engine exhaust as "carcinogenic to humans."[28] DPM continues to represent a substantial public health concern in California, accounting for an estimated 70% of the known statewide cancer risk attributable to toxic air contaminants.[29,30]

E. The Proposal Fails to Quantify the Harm of Increased Pollution

Accordingly, efforts under the 2023 Final Rule to reduce emissions and population exposure to NOx, DPM, and other pollutants from HD trucks can yield significant public health benefits, including lower cancer risks and reduced non-cancer health impacts for Californians and all Americans, with especially meaningful improvements for vulnerable

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[26] EPA. *Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants, EPA/600/R-20/012* (April 2020)
[27] CARB. *Overview: Diesel Exhaust & Health* (2026)
[28] Int'l Agency for Research on Cancer. *Diesel and Gasoline Engine Exhausts and Some Nitroarenes*, 105 IARC Monographs on the Evaluation of Carcinogenic Risks to Humans (2013)
[29] CARB. *Summary: Diesel Particulate Matter Health Impacts* (2026)
[30] R. Propper et al. *Ambient and Emission Trends of Toxic Air Contaminants in California*, 49 Environ Sci Technol 11329 (2015), doi: 10.1021/acs.est.5b02766

populations. However, in a sharp break from past precedent, EPA did not quantify or monetize the national health disbenefits of increased criteria pollutant emissions in the Draft Regulatory Impact Analysis for the NPRM.[31] EPA is presenting an incomplete comparison of cost and benefits that only considers regulatory costs, unfairly tipping the scale in favor of polluters. This is a significant analytical deficiency that understates the true public health and economic costs of delay, weakens EPA regulations, erodes public trust, and results in a direct threat to public health. To support EPA in conducting a more comprehensive, fair, and precedented comparison of regulatory costs, CARB is quantifying and monetizing health disbenefits to Californians from specific proposed amendments and NCPs in the subsequent chapters. The methodologies used to estimate increased emissions and health impacts are described in Chapters 9 and 10, respectively. Chapter 10 also includes a summary and monetization of the health impacts of the proposal in California. Importantly, as CARB is only quantifying a subset of illnesses related to PM2.5 formed from the increased NOx emissions, the health impacts presented are underestimations of the overall health disbenefits to Californians. Nationwide, the impacts of excess deaths and added illnesses from increased emissions due to the proposed amendments will be far higher.

3. INDUCEMENTS RELATED TO SELECTIVE CATALYTIC REDUCTION FOR ON-ROAD HEAVY-DUTY ENGINES

Affected Pages: 43194-43203; Identifiers: C-27 through C-41

Removing SCR derating requirements is very likely to lead to future operation of HD trucks with excessively high tailpipe NOx emissions. CARB opposes these proposed changes in Title 40, Code of Federal Regulations (C.F.R.) § 1036.111.

Performance inducements such as engine derates for both on-road and off-road engines are intended to motivate proper use of DEF in the SCR system and prevent tampering to control NOx emissions. The possibility of performance derates ensures that the operator uses DEF in the SCR system in the manufacturer's intended manner. Improper maintenance of the SCR and tampering due to the proposed removal of performance inducements will likely result in significant NOx emissions and a loss of health benefits.

EPA states in the preamble that performance derates result from "system failures stemming from sources like failed sensors or the availability of replacement parts." CARB strongly disagrees with EPA's premise that to remedy this issue, engine derates should therefore be replaced with an audible and visible notifications so as not to frustrate owners and operators. CARB believes that manufacturers must continue "… to use derates to

[31] EPA. Draft Regulatory Impact Analysis: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. EPA-420-D-26-002. (July 2026)

demonstrate the reasonable likelihood of operators using quality DEF to meet emission-related scheduled maintenance requirements" as stated in the NPRM.

CARB concurs with EPA on the need for manufacturers to focus on additional component engineering to improve product defects such as from failed sensors.[32] However, the decades-long program of performance derates that ensures proper performance of SCR systems should not be abandoned.

A description and results from the emissions modeling methodology is provided in Chapter 9. A Public Health Assessment was also performed with the results provided in Chapter 10.

A. Anecdotal Evidence is not a Substitute for an Unbiased and Scientific Survey

EPA has proposed modifications to SCR inducements because the EPA Administrator has said, "As I traveled to all 50 states during my first year as EPA Administrator, I heard from truck drivers, farmers, and many others rightly complaining about DEF and pleading for a fix."[33] Furthermore, on page 43195 of the NPRM, EPA indicates that: "The EPA has heard from individuals who have experienced traumatic events, such as lost harvests or stranded vehicles and products."

While CARB appreciates the feedback that EPA has received so far, anecdotal evidence is not a valid and reliable basis for proposing drastic overhauls of SCR derating requirements, or relaxing these requirements as proposed in this regulation. It is essential for EPA to perform an unbiased and scientific survey[34] of various trucking fleets to determine the scope, nature and accuracy of such complaints.

On page 43196 of the NPRM, EPA indicates that it has requested data on warranty claims, failure rates, and repair information for MYs 2016, 2019, and 2023 emission control products. The data would then be analyzed to determine whether ongoing DEF system failures are related to a specific generation of products or specific SCR-system components from the top 14 highway and nonroad diesel engine manufacturers that account for over 80% of all products using SCR systems.

CARB appreciates EPA taking the initiative in requesting this information from manufacturers. If this data is provided to EPA, CARB would like to examine whether this data

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[32] CARB notes that another component of the NPRM would shorten the warranty periods for all emission-related components, including DEF quality sensors. Longer warranty periods could help alleviate this sort of problem, as discussed below in Chapter 6 of this comment document. Shortening the warranty period for emission-related components would likely only exacerbate the problem.

[33] EPA. *Administrator Zeldin Takes Additional Measures to Address Diesel Exhaust Fluid (DEF) Issues for American Farmers and Truckers.* (February 3, 2026). See NPRM, 91 Fed. Reg 43154, 43157

[34] VERSTA Research. *What makes a survey scientific*

is only applicable within the current warranty periods as required by the regulations or if this data extends beyond the warranty periods. Depending on the applicable nature of the data, the results may not reflect the entire scope of the problem. It is very likely that, if repairs were made outside of the warranty periods, manufacturers would not report or may not have data to report, because manufacturers are not required to collect this information. Furthermore, manufacturers would not be aware of repairs where owners' costs were covered by "optional" extended warranty policies or covered by the fleet owners as part of normal maintenance expenses. As such, CARB anticipates that, at a minimum, these values would need to be extrapolated to the current useful life periods in assessing their emission impacts. Additionally, besides the SCR-system components, an expansion of other emissions-related parts that may affect the aftertreatment system would need to be examined. Failures of some components upstream of the SCR system, such as the Diesel Oxidation Catalyst (DOC), Diesel Particulate Filter (DPF), Exhaust Gas Recirculation (EGR) Valve and Cooler, DEF Injector / Dosing Module, DEF Pump and Pressure Regulator, Mixing Pipe / Decomposition Tube system, could place additional burden on the SCR system that may result in its premature failure just after the warranty period ends. For MY 2023, these values may not be complete because this MY is still within the current warranty period (e.g., 5yrs/100K miles for HDE), and as such, warranty claim or failure rates may continue to rise and are expected to be higher at the end of reporting periods relative to what has been provided by manufacturers recently. CARB requests that EPA include data from other emissions-related systems and additional MYs information to the analysis before reaching any conclusion. If the final analysis leads to nominal warranty claim or failure levels, it would not be justifiable to reduce the SCR derating requirement because there the analysis shows that there is no evidence of a real industry-wide problem. However, even if the analysis shows substantially high values, then that does not automatically justify the SCR inducement reduction. Rather, that would warrant the next level of analysis, where the emissions impact would need to be scientifically and thoroughly evaluated, because removing the SCR inducement safeguard when the SCR system actually fails would substantially increase emissions.

CARB hereby requests access to this warranty reporting data, or, at a minimum, would like to examine the results of the analysis from this effort, which was not provided in the docket materials. Should the analysis fail to support the claims that faulty SCR-related components are a major industry-wide problem, then EPA should not remove the SCR derating requirements.

CARB also requests that EPA conduct an industry-wide survey of trucking fleets to determine if SCR derating problems are indeed a major industry-wide problem. If the survey does not support such claims, EPA should not consider the removal of SCR inducement derates.

B. Selective Catalytic Reduction Derating Requirements Were Already Relaxed Significantly in the 2023 Final Rule

CARB notes that EPA already relaxed the SCR derating requirements in its previous rulemaking "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards" (2023 Final Rule)[35] due to feedback from some stakeholders. The original SCR derating requirements were established in a series of guidance documents[36] during the 2007-2013 period. Prior to the establishment of the 2023 Final Rule, the SCR derating requirements specified in the guidance documents were fully imposed four hours after the fault detection with a 5 miles per hour (mi/hr) final vehicle speed.

The 2023 Final Rule addressed concerns about limited-speed operation and significantly relaxed those requirements, as shown in Table 3-1 below, based on vehicle speed categories as defined in Table 3-2.

Table 3-1: Derate Schedule for Detected Inducement Triggering Conditions*

High-speed vehicles		Medium-speed vehicles		Low-speed vehicles	
Hours of non-idle engine operation	**Maximum speed (mi/hr)**	**Hours of non-idle engine operation**	**Maximum speed (mi/hr)**	**Hours of non-idle engine operation**	**Maximum speed (mi/hr)**
0	65	0	55	0	45
6	60	6	50	5	40
12	55	12	45	10	35
20	50	45	40	30	25
86	45	70	35	–	–

[35] EPA. Final Rule: *Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards.* 88 Fed. Reg. 4296. (January 24, 2023)
[36] EPA. *Inducement-Related Guidance Documents, and Workshop Presentation*. Docket EPA–HQ–OAR–2019–0055–0778. (October 1, 2021)

119	40	90	25	–	–
144	35	–	–	–	–
164	25	–	–	–	–

* Hours start counting when the engine detects an inducement triggering condition. For DEF supply, you may program the engine to reset the timer to three hours when the engine detects an empty DEF tank.

Engines used in motorcoach applications were also allowed to use an alternative derate schedule that starts with a 65 mi/hr maximum speed derate when an inducement triggering condition is first detected, steps down to a maximum of 50 mi/hr after 80 hours, and concludes with a final derate maximum speed of 25 mi/hr after 180 hours of non-idle operation.

Table 3-2: Vehicle Speed Category Definitions

Vehicle category*	Average speed (mi/hr)
Low-speed	speed < 15
Medium-speed	15 < speed < 25
High-speed	speed > 25

* A vehicle is presumed to be a high-speed vehicle if it has not yet logged 30 hours of non-idle operation.

As shown in Table 3-1, the four-hour derate clock was significantly relaxed to a 30-164 hour window depending on the average speed of the vehicle. Also, the final maximum speed was increased to 25 mi/hr in order to address safety issues. In addition to the relaxation of the SCR derating clock, EPA issued two guidance letters in 2025[37] and 2026[38] to provide further relaxation of the SCR derating requirements.

[37] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies*. (August 11, 2025)
[38] EPA. *DEF Quality Monitoring Using Alternate Sensor Technologies. IACD-2026-005*. (March 26, 2026)

CARB believes that the number of hours that are currently provided before imposing a final maximum speed inducement limit provides sufficient time for the operator to address any issues and fix the problem. If the problems are caused by faulty sensors or components, then the operator must take appropriate action to repair the truck, similar to any other mechanical problem.

Furthermore, many HD on-road manufacturers are known to impose derates on their engines in the event of sensor or pump failures to prevent additional damage to the engine and aftertreatment hardware. Removal of derating requirements in such instances does not help the operator. However, it would enable some operators to avoid using DEF as required, leading to significant emission increases above certified levels and associated harms to public health, as discussed below.

C. Emissions Impacts of Inducement Changes Were Not Estimated in the Notice of Proposed Rulemaking

While EPA has relied heavily on testimonials from individual operators and anecdotal evidence to justify removing the derates, it has not performed an emissions inventory analysis to quantify the possible impacts of this proposal.

With the EPA's removal of derates, tampering, such as the following scenario, is very likely to occur under real-life conditions:

1) Operator will start using water or low-quality DEF in lieu of high-quality DEF (although DEF is widely available, water is more accessible and costs less).
2) Operator will do one of the following:
    a. Use a generic scan tool to clear the fault code while driving (no need to pull over as this requirement has also been removed in the NPRM),
    b. Tamper with the audible signal system, or
    c. Tolerate the 90 second warning every hour.

CARB believes that the above scenario is highly likely to occur for a fraction of truck engines on the road as a consequence of the SCR derate removal. The use of water could lead to an increase in tailpipe NOx emissions by roughly two orders of magnitude[39] (a single truck with a tampered SCR unit would emit as much NOx as 100 compliant trucks). Therefore, small levels of SCR tampering rates (i.e., using water instead of DEF, empty DEF tank, tampering with the visual/audible warning signal, etc.) could lead to significant increases in tailpipe NOx emissions from trucks. Addition of water instead of DEF would basically deactivate the

[39] SwRI. Sharp, Christopher. Final Report: *Further Development and Validation of Technologies to Lower Oxides of Nitrogen Emissions from Heavy-Duty Vehicles, Low NOx Demonstration Program – Stage 3*, ARB Contract 16MSC010, SwRI® Project Number 03.23379. (April 16, 2021)

SCR system leading to a scenario where the tailpipe emissions have similar NOx characteristics as the engine-out emissions.

CARB performed an emissions inventory analysis to determine the potential impact of EPA's proposed removal of SCR derate requirements within California. The analysis assumed that a baseline SCR tampering rate of 2% would increase to a new tampering rate of 4.4% for HD trucks operating in California (see Chapter 9 for additional information). EPA's proposal would remove the requirement for SCR derates impacting both new trucks (2027 and subsequent MY), and existing pre-MY 2027 trucks already on the road. CARB's emissions inventory analysis was divided into two distinct parts:

- Part 1 (impacts for 2013 through 2026 MY heavy-duty engines (HDE)) – 4.4% of 2013 through 2026 MY HDEs operating in California were assumed to be subject to SCR tampering. Under this scenario, an additional 38,601 tons of NOx emissions would occur in California in calendar years 2027-2050 which translates into an additional 310 premature deaths in California.

- Part 2 (impacts for 2027 and subsequent MY HDEs) – 4.4% of 2027 and subsequent MY HDEs operating in California were assumed to be subject to SCR tampering. This scenario would lead to an additional 141,658 tons of NOx emissions in California for calendar years 2027-2050 which translates into an additional 1,211 premature deaths in California.

Information regarding the health impacts of both parts of the analysis are provided in Table 3-3 below. Additional details regarding emissions modeling is provided in Chapter 9. Public health impacts are described in detail in Chapter 10.

Table 3-3: Potential Health Impacts of SCR Derating Removal in California for 2027 through 2050 Calendar Years

Health endpoint	Part 1 SCR Derate Removal for 2013-2026 MY HDEs*	Part 2 SCR Derate Removal for 2027 and Subsequent MY HDEs*
Cardiopulmonary mortality	310	1,211
Hospitalizations for cardiovascular illness	60	245
Cardiovascular ED Visits	84	314

Acute Myocardial Infarction, Nonfatal	35	133
Hospitalizations for respiratory illness	9	37
Respiratory ED visits	192	716
Lung cancer incidence	22	86
Asthma onset	745	2,640
Asthma symptoms	66,822	226,065
Work Loss Days	45,523	168,031
Alzheimer's Disease	124	507
Parkinson's Disease	19	76

* Number of Cases.

D. Conclusions

CARB has serious concerns with regard to the removal of SCR derating requirements. EPA has introduced the proposal without conducting a scientific survey to validate the need for the action.

Furthermore, this action will increase the likelihood of tampering rates with the SCR notification system. Given the significant impacts on tailpipe NOx emissions, CARB suggests the postponement or reconsideration of this action until:

- Sufficient validated data has been obtained from fleet operators and other appropriate sources to establish that erroneous derates are indeed a widespread problem, and, if there is adequate evidence of a problem, that the derate-related

guidance letters EPA issued in 2025[40] and 2026[41] are not adequate to address that problem; and

- A nationwide emissions inventory analysis for the relevant MY HDEs, along with a quantitative estimate of the incidence and monetization of the health impacts resulting from this proposal, consistent with EPA's longstanding practice for regulatory impact analysis.

4. INDUCEMENTS RELATED TO SELECTIVE CATALYTIC REDUCTION FOR OFF-ROAD COMPRESSION-IGNITION ENGINES

CARB has serious concerns about the proposed changes in 40 C.F.R. § 1039.111 removing SCR derate requirements for off-road compression-ignition engines.

In terms of direct air quality impacts, removal of SCR derate requirements would very likely lead to future operation of off-road equipment with excessively high tailpipe NOx emissions. Section A below presents expected emission increases from removing SCR derate requirements for off-road compression-ignition engines. Then, Sections B to G respond to requests for comments on a number of related issues. Section H presents CARB's overall recommendation with respect to removing SCR derate requirements for off-road compression-ignition engines. Results from an emissions inventory analysis performed by CARB are provided in Chapter 9. A health impacts analysis was also performed with the results provided in Chapter 10.

A. Emission Impacts in California

CARB performed an emissions inventory analysis to determine the potential impacts of EPA's proposed removal of derate requirements for off-road equipment operating in-state and equipment entering California. The analysis assumed that EPA's proposal would cause an average tampering rate of 20% for SCR systems. EPA's proposal would remove the requirement for SCR derates impacting both existing off-road equipment (MYs 2015-2026) and new off-road equipment produced in the future (MY 2027+). The emissions inventory analysis was divided into two distinct parts:

- Part 1 (impact for in-use MYs 2015-2026) - 20% of in-use off-road engines equipped with SCR systems (2015 to 2026 MY) operating in California were assumed to be

[40] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies.* (August 11, 2025)
[41] EPA. *DEF Quality Monitoring Using Alternate Sensor Technologies.* IACD-2026-005. (March 26, 2026)

subject to tampering. Under this scenario, cumulative statewide NOx emissions would increase by approximately 133,159 tons.

- Part 2 (impact for MY 2027+ only) - 20% of 2027 and subsequent MY off-road engines were assumed to be subject to tampering. Under this scenario, cumulative statewide NOx emissions would increase by approximately 202,456 tons.

Results from emissions modeling are shown below in Table 4-1. Additional details regarding emission modeling are provided in Chapter 9. Public health impacts are described in detail in Chapter 10.

Table 4-1: Estimated Health Impacts from the Removal of SCR Derates for Off-Road Compression Ignition Engines on Statewide NOx Emissions: Statewide California for 2027-2050 Calendar Years

Health endpoint	Part 1 SCR Derate Removal for 2015-2026 MY Engines*	Part 2 SCR Derate Removal for 2027+ MY Engines*
Cardiopulmonary mortality	886	1,403
Hospitalizations for cardiovascular illness	169	274
Cardiovascular ED visits	236	362
Acute Myocardial Infarction, Nonfatal	98	152
Hospitalizations for respiratory illness	25	41
Respiratory ED visits	564	867
Lung cancer incidence	63	100

Asthma onset	2,174	3,237
Asthma symptoms	193,133	281,388
Work Loss Days	130,124	199,671
Alzheimer's Disease	346	560
Parkinson's Disease	54	87

* Number of Cases.

B. Operator Frustration with Inducements Caused by Defects and the Implications of Removing Performance Derates

Affected pages: 43194-43195; Identifier: C-27

In the preamble, EPA states that urea quality sensors (UQS) have amongst the highest failure rates of any SCR components and that UQS failures are a significant source of warranty claims and DEF-related inducements.[42] The proposed off-road visible and audible notification schedule does not address the issue of sensor failure. For off-road equipment, derates have served as the primary compliance mechanism to ensure operators maintain SCR systems and address faults. Replacing them with audible and visible notifications alone removes the immediate consequence that has historically motivated operators to promptly repair inducement-related faults. Without a performance-based inducement, there is no clear link between an active fault and the operator's incentive to repair or refill DEF. This approach risks shifting the burden of emissions compliance from the control system to operator behavior, without demonstrating how that behavior will be reliably induced in the field.

While CARB agrees that high-quality DEF is widely available to fleet operators where they refuel and maintain their vehicles, that availability does not guarantee that an operator will use it. Engine derates are intended and needed to induce operators to fill the tank or not dilute the DEF. Without the risk of derate inducements, an operator will have little incentive to operate and maintain the SCR properly. During roadside inspections of HD vehicles for compliance with in-use emission requirements, vehicles have been identified with opaque tape or stickers covering the Malfunction Indicator Light (MIL).[43] Additionally, California

[42] NPRM, 91 Fed. Reg. 43154, 43195
[43] CARB. *CARB Enforcement Data Portal*

tamper rates for on-road trucks dropped dramatically when derates were implemented for SCR systems.

Notifications alone provide no meaningful consequence for an operator who has intentionally deleted the SCR or successfully tampered in some other form.

EPA cites the observation that the number of fault conditions causing inducements has steadily increased far beyond the need to detect problems related to DEF supply, DEF quality and tampering with SCR systems.[44] Instead of abandoning derates, EPA should require that manufacturers minimize fault conditions. Although EPA states that farmers have suffered crop loss due to performance derates, EPA provides no evidence of complaints from construction equipment operators or other equipment owners. If there were widespread problems with off-road derates, CARB staff would expect to see complaints not only from farmers but from owners of other types of equipment, with loss in performance of SCR systems from construction, generators, and industrial equipment as well. We suggest EPA conduct a scientific survey of off-road fleets to determine if there is evidence of a problem that the derate-related guidance letters EPA issued in 2025[45] and 2026[46] are not adequate to address.

C. Derates Should Not Be Limited to Protecting the Engine and Aftertreatment from Catastrophic Damage Only

Affected pages: 43198-43200; Identifier: C-32

EPA is requesting comments on whether its proposal should be more or less restrictive for engine derates to protect engines and aftertreatment systems from catastrophic damage. To minimize the risk of damage to engines and aftertreatment systems causing long-term emission increases, EPA should allow manufacturers to derate for all types of engine and aftertreatment damage, not some narrowly defined "catastrophic damage."

D. Once Poor Diesel Exhaust Fluid Quality is Detected, Dosing Should Be Limited or Suspended

Affected pages: 43200-43201; Identifier: C-34

EPA's proposal to allow DEF dosing to continue after a DEF quality warning is activated should be evaluated based on both emissions performance and SCR system protection. For

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[44] NPRM, 91 Fed. Reg. 43154, 43207

[45] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies*. (August 11, 2025)

[46] EPA. DEF Quality Monitoring Using Alternate Sensor Technologies. *IACD-2026-005*. (March 26, 2026)

off-road equipment, compensation algorithms and continued dosing may be beneficial with low-quality DEF as it may provide some NOx reduction compared to no DEF dosing at all. However, dosing with very low-quality DEF increases the risk of crystallization, deposit formation, and potential harm to the SCR catalyst and related aftertreatment components. Therefore, EPA should distinguish this circumstance from cases in which the DEF tank contains a non-DEF fluid or when the urea concentration is sufficiently low that the system can no longer reliably control dosing or protect the aftertreatment system and components.

First, EPA should assess whether current manufacturer strategies adequately address low-urea DEF and non-DEF-fluid contamination. EPA should request data from manufacturers on current in-use strategies after detection of poor DEF quality, including whether dosing continues, is reduced, or is suspended; the diagnostic and control criteria used; and testing or field experience concerning contaminants, crystallization, deposits, and other aftertreatment risks.

If the data demonstrates that existing strategies are not consistently providing appropriate emissions performance and aftertreatment system protection, then EPA should establish minimum validation and control criteria. Manufacturers that continue dosing below 20% urea concentration should be required to demonstrate that their strategy provides an emissions benefit without creating an unreasonable risk to aftertreatment components. If a manufacturer cannot demonstrate adequate emissions performance and system protection, then dosing should be limited or suspended, and the operator should receive notification. After operator notification, the appropriate inducement strategy should begin to restore the system using compliant DEF.

E. Unattended Off-Road Equipment Should Include Engine Derates

Affected pages: 43198-43207; Identifier: C-47

Audible and visible notifications are not appropriate for unattended equipment, as operators would likely not be present when an SCR fault or trigger occurs. Visual notifications can be obscured, such as an operator easily covering the alert with tape so that an operator can ignore the required maintenance. Audible alarms are likely not to be heard by the operators. Therefore, CARB suggests codifying EPA's 2025 Guidance for performance derates as an appropriate response for unattended equipment to ensure that operators are motivated to conduct repairs.[47]

[47] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies*. (August 11, 2025)

F. Audible and Visible Notifications Should be in Addition to and Not in Place of Derates

Affected pages: 43206-43207; Identifiers: C-48

EPA mentions the complexity of HD 2027 aftertreatment systems as being one of the justifications for replacing derates with visible and audible notifications. However, that is not the same for off-road. Updates to the off-road regulations (Tier 4) have not occurred in over 20 years. Off-road aftertreatment systems consist of a single SCR. EPA's logic for significantly modifying DEF inducement systems for off-road is not warranted.

Regarding EPA's request for feedback on notifications, CARB believes that the notifications should not be limited to key-on events. Off-road machines often operate for many hours between starts. Therefore, EPA should require limited performance derates in addition to periodic audible and visible alerts during operation to maintain operator awareness of the fault and motivate timely corrective action of the fault. This should be the minimum requirement for low-level or empty DEF tank conditions, which prevent the SCR from operating efficiently.

EPA's recent 2025 SCR Inducement Guidance (IACD-2025-10)[48] already reflects sufficient adjustments from the 2010 – 2013 EPA Guidance, as shown in Table 4-2. It allows operators to achieve their work without severely impacting them, with initial inducement occurring within 36 hours and final inducement occurring within 100 hours. This is significantly relaxed from the previous off-road SCR inducement guidance (i.e., 2010 Selective Catalytic Reduction Workshop,[49] the 2011 Nonroad SCR Certification webinar,[50] and the 2014 Guidance Document (CD-14-10)[51]), which involved initial inducement occurring within 1 hour and final inducement occurring within 4 hours. The engine manufacturers have the choice of final inducement option 1 resulting in no engine restart or idle only, or final inducement option 2 resulting in a 50% torque derate.

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[48] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies*. (August 11, 2025)
[49] EPA. *Selective Catalytic Reduction Workshop.* (July 20, 2010)
[50] EPA. *Nonroad SCR Certification.* (July 26, 2011)
[51] EPA. *Certification of Nonroad Diesel Engines Equipped with SCR Emission Controls: CD-14-10*. (May 12, 2014)

Table 4-2: 2025 SCR Inducement Guidance Strategies for Nonroad Engines

	Initial Inducement Timing	Initial Inducement*	Final Inducement Timing	Final Inducement Option 1**	Final Inducement Option 2
Nonroad CI Engines	36 hours	25% Torque Derate	100 hours	No Restart or Idle only	50% Torque Derate

*Generator set engines and constant speed engines (e.g. agricultural pumps) are exempted from this initial inducement requirement

**For final inducement option 1, the timing indicated refers to when the system begins to look for any previously approved triggering conditions for final inducement

Final inducement options 1 or 2 may be implemented for tank fill percentage-based DEF Level inducement strategies.

In order to account for safety concerns and to allow for self-healing diagnostics, use of an inducement override function for releasing full engine power is permitted provided it is active for no longer than 30 minutes and is limited to 3 activations over all inducement steps combined for each incident. For each activation, a full 30 minutes of full-power operation is preserved across key-off or other engine shutdown events.

For off-road diesel engines, EPA should consider harmonization with the established European Union (EU) SCR framework for EU Stage V engines. EU Stage V SCR inducement requirements have been in effect for several years and include the requirements for operator notifications and performance-based derates.[52] CARB believes this is a reasonable approach as it leads to national inducement harmonization with EU Stage V products, as manufacturers have already introduced dual EU Stage V and US Tier 4 Final certified engines into the U.S. market. The proposed change from performance derates to notifications would burden the manufacturers with increased indirect costs.

G. In-Use Engine Requirements Should Not Require Manufacturers to Retroactively Retrofit the Inducement Derates with Visible and Audible Notifications

Affected pages: 43198-43208; Identifier: C-49

EPA should not require the retrofit in-use engines to replace inducement derates with only visible and audible notifications because engine derates provide a stronger compliance

[52] European Parliament and Council. *Regulation (EU) 2016/1628 on Requirements Relating to Gaseous and Particulate Pollutant Emission Limits and Type-Approval for Internal Combustion Engines for Non-Road Mobile Machinery (EU Stage V)*. (September 14, 2016)

mechanism than notifications alone. CARB believes that retroactive requirements would result in higher tailpipe NOx emissions. For example, if 20% of in-use off-road engines equipped with SCR systems (2015 to 2026 MY) operating in California were assumed to be subject to tampering, NOx emissions would increase by approximately 133,000 tons statewide cumulatively for 2027 to 2050.

H. Conclusions

CARB has significant concerns with the proposal to replace performance derates with audible/visible notifications, which would result in high NOx emissions. We recommend that EPA codify the August 2025 SCR Inducement Guidance[53] with derates for off-road engines to maintain the existing NOx controls. This will provide more time for manufacturers to focus on fixing the causes of derates from faulty components and sensors with high defect rates while maintaining limited derates. It will also minimize indirect costs to manufacturers who have already invested in implementing the 2025 guidance.

5. NONCONFORMANCE PENALTIES

Affected pages: 43813-43192; Identifiers: C-15 through C-17

CARB is deeply troubled by EPA's proposal to allow manufacturers to use NCPs for 2027 and later MY HDEs and believes such NCPs are unnecessary. Other flexibility provisions such as family emission level caps, averaging, banking and trading program, the 5% production allowance for heavy HDEs included in the Final 2023 Rule would have provided sufficient flexibility to enable manufacturers to comply.

Allowing manufacturers to pay a fee in lieu of meeting required emission standards in this case is fundamentally inconsistent with the Clean Air Act's (CAA) intent to protect public health and safeguard public welfare by reducing air pollution. The proposed NCPs in the NPRM are basically a pay-to-pollute scheme, as the criteria for establishing NCPs are not met here, and could significantly undermine the effectiveness of the emission standards.

A. EPA's Criteria for Establishing Nonconformance Penalties Are Not Met

Under existing regulations, the EPA may establish NCPs only if all three of the following criteria are met:

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[53] EPA. *Revised Guidance for Light Duty Vehicles, Heavy-Duty Diesel Engines and Nonroad Compression-Ignition (CI) Engines Using Selective Catalyst Reduction (SCR) Technologies*. (August 11, 2025)

(1) The emission standard in question becomes more difficult to meet;

(2) Substantial work must be required to meet the emission standard; and

(3) EPA finds that a manufacturer is likely to be noncomplying for technological reasons (a "technological laggard").[54]

EPA asserts that the criteria for establishing NCPs have been met for the MY 2027 NOx standards for diesel-fueled engines in the medium HDE and heavy HDE categories and therefore proposes to make NCPs available for these engines. While it is true that the 2027 HDE NOx standards are more stringent than prior federal requirements and will necessitate additional work and technology development, the standards themselves are technically feasible, thoroughly characterized, and supported by extensive research. The evidence shows that compliance is achievable without the need for NCPs, and as discussed further below, manufacturers' own public announcements contradict the assumption that there are technological laggards.

i. The Standards are Technically Feasible

Extensive Demonstration Work at Southwest Research Institute

Since 2014, Southwest Research Institute (SwRI) has conducted multiyear HDE demonstration programs evaluating advanced combustion strategies, improved SCR systems, cylinder deactivation, and low temperature NOx control.[55] EPA was a cosponsor of this research and relied heavily on SwRI results in its 2023 Final Rule to demonstrate technical feasibility.[56] The 2023 Final Rule emphasized that the technology pathways for meeting the new standards were technically feasible, cost effective, and already under development. This decade long research record contradicts any claim that the standards have suddenly become "more difficult to meet" or that "substantial new work" is required.

Manufacturers Have Had Adequate Lead Time to Comply

The 2023 Final Rule provided clear and long-term requirements for NOx and other pollutant reductions. CARB's On-Road Heavy-Duty Engine and Vehicle Omnibus (Omnibus) Regulation, finalized in 2020, provided even earlier notice of the direction of

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[54] See 40 C.F.R. § 86.1103–2016(b); NPRM, 91 Fed. Reg. 43154, 43158

[55] SwRI. Sharp, Christopher. Final Report: "*Further Development and Validation of Technologies to Lower Oxides of Nitrogen Emissions from Heavy-Duty Vehicles, Low NOx Demonstration Program – Stage 3*," ARB Contract 16MSC010, SwRI® Project Number 03.23379. (April 16, 2021)

[56] EPA. Sanchez, James. "*Test Results from EPA Diesel Demonstration*." Memorandum to Docket: EPA-HQ-OAR 2019-0055. (February 10, 2022)

both state and federal standards. Manufacturers have therefore had *more than six years* of regulatory certainty and lead time to develop compliant technologies for 2027 and later MY HDEs. Nearly the entire diesel engine and truck manufacturing industry, including Cummins, PACCAR, Volvo, Detroit Diesel, and International, has publicly stated their readiness for the federal 2027 HDE NOx standards, demonstrating broad technological maturity across the sector.[57,58,59,60,61,62]

A declaration by Daimler Truck North America (Daimler or DTNA), one of the largest HDE manufacturers in the nation, further underscores this readiness. During its second-quarter 2026 earnings call,[63] Daimler executives confirmed that DTNA will only sell 2027 federal NOx complaint engines beginning January 1, 2027, will not run parallel 2026-engine programs, and has already launched its Detroit Gen 6 DD13 and DD15 engines designed specifically to meet the 2027 NOx requirements. This commitment demonstrates not only readiness but full production alignment with the 2027 standards.

This readiness is further demonstrated by concrete engine certification data. PACCAR has already certified its 2024-2026 MY heavy HDE engine family to the Omnibus NOx standard of 50 mg/hp·hr while also meeting all other certification requirements and in-use Moving Average Window requirements – meaning only a modest incremental improvement is needed to reach the 2027 federal NOx standard of 35 mg/hp·hr. Cummins has likewise certified a light HDE engine family to the 50 mg/hp·hr Omnibus NOx standard. These declarations and certification results directly undermine EPA's claim that substantial new work is required or that the standards have become more difficult to meet.

ii. No Evidence of a Technological Laggard

Additionally, the third requirement, identifying a technological laggard, is not met. EPA asserts that multiple engine manufacturers will likely be unable to demonstrate their chosen technologies in time for MY 2027 for certain medium HDEs and heavy HDEs. Yet EPA provides no evidence to support this claim: it does not identify which manufacturers

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[57] "*Cummins announces innovative next generation X15 diesel engine, part of Cummins HELM™ 15 liter fuel agnostic platform, launching in North America to meet aligned 2027 regulations*." Cummins Inc. (February 29, 2024)
[58] "*Cummins Advances X10 to Bring Heavy-Duty Performance to the Mid-Bore Market*." Cummins Inc. (January 16, 2026)
[59] "*Paccar Teases Launch of 2 EPA NOx 2027-Compliant Engines*." Transport Topics. (February 11, 2026)
[60] "*Detroit introduces its 2027 heavy-duty Gen 6 engines.*" Daimler Truck North America. (February 19, 2026)
[61] "*Volvo, Mack unveil EPA 2027-compliant heavy-duty diesel engines*." Dieselnet. (May 8, 2026)
[62] "*International's S13 powertrain is ready for 2027 EPA regs*." Commercial Carrier Journal. (January 9, 2026)
[63] "*DTNA commits to just EPA 2027 engines when NOx rules launch.*" Transport Topics. (August 7, 2026)

are allegedly at risk, nor does it specify any engine families that are technologically incapable of meeting the standards by January 2, 2027.

Daimler's recent statements further undermine EPA's claim that any manufacturer is a technological laggard. In testimony at the July 29, 2026, public hearing,[64] Daimler stated that "there is little evidence to suggest that there's a technological laggard in the heavy-heavy duty segment" and encouraged EPA to "carefully study" the record on technological readiness. Daimler also emphasized that NCPs are permissible only in narrow circumstances under the CAA and questioned whether those circumstances have been met in all segments. Critically, Daimler warned that under the CAA, EPA must ensure NCPs are not set at a level that makes selling older, higher-emitting engines more cost-effective than new, cleaner ones, and noted that information from manufacturers regarding their plans to sell older model engines next year would seem to demonstrate that the proposed NCPs fail to satisfy CAA requirements. Daimler further affirmed that the 2023 Final Rule was "technologically feasible, challenging, but met all requirements of the CAA."

In general, the record shows that manufacturers have had ample lead time, and several major engine manufacturers have publicly declared readiness for the 2027 HDE standards. This demonstrates that any potential noncompliance would stem from business decisions, not technological limitations. Therefore, the technological laggard criterion is not satisfied.

B. EPA's Rationale for Not Quantifying Emissions and Health Impacts from the Proposed Nonconformance Penalties is Unsupported

In its Draft Regulatory Impact Analysis,[65] EPA states that it did not quantify the emissions impacts associated with the proposed NCPs because:

(1) Past NCP rules did not quantify emissions impacts from NCPs;

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[64] EPA held a virtual public hearing on July 29 and 30, 2026. See NPRM, 91 Fed. Reg. 43154. Daimler's testimony took place on July 29, 2026. *U.S. EPA Virtual Public Hearing: Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. Tr. at 78-81. (July 29, 2026)

[65] EPA. Draft Regulatory Impact Analysis: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. EPA-420-D-26-002. page 9. (July 2026)

(2) EPA cannot accurately project the degree to which manufacturers may make use of the NCPs; and

(3) EPA's expectation is that any use of the NCPs would be temporary and short-lived, since NCPs are a temporary bridge for any companies that need additional time to bring engines into compliance with the MY 2027 NOx standards.

EPA's justification for failing to quantify these emissions impacts is insufficient. First, past practice cannot become a basis for declining to quantify emissions impacts in a rulemaking that would obviously allow higher-emitting engines to enter commerce. EPA is required to evaluate the consequences of its regulatory decisions. The fact that earlier NCP rules did not include emissions quantification does not relieve EPA of its obligation to do so in this rulemaking, particularly given the stringency of the 2027 NOx standards and the public-health implications of allowing the proposed NCPs.

Second, EPA's claim that it "cannot accurately project" NCP usage is contradicted by its own statements in the preamble. EPA asserts that, based on meetings with manufacturers, multiple engine manufacturers will likely be unable to demonstrate their chosen technologies in time for MY 2027 for certain medium HDE and heavy HDE families.[66] If EPA has sufficient information to conclude that multiple manufacturers and multiple engine families will likely rely on NCPs, then EPA necessarily has sufficient information to develop a reasonable estimate of expected NCP usage. EPA cannot simultaneously assert that manufacturers will need NCPs and that it has no basis for estimating how many manufacturers and how many engine families will use them.

Third, EPA's assertion that NCP use will be "temporary and short-lived" is speculative and unsupported without quantification. EPA cannot declare NCP usage short-lived while declining to estimate the number of manufacturers, engine families, or MYs that would rely on NCPs. Without quantification, EPA has no analytical basis for its claim that the emissions impacts will be minimal or temporary.

Furthermore, by declining to quantify the health impacts associated with increased NOx emissions from the proposed NCPs and other elements of the proposed regulation, EPA departs from decades of established analytical practice without adequate justification. Historically, EPA has quantified and monetized the public health benefits of avoided PM2.5 and ozone related impacts in almost every major air quality rulemaking. These benefits have accounted for most, if not all, of the monetized benefits in many emissions regulations. EPA's failure to quantify these impacts obscures the very health consequences that the CAA requires it to consider.

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[66] NPRM, 91 Fed. Reg. 43154, 43184

For these reasons, EPA's failure to analyze the scope and extent of the increased emissions resulting from this proposal and associated impacts on the public's health and welfare constitutes a failure to consider an important aspect of this proposal. EPA must provide a transparent, quantitative assessment of the emissions and health impacts associated with the proposed NCPs and other elements of the regulation and make its analysis available for public comment before finalizing the rule.

C. Nonconformance Penalties Reward Delay and Penalize Early Compliance

The proposed NCP structure would also place at a competitive disadvantage those manufacturers who invested early in cleaner technologies to meet their legal obligations, compared to those who delayed and now seek to pay their way out of compliance. NCPs should be reserved for situations where compliance is genuinely infeasible, not where manufacturers simply chose not to prioritize emissions control development on some of their engines despite years of advance notice. As noted above, in its July 29 public hearing testimony, Daimler emphasized this point, that NCPs are permissible only in narrow circumstances under the CAA and questioned whether those circumstances have been met.

D. Allowing Payment for Pollution Harms Public Health

HDEs are one of the largest sources of NOx emissions in California (14% of statewide NOx emissions),[67] which contribute to ozone formation and PM2.5 exposure. Communities near freight corridors, ports, and distribution hubs already experience disproportionate health burdens.

These overburdened communities, which are often low-income and disproportionately composed of people of color, will bear the brunt of any delay in achieving full compliance. Allowing manufacturers to pay penalties instead of meeting the emission standards prolongs and exacerbates disparate exposure to harmful emissions in these communities.

Moreover, NCP penalties should not be based solely on the costs of developing and commercializing emission-reduction technologies, because such an approach fails to capture the societal costs of higher emissions. According to EPA's analysis, the maximum penalty is based on the highest cost that a complying manufacturer would incur to meet the standard. However, NCPs do not deliver emission reductions and therefore do not achieve the health benefits that true, technology-based compliance strategies provide. EPA should quantify the emissions impacts of this component of its proposed regulatory action and the resulting damage to human health and the environment that would result from increased

[67] CARB. *CEPAM2019v1.04 - Standard Emission Tool*

NOx emissions. EPA should not adopt a policy that effectively monetizes pollution at the expense of public health.

E. Proposed Nonconformance Penalties Would Significantly Increase Emissions and Health Impacts in California

CARB estimates that the NCP proposal would substantially increase California's statewide NOx emissions inventory. Because of competitive market forces, CARB believes that the proposed NCPs could encourage all HD diesel engine manufacturers to opt to pay NCPs to comply with the proposed amendments rather than make cleaner engines. Assuming all manufacturers rely on the proposed NCP provisions to certify diesel-fueled medium HDEs and heavy HDEs for the 2027-2029 MY period, cumulative statewide NOx emissions are estimated to increase by approximately 23,280 tons over the years from 2027 through 2050.

The associated public health impacts are similarly significant. Table 5-1 shows results from CARB's public health assessment due to the proposed NCP provisions. CARB estimates increased NOx emissions from the proposed NCP-certified engines would lead to approximately 196 additional incidents of premature mortality between 2027-2050 in California. These impacts underscore the fact that the proposed NCPs would exacerbate California's existing air quality and public health challenges.

Table 5-1: Potential Health Impacts from the Proposed NCPs in California for Calendar Years 2027-2050

Health endpoint	Estimated Health Impact Incidences
Cardiopulmonary mortality	196
Hospitalizations for cardiovascular illness	39
Cardiovascular ED visits	52
Acute Myocardial Infarction, Nonfatal	22
Hospitalizations for respiratory illness	6
Respiratory ED visits	119
Lung cancer incidence	14

Asthma onset	450
Asthma symptoms	38,583
Work Loss Days	28,110
Alzheimer's Disease	80
Parkinson's Disease	12

F. Conclusion

CARB urges EPA not to adopt the proposed NCP program for 2027 and later MY HDEs. Manufacturers have had ample lead time, clear regulatory direction, and demonstrated technological feasibility to meet the proposed emission standards. This proposed NCP program is simply a pay-to-pollute scheme. If EPA opts to keep the proposed NCP program, CARB urges EPA to set a defined end date for the NCP program after one or two MYs, to remove the danger of NCPs undercutting the effectiveness of the standards in the long term.

6. WARRANTY AND USEFUL LIFE PERIODS

A. Emission-Related Warranty Period

Affected pages: 43157, 43159-43163, 43169, 43208-43212, 43213, and 43218; Identifiers: C-1 and C-50

A key element of the NPRM focuses on reduction of the longer emission-related warranty periods for 2027 and subsequent MYs in the 2023 Final Rule. In its proposed revision to 40 C.F.R. § 1036.120(b), EPA proposes to weaken the 2023 Final Rule's warranty requirements by applying the less robust warranty period requirements that had applied to earlier MYs to 2027 and subsequent MYs. CARB strongly opposes this proposal for the reasons discussed below, and recommends maintaining the established emissions warranty periods in the 2023 Final Rule, as shown in Table 6-1, e.g., 450,000 miles or 10 years for heavy HDEs.

Table 6-1: Emission Warranty Periods – Established vs. Proposed Values

	2027+ MY Established Values			2027+ MY Proposed Values in NPRM		
	Mileage	**Years**	**Hours**	**Mileage**	**Years**	**Hours**
Spark Ignition HDE	160,000	10	8,000	50,000	5	---
Light HDE	210,000	10	10,000	50,000	5	---
Medium HDE	280,000	10	14,000	100,000	5	---
Heavy HDE	450,000	10	22,000	100,000	5	---

EPA's rationale for shortening the warranty periods is the lower estimated costs per engine across all engine categories. CARB believes that these cost savings are not real. This proposal simply shifts the responsibility for future repair or replacement costs from the manufacturers to HD vehicle owners, as acknowledged by EPA in the NPRM,[68] while completely eliminating the critical benefits provided by the extended warranty provisions that were established in the 2023 Final Rule.

The benefits of the extended warranty provisions that EPA now proposes to eliminate are numerous, and important for ensuring that emissions standards are met over the long-term. As discussed in the 2023 Final Rule and reiterated in the NPRM, EPA determined that longer emission-related warranty periods would lead owners to continue to maintain their engines and vehicles over a longer period of time, which would ensure longer-term benefits of emission controls.[69] EPA also acknowledged that manufacturers may be more incentivized to simplify complex components to reduce in-use failures if they are responsible for repairs over longer periods.[70] Therefore, weakening the warranty requirements which support

[68] NPRM, 91 Fed. Reg. 43154, 43161
[69] NPRM, 91 Fed. Reg. 43154, 43161
[70] NPRM, 91 Fed. Reg. 43154, 43161-43162

real-world performance could undermine confidence in the technologies needed for cleaner trucks and jeopardize long-term durability of engines and emissions controls.

CARB has also identified the following main reasons why longer emissions warranty periods for HD vehicles and engines, ranging from 160 to 450 thousand miles, are needed, as discussed in CARB's Omnibus Staff Report: Initial Statement of Reasons (Staff Report)[71]:

(1) to better represent their longer modern service lives and ensure that the emission control systems remain operational throughout a greater portion of a vehicle's service life,

(2) to reduce incidences of tampering and mal-maintenance, and

(3) to encourage manufacturers to make parts that are more durable.

As an added benefit, the lengthened emissions warranty periods would protect HD truck owners from having to pay to replace emission-related components that are supposed to remain durable throughout the useful life of the engine.

An analysis by CARB in 2018 noted that many line-haul trucks fall out of warranty within the first year of ownership because they are driven in excess of 100,000 miles per year. Without a sufficient warranty period, emission control performance for an engine will not remain effective throughout its applicable useful life. Many HD vehicle and engine manufacturers provide the "B10 life" and/or "B50 life" mileage in their product specifications, which is essentially a measure of the life expectancy of the engine. Generally, the values show that the engines are capable of operating anywhere from 250,000 to over 1.2 million miles before requiring a major overhaul. These "B-life" periods illustrate that warranty coverage of 100,000 miles for diesel engines is inadequate, as the emissions warranty will cease to apply long before the engine is overhauled, leaving opportunity for emission-related parts to fail and emissions to degrade. HD Step 1 Warranty Regulation Staff Report.[72]

CARB notes that the proposed shortened warranty periods remove the incentive for manufacturers to produce appropriately durable emissions components. Manufacturers are required to report emissions warranty information within the warranty reporting periods and may be required to take corrective action(s). As mentioned earlier, to fully understand the full emissions impact of the emission components, warranty claims or failure rates would need to be extrapolated to the end of Useful Life periods. A conservative way of predicting the warranty claims or failure rates at the end of Useful Life is linear extrapolation because manufacturers are not required to collect warranty data outside of warranty periods when a repair cost is not covered and is the owner's responsibility. As such, the cost savings that EPA estimated would still be similar from owners' perspective, whether owners, collectively as a whole, would have to pay incrementally higher initial costs for more durable emissions

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[71] CARB. *Staff Report: Initial Statement of Reasons (ISOR)*. June 23, 2020
[72] CARB. *ISOR HD Warranty*. (May 8, 2018)

systems up front at initial purchase passed through by manufacturers, or pay for additional extended warranty policies and repairs outside of the warranty period. The former may be realized in net saving. The shorter warranty periods could, in fact, disincentivize the manufacturers from making durable parts, because they could sell more replacement parts outside of the warranty period. In such case, the failure rates may no longer follow the simplified linear projection to useful life but could increase at exponential rates, leading to a substantial increase in emissions and repair costs, and increasing the risk of owners tampering with their emissions control systems. In contrast, keeping the longer warranty will encourage manufacturers to design better, more durable parts, which can help to reduce manufacturers' liability (e.g., due to an emissions recall), owners' down-time, and the frequency of derating events, and help to increase customer satisfaction.

Furthermore, EPA indicates that significant excess NOx emissions -- 36,000 tons in calendar year 2055 -- would be attributable to the elimination of the longer warranty periods.

Given the mileages that modern trucks operate, the warranty periods of 50 and 100 thousand miles that EPA is proposing in the NPRM are radically too short and insufficient. As there will be no true cost savings associated with this proposed change in warranty requirements, EPA has not provided a reasonable basis for this change, in light of the loss of all the benefits of longer emission-related warranty periods described above, and the additional NOx emissions[73] and increased health risks to the public associated with such increased emissions that would result. For all the reasons discussed above, CARB strongly recommends that the revised warranty element of the proposal not be finalized in the final rulemaking and that EPA retain the warranty periods in the 2023 Final Rule.

B. Useful Life Periods

Affected pages: 43157, 43160, 43163-43165, 43213; Identifiers: C-1 and C-4 through C-6

EPA is proposing a three-year delay in the implementation of longer useful life periods. For example, the proposed amendments to 40 C.F.R. § 1036.104(e) would postpone the useful life limits of 650,000 miles or 11 years for heavy HDEs from MY 2027 to MY 2030.

In its reasoning for this aspect of the proposal, EPA indicates that *"…some manufacturers have indicated that they are on target to meet the requirements of the longer useful life periods, including in-use performance."* The NPRM also indicates that other manufacturers

[73] EPA. Draft Regulatory Impact Analysis: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. EPA-420-D-26-002. (July 2026)

are less certain about how the technology used to meet MY 2027 standards, will perform over the longer periods in real-world operation.

CARB strongly recommends keeping the longer useful life periods for the sake of a fair playing field for the manufacturers who have invested in use of advanced technologies to meet the MY 2027 standards, including the longer useful life requirements. EPA is projecting no change in research and development costs for the postponement of the longer useful life periods because *"manufacturers have already designed their engines and incurred the research and development (R&D) costs to meet the longer useful life requirements in the no-action case and the proposal to delay the longer useful life for three MYs will not reduce the R&D costs that have already been incurred."*

This assertion ignores manufacturing costs beyond R&D. It appears that EPA is assuming that manufacturers will likely continue to produce the same engines they had planned to produce for MY 2027. That assumption is unsupported; manufacturers can be expected to change their products in response to less stringent requirements when doing so will reduce their costs. Additionally, this proposed amendment will not necessarily result in lower sales prices, and thus does not address the concerns raised by manufacturers and trucking fleets and dealers regarding the overall purchase prices of new vehicles resulting from the 2023 Final Rule. Therefore, CARB does not believe there is a need to delay the implementation of longer useful life periods including the interim provision in 40 C.F.R. § 1036.150.

Furthermore, as discussed in CARB's original comment letter on the proposal that became the 2023 Final Rule,[74] the current useful life periods were derived based on information from engine rebuild and replacement data reflective of real-world vehicle usage, as well as information from engine and aftertreatment system manufacturers. In both cases, the useful life periods were chosen to roughly correspond to the age when engines require either rebuild or replacement.

In addition, the feasibility of the standards for the useful life periods finalized in the 2023 Final Rule was demonstrated in the CARB Stage 3 and EPA Stage 3 rework demonstration program.[75] The postponement of longer useful life periods is not needed and would lead to higher exhaust emissions (as shown in the emissions inventory analysis by EPA).[76]

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[74] CARB. *California Air Resources Board Comments on the Proposed Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards.* Docket ID. EPA-HQ-OAR-2019-0055-1186. (May 13, 2022)

[75] SwRI. Sharp, Christopher. Final Report: *Further Development and Validation of Technologies to Lower Oxides of Nitrogen Emissions from Heavy-Duty Vehicles, Low NOx Demonstration Program – Stage 3*, ARB Contract 16MSC010, SwRI® Project Number 03.23379. (April 16, 2021)

[76] EPA. Draft Regulatory Impact Analysis: *Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines*. EPA-420-D-26-002. (July 2026)

EPA is also seeking comments on indefinitely keeping the MY 2026 and earlier regulatory useful life periods applicable to 2027 and later MYs. CARB strongly opposes this potential amendment. A complete, permanent rollback would undermine long-term air quality goals by reducing manufacturer responsibility for real-world emissions reductions over a significant portion of the engine's full operational life. Shorter useful life requirements also mean fewer incentives for manufacturers to build durable aftertreatment systems. This could result in rapid emissions degradation as engines age beyond the 2026 useful life thresholds, which would impede California's ability to meet its air quality goals.

Finally, the current mileages for useful lives are significantly lower than the mileages at which modern HDEs get rebuilt or replaced, as discussed in the Omnibus Staff Report.[77] This staff report also highlighted the need for longer useful life periods to reduce emissions by better representing the longer modern service lives of HDEs, and encouraging manufacturers to make parts more durable in order to avoid non-compliance with in-use testing requirements and inconvenient, costly recalls.

7. CREDIT FLEXIBILITIES: FAMILY EMISSION LIMITS, PRE-2022 MODEL YEAR CREDITS, CROSS-TRADING OF CREDITS

Affected pages: 43166-43168; Identifiers: C-8 through C-11

In the NPRM, EPA requests comments on whether, and how, banked NOx emission credits earned prior to MY 2022 should be allowed for use in MYs 2027 and later. As presented in the Draft Regulatory Impact Analysis, all credits generated prior to MY 2022 were from MYs 2004-2009. As a result, allowing pre-MY 2022 credits to meet future standards beginning in MY 2027 would in practice mean allowing compliance to be met with credits generated about two decades earlier.

CARB opposes the use of antique, obsolete banked NOx credits generated during MY 2004–2009 for compliance with MY 2027 and later HDE standards. In the preamble, EPA acknowledges many of the concerns associated with applying these legacy credits toward compliance with the 2027 MY NOx standards. CARB concurs with those concerns and provides additional explanation in this comment document to reinforce why the use of pre-2022 credits would be inappropriate for MY 2027 and later compliance.

First, the engines that produced these credits, that is pre-SCR diesel engines, have overwhelmingly been retired from the fleets.[78] The credit provisions were designed to

[77] CARB. *Staff Report: Initial Statement of Reasons (ISOR)*. June 23, 2020

[78] Note: Because of *California's Truck and Bus regulation*, nearly all heavy-duty diesel trucks operating in California are now equipped with 2010 or newer compliant engines.

reward over-compliance from engines that provide real, contemporary environmental benefits. Credits tied to engines that no longer exist cannot satisfy that purpose.

Second, the credits were earned under certification procedures that are no longer representative of today's emissions-control expectations. The 2004–2009 duty cycles did not include the Low Load Cycle, the moving-average window in-use test procedures, or the MY 2027 NOx standards that EPA and CARB have since demonstrated are essential for capturing real-world NOx emissions during low-temperature and low-load operation. These are conditions where pre-SCR engines performed poorly and where modern standards require substantial reductions. Credits generated under a fundamentally different and, with the benefit of hindsight, inappropriate test regime cannot be considered equivalent to compliance obligations to reduce harmful emissions under the 2027 program, even if EPA applies a scaling factor to adjust their nominal value.

Third, as presented in Chapter 1 of the Draft Regulatory Impact Analysis, several manufacturers hold large quantities of these legacy credits. Combined with higher family emission limit caps and cross-trading of credits, CARB estimates that with these obsolete credits, some manufacturers could continue producing highly-polluting 200 mg/hp·hr engines for several MYs. This outcome would distort the market, disadvantage manufacturers that invested early in low-NOx technologies, and, most importantly, increase real-world air pollution by delaying urgently needed NOx reductions at a time when states such as California must secure every feasible ton of emission reductions to meet ozone and PM2.5 attainment deadlines for healthy air.

For these reasons, EPA should not consider banked NOx credits generated during MY 2004-2009 for compliance with MY 2027 and later HDE standards. These credits are obsolete, incompatible with the 2027 certification framework, and inconsistent with the requirement that credit programs should preserve environmental integrity.

Should EPA decide to allow the use of these credits, then such credits should be discounted by at least 80-90%.

8. LIMITED PRODUCTION VOLUME ALLOWANCE FOR ON-ROAD HEAVY HEAVY-DUTY ENGINES

Affected pages: 43160, 43165-43166, 43210, and 43213; Identifier: C-7

As finalized in the 2023 Final Rule, manufacturers were allowed to certify heavy HDEs in MYs 2027 through 2029 that do not meet the MY 2027 standards, but would have limited certifications to up to 5% of their average production over three years (MYs 2023 to 2025) for calculating NOx emission credits. Manufacturers certifying with this interim provision are required to use NOx credits to offset the deficits (excess emissions) from those engines.

EPA is now proposing to modify the limited production volume allowance in 40 C.F.R. § 1036.150(k) to eliminate the requirement to use NOx credits to offset deficits for certifying above the standard. The justification considered for this proposal is that some manufacturers do not have sufficient NOx credit balances to use the existing interim flexibility. CARB opposes this proposal and recommends keeping the current offsetting requirements to protect public health, especially in overburdened communities. There is no justification for providing this relief, as other engine families with family emission levels above the standard would have to offset deficits, while engines sold under the limited production volume allowance do not.

In the NPRM, EPA is seeking comments on whether this component of its proposal should apply to fewer MYs (e.g., only MY 2027, or MYs 2027 and 2028), or more MYs (e.g., also MY 2030 or beyond). EPA is also requesting comments on whether the 5% cap should be lower or higher, and whether the cap should remain constant or phase down over time. As with other aspects of this proposal, CARB strongly opposes these possible additional amendments to the final regulation.

As discussed in CARB's original comment letter when the current standards were proposed,[79] CARB opposed this limited production volume allowance provision. Moreover, as discussed in Chapter 5 of this comment document, EPA is proposing NCPs to allow manufacturers to produce and sell non-compliant engines nationwide. Thus, EPA is already proposing to provide multiple flexibilities relating to concerns on additional lead time to redesign low sales volume products to accommodate the technologies needed to meet the MY 2027 engine emission standards. These flexibilities together with the other flexibilities could result in significant emissions impacts for many years to follow, creating extreme difficulty for California and other impacted states to achieve air quality goals. For all of these reasons, CARB recommends that EPA keep the requirement to use NOx credits to offset deficits generated from engines certified under the current provision specified in 40 C.F.R. § 1036.150(k).

9. MODELING OF EMISSIONS IMPACTS

CARB performed an emissions modeling analysis to quantify the potential impacts of the NPRM's SCR derating removal and NCP provisions, which EPA did not quantify in the proposal. CARB did not perform an analysis to quantify the impacts of the proposed changes to the warranty, useful life, or 5% production volume amendments in the NPRM, as EPA has already performed this analysis. CARB also did not perform inventory modeling for

[79] CARB. *California Air Resources Board Comments on the Proposed Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards.* Docket ID. EPA-HQ-OAR-2019-0055-1186. (May 13, 2022)

credit flexibilities because specifics allowing for such modeling were not provided in the NPRM.

A. On-Road Heavy-Duty Engines

CARB used its official on-road motor vehicle emissions inventory model, EMFAC2025 (version 2.1.1),[80] to estimate the statewide NOx emissions impacts of the proposed NCP and SCR inducement provisions on on-road diesel trucks in California. Note that the analysis presented in this Chapter does not consider other components of the NPRM, including revisions to warranty, useful life, and 5% production volume requirements. While the proposal quantified the emissions impacts of these three rule components, the numbers cited in EPA's NPRM cannot be directly compared to EMFAC due to a difference in scope and methodologies. EMFAC2025 reflects California-specific vehicle population, activity, and fleet turnover data and is the state's primary tool for developing on-road emissions inventories used in future attainment plan State Implementation Plan (SIP) development, transportation conformity determinations, and other regulatory analyses.

CARB applied the affected vehicle populations, applicability thresholds, and scenario assumptions described in Chapters 3 and 5 of this comment document to the EMFAC2025 baseline on-road HD diesel truck inventory. The proposed NCPs apply to diesel trucks above 19,500 pounds (lb.) gross vehicle weight rating (GVWR), while the proposed removal of SCR inducement requirements applies to diesel trucks above 14,000 lb. GVWR. Consistent with Chapter 3, CARB staff evaluated two parts for the SCR inducement provisions to bound the range of potential impacts: Part 1, reflecting tampering solely among MY 2013 through 2026 engines, and Part 2, reflecting tampering solely among MY 2027 and later engines.

To estimate the increase in tampering due to derate for on-road engines, staff assumed a baseline assumption of 2%, which is in between On-Board Diagnostic (OBD) data submitted to the Clean Truck Check program of 0.5% (lower-bound) and 10-15% observed in field inspections, which are likely an upper-bound since these inspections target high-emitting vehicles. Because the tampering rate from field data are 2.2x higher for 2010-2012 engines (generally before derating was required in conjunction with the engines' OBD systems) compared to 2013 and newer MY engines (as shown in Table 9-1 below), staff estimated tampering would increase to 4.4% without SCR derating.

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[80] CARB. *EMFAC2025 Technical Documentation Version 2.1.1*. (2026). CARB anticipates seeking federal approval of this version for use meeting requirements under the Clean Air Act. EMFAC2021 with adjustment factors in Version 1.0.2 is approved for use under the Clean Air Act. *87 Fed. Reg. 68,843*, November 15, 2022; Anita Lee, EPA. EPA Off-Model Adjustment Factors Approval Letter, November 21, 2025, available at *EPA Off-Model Adjustment Factors Approval Letter*

Table 9-1: Historical Tampering Rates Observed from Enforcement Inspection Data[81]

Group	Average Tampering Rates
2010-2012 MYs	12.4%
2013-2026 MYs	5.7%

Based on this EMFAC2025-based analysis, CARB estimates that, cumulative over the 2027 through 2050 timeframe, the proposed on-road provisions would increase statewide NOx emissions in California as follows:

- NCPs (diesel trucks > 19,500 lb. GVWR): approximately 23,820 tons over the years from 2027 through 2050;
- Removal of SCR inducement requirements, Part 1 (MY 2013-2026 only): approximately 38,601 tons; and
- Removal of SCR inducement requirements, Part 2 (MY 2027+ only): approximately 141,658 tons.

B. Off-Road Compression-Ignition Engines

To estimate the statewide NOx emissions impacts of the proposed SCR inducement provisions on the off-road sector in California, CARB used the online OFFROAD[82] query tool which combines emissions from off-road sectors such as construction, agriculture, forestry, industrial, and many more. The OFFROAD tool provides emissions, activity, and population for this equipment by MY and horsepower range. To estimate possible impacts, CARB limited the query to engines between 75 and 750 horsepower. The NOx emission standard in the 75 to 750 horsepower range is 0.3 gram per brake horsepower hour (g/bhp·hr) for Tier 4 Final engines, compared with 2.6 g/bhp·hr in higher horsepower ranges and 3.5 to 5.6 for lower horsepower ranges. This tighter NOx standard is strongly correlated with SCR use in engines for off-road applications, as demonstrated by the emission controls listed in

[81] CARB. *CARB Enforcement Data Portal*
[82] CARB. *OFFROAD* Model

engine certification for off-road compression ignition engines before and after the Tier 4 Final standards took effect (2014 to 2015 dependent on horsepower group).

To determine the change in emissions, CARB modeled each Tier 4 Final as the previous engine tier, or Tier 4 Interim engines. Tier 4 Interim engines have NOx emission standards roughly 5 to 12 times higher than Tier 4 Final engines. However, due to the effectiveness of functioning SCR systems, Tier 4 Final engines commonly certify well below the NOx standard of 0.3 g/bhp·hr. One example is the 100 to 175 horsepower range, where Tier 4 final engines were modeled with 0.12 g/bhp·hr.[83] The previous engine Tier for this horsepower range, Tier 4 Interim, averaged 2.67 g/bhp·hr, or 21 times higher. On average for 75 to 750 horsepower engines, the emissions go up by approximately 18 times if the Tier 4 Final engines are modeled at the same emission level as Tier 4 Interim engines.

To determine impacts, CARB completed the analysis in two parts, first modeling the impacts from the arrival of Tier 4 Final standards to 2026, or 2015 to 2026 engine MYs. The second approach included modeling the impact of 2027 and later MYs only. These two approaches are split to determine the impacts of (1) previously manufactured engines being modified to remove inducement, or (2) only engines manufactured after the changes removing the inducement.

To determine the potential emissions impacts, CARB modeled a scenario in which 80% of off-road equipment owners would continue to maintain their SCR systems, while the remaining 20% would not maintain their SCR systems absent an inducement. The actual proportion of owners who would choose not to maintain their SCR systems is currently unknown, as maintaining SCR systems has not previously been optional. As a reference point, CARB found that 18% of Transport Refrigeration Units were not compliant with applicable Airborne Toxic Control Measure (ATCM) requirements, based on available compliance data[84]. CARB used this observation to inform the 20% assumption for off-road equipment; however, noncompliance with an ATCM and the decision not to maintain an SCR system absent an inducement are not directly comparable and may reflect different circumstances and logistics.

As a second reference point, EPA's nonroad regulations contain an 80% field-maintenance threshold that manufacturers can use to demonstrate that critical emission-related maintenance is "reasonably likely" to occur in actual use (40 C.F.R. § 1039.125). Specifically, EPA says that scheduled critical emission-related maintenance can be accepted when the manufacturer provides survey data showing that at least 80% of engines in the field receive

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[83] CARB. *2017 Off-Road Diesel, Propane, & Gasoline Emission Factors*
[84] CARB. *2025 Transport Refrigeration Unit Emissions Inventory* (May 2025)

the specified maintenance at the recommended intervals. Therefore, a 20% value is a conservative estimate where equipment owners are still "reasonably likely" to maintain the SCR absent inducement.

Accordingly, the 20% assumption should not be interpreted as a prediction of actual owner behavior. Rather, it represents a reasonable bounding assumption used to illustrate the potential emissions disbenefit. Actual disbenefits could be up to 5 times the estimates herein, if most or all off-road equipment owners do not maintain the SCR without inducement.

C. Impacts on California Statewide NOx Emissions

Table 9-2 shows a summary of the additional NOx emissions that could potentially be observed in California via the implementation of the proposed NCP and SCR inducement provisions in the proposed rule in calendar years 2027-2050. The total impacts are estimated to exceed half a million tons of additional NOx emissions.

Table 9-2: Additional California Statewide NOx Emissions from the EPA Proposed Rule in Calendar Years 2027-2050

On-Road HDEs	**NCP (Tons)**	23,820
	SCR Derate Removal 2013-2026 MYs (Tons)	38,601
	SCR Derate Removal 2027 & Subsequent MYs (Tons)	141,658
Off-Road Compression-Ignition Engines	**SCR Derate Removal 2015-2026 MYs (Tons)**	133,159
	SCR Derate Removal 2027 & Subsequent MYs (Tons)	202,456
Total (Tons)		539,694

D. Additional NOx Emissions from the Proposal Will Create Additional Challenges for California in Attaining the National Ambient Air Quality Standards

In addition to harming public health as described elsewhere in this comment document, the NOx emissions increases that would result from the proposed rule will substantially increase the challenges California faces in its ability to attain the health-based NAAQS for ozone and PM2.5. Diesel-fueled HDEs are amongst the largest mobile source contributors to NOx emissions, the primary precursor to both ozone and secondary PM2.5 formation. California's attainment plans developed and submitted into the California SIP rely on significant emissions reductions from mobile sources, including from HDEs. Timely and full implementation of the 2027 federal HDE standards will be critical to achieving the emission reductions needed from mobile sources to support attainment in California. EPA's proposed rule would delay NOx reductions that are essential for California to meet its legally binding attainment deadlines, delaying and preventing attainment of these health standards.

Of California's 19 areas designated nonattainment under the 2015 70 ppb 8-hour ozone NAAQS and 4 nonattainment areas designated nonattainment under the 2012 12 ug/m3 annual PM2.5 NAAQS, 10 of 19 areas are still exceeding the standard for ozone and 2 of 4 areas exceed the standard for PM2.5;[85,86,87] these areas need emissions reductions to attain the standards in the coming years. The increased NOx emissions that CARB estimates will result from EPA's proposed rule could prolong nonattainment in many areas of California, but especially in the South Coast and San Joaquin Valley, the two areas already facing the most extreme ozone and PM2.5 challenges in the nation, and undermine the CAA's core mandate to achieve and maintain health-based air quality standards.

We also note that total NOx emissions in 2026 from the trucks and buses addressed by the proposed rule are estimated at 35.8 and 29.2 tons per day, i.e., over 11,000 and 9,000 tons per year, in the South Coast and San Joaquin Valley, respectively.[88] Given the total NOx emissions from on- and off-road engines, vehicles, and equipment and the estimated Statewide impacts of the proposed rule quantified above in Table 9-2, the NOx emissions increases from this proposed rule will very likely exceed the rate of 10 tons per year of NOx in the South Coast and San Joaquin Valley, both of which are classified as extreme ozone nonattainment areas under the 2015 8-hour ozone NAAQS as well as earlier ozone

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[85] EPA. *8-Hour Ozone (2015) Nonattainment Areas*. (website: accessed August 24, 2026)
[86] CARB. *iADAM: Air Quality Data Statistics, Trends Summaries*. (website: accessed August 24, 2026)
[87] EPA. *PM2.5 (2012) Nonattainment Areas* . (website: accessed August 24, 2026)
[88] CARB. *2026 State Implementation Plan Revisions for the California Extreme Ozone Nonattainment Areas* (April 2026)

NAAQS,[89] which triggers the requirement for a general conformity determination per 40 C.F.R. § 93.153(b).[90]

10. PUBLIC HEALTH ASSESSMENT

CARB's health analysis methodology currently estimates health impacts of PM2.5. The estimated health impacts do not capture the increased illnesses and deaths from direct exposure to higher ozone and NOx. Additionally, some health impacts from PM2.5 are under evaluation for quantification. Therefore, the values presented in this document are underestimations of the overall health disbenefits of the proposed amendments.

CARB evaluated health impacts associated with exposure to secondary PM2.5 (i.e., generated as NOx emissions undergo chemical reactions in the atmosphere) from the estimated increased NOx emissions resulting from the implementation of the proposed NCP and SCR inducement provisions in the proposed rule in calendar years 2027-2050, as described in Chapter 9 above. NOx includes nitric oxide and NO2. As discussed in Chapter 2, NO2 is a potent lung irritant, which can aggravate lung diseases such as asthma when inhaled.[91] However, the most serious quantifiable impacts of NOx emissions occur through the conversion of NOx to fine particles of ammonium nitrate aerosols through chemical processes in the atmosphere.

CARB analyzed the value of health impacts associated with 12 health outcomes: cardiopulmonary mortality, acute myocardial infarction, lung cancer incidence, asthma onset, asthma symptoms, hospitalizations for cardiovascular illness, hospitalizations for respiratory illness, hospitalizations for Alzheimer's disease, hospitalizations for Parkinson's disease, respiratory emergency department visits, cardiovascular emergency department visits, and work loss days. These health outcomes have been identified by EPA as having a causal or likely causal relationship with exposure to PM2.5 based on a substantial body of

[89] See, e.g., EPA. *8-Hour Ozone (2015) Nonattainment Areas*. (website: accessed 8/24/2026)

[90] 40 C.F.R. § 93.153(b) generally provides that, except for federal actions subject to transportation conformity requirements, a general conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a federal action would equal or exceed certain rates specified in that paragraph. In extreme ozone nonattainment areas, the rate specified for NOx in 40 C.F.R. § 93.153(b)(1) is 10 tpy.

[91] EPA. *Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria, EPA/600/R-15/068* (January 2016)

scientific evidence.[92,93] These relationships persist when other risk factors such as smoking rates, poverty, and other factors are considered.

CARB uses the incidence-per-ton (IPT) methodology to quantify the health benefits of PM2.5 emissions reductions in cases where dispersion modeling results are not available. A description of this method is included on CARB's webpage.[94] CARB's IPT methodology is derived from EPA's established and peer-reviewed approach to assess human health impacts from air pollution exposure.[95,96,97]

The IPT methodology links changes in health outcomes to proportional changes in PM2.5 emissions. IPT factors are derived by calculating the number of health outcomes associated with exposure to PM2.5 for a baseline scenario using measured ambient concentrations and dividing by the emissions of PM2.5 or a precursor.

A summary of the health impacts for the proposed rule is shown below in Table 10-1.

The cost of the health impacts[98] listed in Table 10-1 on the residents of California resulting from increased PM2.5 exposures due to higher NOx emissions from EPA's proposed rule is approximately $66 billion (2025$). A summary of the California statewide health cost for the 2027-2050 time period and the average annual cost is shown in Table 10-2. These health costs represent a decrease in consumer welfare due to increased premature mortality risk, increased healthcare costs for hospitalizations and emergency room visits, lung cancer, asthma, as well as the cost of lost worker productivity resulting from increased emissions of NOx. This will result in a negative impact on California's economy. Note that these costs do not include excess deaths and illnesses from increased direct exposure to NOx and other harmful emissions resulting from the proposed amendments. The costs also do not reflect the impacts to healthcare systems, including diversion of resources from acute and preventative care, as they respond to increasing long-term disease management needs. The cumulative nationwide costs will be far higher than the health costs to Californians alone and will easily exceed EPA's estimated $12 billion (2024$) in net savings for manufacturers.

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[92] *Id.*

[93] EPA. *Technical Support Document (TSD) for the Final Revised Cross-State Air Pollution Rule Update for the 2008 Ozone Season NAAQS* (March 2021)

[94] CARB. *CARB's Methodology for Estimating the Health Effects of Air Pollution* (Retrieved March 13, 2023)

[95] Fann N, Fulcher CM & Hubbell BJ. *The influence of location, source, and emission type in estimates of the human health benefits of reducing a ton of air pollution*, 2 Air Quality, Atmosphere & Health 169 (2009)

[96] Fann N, Baker KR & Fulcher CM. *Characterizing the PM2.5-related health benefits of emission reductions for 17 industrial, area and mobile emission sectors across the U.S.*, 49 Environ Int. 141 (November 15, 2012)

[97] Fann N et al. *Assessing Human Health PM2.5 and Ozone Impacts from U.S. Oil and Natural Gas Sector Emissions in 2025*, 52 Environ. Sci. Technol. 8095 (2018)

[98] For the health monetization methodology, please refer to CARB's Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms 2024 Amendments: *Standardized Regulatory Impact Assessment (SRIA)* 39-44 (April 9, 2024)

The failure of EPA to consider these health costs and those of other states is a deficiency of the proposed rule.

Table 10-1: Potential Public Health Impacts of the Proposed Rule in California for Calendar Years 2027-2050

	On-Road HDEs (No. of Cases)			Off-Road Compression-Ignition Engines (No. of Cases)		Total (No. of Cases)
Health endpoint	**NCPs**	**SCR Derate Removal 2013-2026 MYs**	**SCR Derate Removal 2027 & Subsequent MYs**	**SCR Derate Removal 2015-2026 MYs**	**SCR Derate Removal 2027 & Subsequent MYs**	
Cardiopulmonary mortality	196	310	1,211	886	1,403	4,006
Hospitalizations for ardiovascular illness	39	60	245	169	274	787
Cardiovascular ED Visits	52	84	314	236	362	1,048
Acute Myocardial Infarction, Nonfatal	22	35	133	98	152	440
Hospitalizations for respiratory illness	6	9	37	25	41	109
Respiratory ED visits	119	192	716	564	867	2,458
Lung cancer incidence	14	22	86	63	100	285
Asthma onset	450	745	2,640	2,174	3,237	9,246

Asthma symptoms	38,583	66,822	226,065	193,133	281,388	805,991
Work Loss Days	28,110	45,523	168,031	130,124	199,671	571,459
Alzheimer's Disease	80	124	507	346	560	1,617
Parkinson's Disease	12	19	76	54	87	248

Table 10-2: California Statewide Health Costs of the Proposed Rule for Calendar Years 2027-2050, $Millions

Engine Type	Scenario	Health Cost Type	Cumulative Cost* (Million 2025$)	Annual Average* (Million 2025$)
On-Road HDEs	NCPs	Premature Mortality	3,105	129
		Morbidity	53	2
		Statewide Health Cost	3,158	132
	SCR Derate Removal 2013-2026 MYs	Premature Mortality	4,817	201
		Morbidity	88	4
		Statewide Health Cost	4,905	204
	SCR Derate Removal 2027 & Subsequent MYs	Premature Mortality	19,861	828
		Morbidity	312	13
		Statewide Health Cost	20,174	841
Off-Road Compression-Ignition Engines	SCR Derate Removal MY 2015-2026	Premature Mortality	13,954	581
		Morbidity	253	11
		Statewide Health Cost	14,207	592
	SCR Derate Removal 2027 & Subsequent MYs	Premature Mortality	22,907	954
		Morbidity	379	16
		Statewide Health Cost	23,286	970
Total		**Premature Mortality**	**64,644**	**2,694**
		Morbidity	**1,085**	**45**
		Statewide Health Cost	**65,730**	**2,739**

*Numbers are rounded

11. CONCLUSION

CARB submits this comment document in support of the comments of the States and Cities[99] opposing the NPRM. The proposed rule would increase emissions of criteria pollutants and air toxics, resulting in a substantial reduction of the air quality and health benefits associated with the current HD vehicle emission standards, consequences which EPA failed to evaluate. The justifications supporting the proposed rule, which include reducing costs for manufacturers and responding to user complaints, rest on flawed assumptions and rely on incomplete analyses that leave out crucial factors that EPA must consider. The proposal shifts costs from the manufacturers to the HD vehicle owners and will result in increased costs for the people and states that far exceed any potential savings that manufacturers may receive. The proposal is therefore arbitrary, capricious, and contrary to law. EPA should not finalize the proposal and should preserve the compliance provisions and test procedures finalized in the 2023 Final Rule.

[99] Comments of the States and Cities on Amendments and Nonconformance Penalties for Model Year 2027 and Later Heavy-Duty Highway Engines and Amendments to Inducement Provisions for SCR-Equipped Diesel Engines.