

TITLES 13 and 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER THE PROPOSED HEAVY-DUTY ENGINE AND VEHICLE OMNIBUS REGULATION AND ASSOCIATED AMENDMENTS

Proposed Amendments to the Exhaust Emissions Standards and Test Procedures for 2024 and Subsequent Model Year Heavy-Duty Engines and Vehicles, Heavy-Duty On-Board Diagnostic System Requirements, Heavy-Duty In-Use Testing Program, Emissions Warranty Period and Useful Life Requirements, Emissions Warranty Information and Reporting Requirements, and Corrective Action Procedures In-Use Emissions Data Reporting Requirements, and Phase 2 Heavy-Duty Greenhouse Gas Regulations, and Powertrain Test Procedures

The California Air Resources Board (CARB or Board) will conduct a public hearing at the date and time noted below to consider approving for adoption the proposed Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments (HD Omnibus Regulation).

DATE: August 27, 2020

TIME: 9:00 A.M.

Please see the Public Agenda which will be posted ten days before the August 27, 2020, Board Meeting for any appropriate direction regarding a possible remote-only Board Meeting. If the meeting is to be held in person, it will be held at the California Air Resources Board, Byron Sher Auditorium, 1001 I Street, Sacramento, California 95814.

This item will be considered at a meeting of the Board, which will commence at 9:00 a.m., August 27, 2020, and may continue at 8:30 a.m., on August 28, 2020. Please consult the agenda for the hearing, which will be available at least ten days before August 27, 2020, to determine the day on which this item will be considered.

WRITTEN COMMENT PERIOD AND SUBMITTAL OF COMMENTS

In accordance with the Administrative Procedure Act, interested members of the public may present comments orally or in writing at the hearing and may provide comments by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on June 26, 2020. Written comments not submitted at the hearing must be submitted on or after June 26, 2020, and received **no later than August 25, 2020**. Comments submitted outside that comment period are considered untimely. CARB may, but is not required to, respond to untimely comments, including those raising significant environmental issues. CARB requests that when possible, written and email statements be

filed at least ten days before the hearing to give CARB staff and Board members additional time to consider each comment. The Board also encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action. Comments submitted in advance of the hearing must be addressed to one of the following:

Postal mail: Clerks' Office, California Air Resources Board
1001 I Street, Sacramento, California 95814

[Electronic submittal](http://www.arb.ca.gov/lispub/comm/bclist.php): <http://www.arb.ca.gov/lispub/comm/bclist.php>

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

AUTHORITY AND REFERENCE

This regulatory action is proposed under the authority granted in California Health and Safety Code sections 38501, 38505, 38510, 38560, 38580, 39500, 39600, 39601, 40000, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43205.5, and 43806; and California Vehicle Code section 28114. This action is proposed to implement, interpret, and make specific California Health and Safety Code sections 38501, 38505, 38510, 38560, 38580, 39500, 39600, 39601, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43205.5, 43210.5, and 43806; and California Vehicle Code section 28114.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW (GOV. CODE, § 11346.5, subd. (a)(3))

Sections Affected: Proposed amendments to sections: 1900, 1956.8, 1961.2, 1965, 1968.2, 1971.1, 2035, 2036, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2121, 2123, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2133, 2137, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2166, 2166.1, 2167, 2168, 2169, 2170, 2423, and 2485 to California Code of Regulations, title 13, and sections 95662 and 95663 to California Code of Regulations, title 17. Proposed adoption of sections: 2139.5, 2169.1, 2169.2, 2169.3, 2169.4, 2169.5, 2169.6, 2169.7, and 2169.8, California Code of Regulations, title 13.

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

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

- "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," adopted December 12, 2002, as last amended on [Insert Date of Amendment], incorporated by reference in 13 CCR 1956.8 and 2139.
- "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted December 27, 2000, as last amended on [Insert Date of Amendment], incorporated by reference in 13 CCR 1956.8 and 2139.
- "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as last amended on [Insert Date of Amendment], incorporated by reference in 13 CCR 1961.2.
- "California Environmental Performance Label Specifications for 2021 and Subsequent Model Year Medium-Duty Vehicles, Except Medium-Duty Passenger Vehicles," adopted December 19, 2018, as last amended on [Insert Date of Amendment], incorporated by reference in 13 CCR 1965.
- "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-D," adopted October 20, 2005, as last amended on [Insert Date of Amendment], incorporated by reference in 13 CCR 2423.
- "California Greenhouse Gas Exhaust Emission Standards and Test Procedures for 2014 and Subsequent Model Heavy-Duty Vehicles," adopted October 21, 2014, as last amended on [Insert Date of Amendment], incorporated by reference in 17 CCR 95663.

The above listed documents are being amended by this regulation and thus the amendment date would be the date that the regulation is adopted by CARB.

Background and Effect of the Proposed HD Omnibus Regulation:

Existing Regulatory Requirements

On-road heavy-duty vehicles¹ operate throughout California and are an essential part of the state's economy; they include long-haul trucks, drayage trucks, transit buses, refuse trucks, and other commercial work vehicles. According to California's emissions inventory model, almost a million heavy-duty vehicles operate on California roads each year. These vehicles are significant sources of oxides of nitrogen (NOx), particulate matter (PM), and greenhouse gas (GHG) emissions. In fact, heavy-duty vehicles comprise the largest NOx emission source category in the state, contributing to 31 percent of all statewide NOx emissions as well as 26 percent of total statewide diesel PM emissions.

Since 2010, in California and the rest of the United States, heavy-duty engines have been subject to a PM emission standard of 0.01 grams per brake horsepower hour (g/bhp-hr) and a NOx standard of 0.20 g/bhp-hr. As discussed in more detail below, one element of the proposed rulemaking action establishes an approximately 90 percent lower NOx standard for on-road heavy-duty engines, and constitutes the largest measure in CARB's entire 2016 State Strategy for the State Implementation Plan (SIP), the State of California's official and legally binding plan to meet federal air quality standards. This measure is responsible for nearly half of the NOx emission reduction commitment in the entire plan, 52 tons per day (tpd) out of 111 total tpd NOx in 2031.

To legally sell new engines, manufacturers must demonstrate that their engines comply with applicable emission standards throughout a period called the regulatory useful life (which for the heaviest diesel engines is currently 10 years, 435,000 miles, or 22,000 hours, whichever comes first). To simulate aging out to useful life and to demonstrate that emission-related components are durable throughout the full useful life of the engine, manufacturers follow procedures as specified in a durability demonstration program (DDP). Manufacturers must demonstrate that the deteriorated emissions test results obtained at the end of useful life either meet or are below all applicable emission standards before a certification Executive Order is issued. To demonstrate compliance, California and the U.S. Environmental Protection Agency (U.S. EPA) require heavy-duty engine manufacturers to test their engines over two test cycles, the heavy-duty transient Federal Test Procedure² (FTP) and the Supplemental Emission Test Ramped Modal Cycle³ (RMC-SET). The FTP test cycle represents a transient medium load duty cycle.

¹ Under California regulations, heavy-duty vehicles are those vehicles with a gross vehicle weight rating (GVWR) greater than 8,500 pounds, while medium-duty vehicles are a subcategory of heavy-duty vehicles with a GVWR between 8,501 and 14,000 pounds. Manufacturers have the option to certify medium-duty engines used in vehicles from 10,001 to 14,000 pounds GVWR to the engine standards specified for engines in vehicles over 14,000 pounds.

² "FTP" is the heavy-duty transient Federal Test Procedure duty cycle specified in 40 CFR 86.007-11(a)(2), as amended October 25, 2016.

³ "RMC-SET" is the supplemental emission test procedure with the steady-state duty cycle specified in 40 CFR 86.1360, as amended October 25, 2016.

The RMC-SET simulates steady-state engine operation during suburban and highway truck speeds.

Manufacturers also must provide warranties of emission-related parts for a certain time-period, currently 100,000 miles or 10 years, whichever first occurs. For parts that fail under warranty, manufacturers are required to report certain data to CARB, as specified in CARB's Emission Warranty Information Reporting (EWIR) program. If failure rates meet or exceed established thresholds, manufacturers are required to conduct corrective actions such as providing extended warranties and/or recalling faulty components.

Manufacturers are also required to conduct testing of their products while actually on the road using portable emissions measurement systems. All heavy-duty engine manufacturers are required to conduct heavy-duty in-use testing (HDIUT) on a fraction of their engine families, with the specific engine families specified by U.S. EPA and CARB. The in-use test data are evaluated via the not-to-exceed (NTE) method and submitted to CARB and U.S. EPA. CARB also has the ability to independently test any engine family through CARB's in-house Heavy-Duty In-Use Compliance (HDIUC) Program. Engine families that fail HDIUT or HDIUC requirements are subject to potential recall.

Manufacturers of heavy-duty diesel engines have been able to meet the current PM emission standard through the use of diesel particulate filters (DPF), and the NOx emission standard through the use of selective catalytic reduction (SCR) systems. SCR systems typically use a solution made up of urea and water called Diesel Exhaust Fluid (DEF) to supply the ammonia that converts NOx to harmless nitrogen gas and water.

Changes to these programs are warranted because (1) some elements of the programs discussed above are falling short of program expectations, (2) it is cost-effective and technically feasible to reduce the standards significantly below today's levels to achieve needed NOx reductions, and (3) some provisions would benefit from clarification.

Recent Regulatory Revisions and Actions

Since 1990, NOx emission standards for on-road new heavy-duty engines have become more stringent, decreasing from 6.0 grams per brake horsepower hour (g/bhp-hr) in 1990 to the current 0.20 g/bhp-hr standard in 2010. In addition to the increasingly stringent new engine standards, California has also adopted programs that substantially reduce in-use emissions from heavy-duty vehicles, such as vehicle idling restrictions, and in-use fleet rules such as the Drayage Truck Regulation and the Truck and Bus Regulation. These fleet rules require the upgrade of older trucks and buses to newer and cleaner engines that meet 2010 engine standards by 2023. To comply with these in-use regulations fleets have made substantial investments to purchase lower-emitting vehicles. However, despite all of these efforts, on-road heavy-duty vehicles are still a significant source of NOx emissions in the state, and are responsible, as previously mentioned, for about 31 percent of total statewide NOx emissions, a precursor to

ambient ozone and secondary PM formation. In order to meet California's air quality goals, further reductions of heavy-duty NOx emissions are necessary.

In 2013, California established optional low-NOx standards⁴ for heavy-duty diesel engines, with the most aggressive standard being 0.02 g/bhp-hr, which is 90 percent below the current standard. The optional low-NOx standards were developed to pave the way for more stringent mandatory standards by encouraging manufacturers to develop and certify low-NOx engines, and incentivizing potential customers to purchase these low-NOx engines. In 2019, a total of fifteen engines families,⁵ some using natural gas and others using liquefied petroleum gas, have been certified to the optional NOx standards.

In March 2017, CARB approved the 2016 State Strategy for the State Implementation Plan (2016 SIP).⁶ One of the key measures in the 2016 SIP is the establishment of on-road heavy-duty engine low-NOx emission requirements that provide a 90 percent reduction in NOx emissions compared to today's engines. To complement this measure, the 2016 SIP also included a "Lower In-Use Emission Performance Level" measure that would ensure that heavy-duty vehicles remain as "clean" in-use, as they were originally certified when new. These two measures are critical for attaining federal health-based air quality standards for ozone in 2031 in the South Coast and San Joaquin Valley air basins, as well as PM2.5 standards in the next decade.

On October 25, 2016, U.S. EPA and the National Highway Traffic Safety Administration jointly adopted the federal Phase 2 GHG standards for tractors, vocational vehicles, and pick-up truck and vans, engines used in tractors and vocational vehicles, and trailers hauled by heavy-duty tractors. The progressively more stringent federal Phase 2 standards are phased-in from 2021 to 2027 for tractors, vocational vehicles, and large pick-up trucks and vans. In 2018, California aligned with the federal Phase 2 standards in structure, timing, and stringency, but with some minor California differences.

Because heavy-duty vehicles that are newly purchased outside of California contribute significantly to the total heavy-duty vehicle miles traveled in California (i.e., approximately 60 percent of total heavy-duty vehicle miles traveled in the South Coast Air Basin on any given day are by such vehicles), it is critical that U.S. EPA take action to establish a new national low-NOx standard for heavy-duty vehicles. In response to petitions for a low-NOx rulemaking from over 20 organizations,⁷ including state and local air agencies from across the country, on November 13, 2018, U.S. EPA announced the "Cleaner Trucks Initiative" to develop regulations to further reduce NOx emissions from new on-road heavy-duty vehicles and engines. U.S. EPA intends to

⁴ Optional Reduced NOx Emission Standards for On-Road Heavy-Duty Engines, adopted 12/12/2013, (<https://ww2.arb.ca.gov/our-work/programs/optional-reduced-nox-standards>) (last accessed 3/5/2020)

⁵ Optional Low NOx Certified Heavy-Duty Engines, (<https://ww2.arb.ca.gov/our-work/programs/optional-reduced-nox-standards>) (last accessed 3/5/2020)

⁶ Proposed 2016 State Strategy for the State Implementation Plan, May 17, 2016, (<https://ww3.arb.ca.gov/planning/sip/2016sip/2016sip.htm>) (last accessed 3/5/2020)

⁷ Brakora, Jessica. "Petitions to EPA for Revised NOX Standards for Heavy-Duty Engines" Memorandum to Docket EPA-HQ-OAR-2019-0055, December 4, 2019.

publish a proposed rule in 2020.⁸ Accordingly, to the extent possible, CARB plans on coordinating its regulatory efforts with U.S. EPA.

To support the development of more stringent NOx emission standards for heavy-duty engines and vehicles, CARB, in partnership with the South Coast Air Quality Management District, the Manufacturers of Emission Controls Association, U.S. EPA, Clean High-Efficiency Diesel Engine VII (CHEDE-VII) Consortium (managed by Southwest Research Institute), Volvo, Cummins, and Eaton are currently funding \$5 million research programs with Southwest Research Institute to demonstrate the feasibility of lower NOx emissions for on-road heavy-duty engines.

In addition to a new lower NOx standard on current certification test cycles, CARB staff also plan to propose a new certification low load cycle, and the associated NOx emission standard, and further propose provisions to strengthen engine and emission control system durability requirements, to increase useful life requirements and lengthen emissions warranty periods, to improve reporting and corrective actions of emission warranted parts that are covered under warranty, and to enhance the in-use compliance testing program.

Summary of Proposal

CARB's proposed HD Omnibus Regulation, or Proposed Amendments, would comprehensively overhaul how NOx emissions from new heavy-duty engines are regulated in California, and is comprised of the following primary elements.

1. Proposed NOx and PM Exhaust Emission Standards

The proposed NOx and PM exhaust emission standards would apply to new California-certified heavy-duty Otto-cycle (HDO) and heavy-duty diesel engines intended for use in vehicle service classes with gross vehicle weight ratings (GVWR) greater than 10,000 pounds. As shown in Tables 1 and 2, the proposed NOx emission standards would be implemented in two steps, with the first step for 2024-2026 model year engines and the second step for 2027 and subsequent model year engines.

CARB staff is also proposing to provide manufacturers the option to certify 2024 through 2026 model year engines to a less stringent NOx standard, if they meet that standard on a nationwide basis. This proposed optional 50-state-directed engine emission standards, shown within parentheses in Table 1, would provide air quality benefits to California since federally certified trucks that travel to California would be lower-emitting than they would have been absent this option.

CARB staff is also proposing a PM standard of 0.005 g/bhp-hr for 2024 and subsequent model year engines HDO and heavy-duty diesel engines.

⁸ EPA Acting Administrator Wheeler Launches Cleaner Trucks Initiative, November 13, 2018, (<https://archive.epa.gov/epa/newsreleases/epa-acting-administrator-wheeler-launches-cleaner-trucks-initiative.html>) (last accessed 3/5/2020)

Table 1. Proposed Heavy-Duty Diesel- and Otto-Cycle Engine NOx Standards (Model Year 2024 to 2026)

Model Years	MDDE/LHDD/MHDD/HHDD ^a				MDOE/HDO ^a
	FTP (g/bhp-hr)	RMC-SET (g/bhp-hr)	LLC (g/bhp-hr)	Idling (g/hr)	FTP (g/bhp-hr)
Current	0.20	0.20	---	30	0.20
2024 - 2026	0.050 (0.10) ^b	0.050 (0.10) ^b	0.200 (0.30) ^b	10 (10) ^b	0.050 (0.10) ^b

^a MDDE: Medium-duty diesel engines 10,001-14,000 lbs. GVWR, LHDD: Light heavy-duty diesel engines 14,001-19,500 lbs. GVWR, MHDD: Medium heavy-duty diesel engines 19,501-33,000 lbs. GVWR, HHDD: Heavy heavy-duty diesel engines >33,000 lbs. GVWR, MDOE: Medium-duty Otto-cycle engines 10,001-14,000 lbs. GVWR, and HDO: Heavy-duty Otto-cycle engines >10,000 lbs. GVWR.

^b NOx standards in parentheses are optional 50-state-directed engine standards.

Table 2. Proposed Heavy-Duty Diesel- and Otto-Cycle Engine NOx Standards (Model Year 2027 and Subsequent)

Test Procedure	MDDE/LHDD/MHDD	MDOE/HDO
	Model Year 2027 and Subsequent	
	@Useful Life ^a	@Useful Life ^a
FTP Cycle (g/bhp-hr)	0.020	0.020
RMC-SET Cycle (g/bhp-hr)	0.020	---
Low Load Cycle (g/bhp-hr)	0.050	---
Idling (g/hr)	5	---

Test Procedure	HHDD			
	Model Year 2027 - 2030		Model Year 2031 and Subsequent	
	@435,000 miles	@Useful Life ^a	@435,000 miles	@Useful Life ^a
FTP Cycle (g/bhp-hr)	0.020	0.035	0.020	0.040
RMC-SET Cycle (g/bhp-hr)	0.020	0.035	0.020	0.040
Low Load Cycle (g/bhp-hr)	0.050	0.090	0.050	0.100
Idling (g/hr)	5	5	5	5

^a For LHDD, MHDD, HHDD, and HDO, the proposed useful life periods are specified in Table 3 below. MDDE and MDOE in medium-duty vehicles are subject to the existing LEV III vehicle useful life provisions specified in 13 CCR sections 1961.2(a)(1) and 2112(l)(18).

2. Proposed Amendments to the Heavy-Duty In-Use Testing (HDIUT) Program

CARB staff is proposing amendments to the HDIUT program that revise procedures to better represent heavy-duty vehicle operations in real world conditions, that establish clearer criteria for engine family pass/fail determination, and that require on-board diagnostic (OBD) data during testing to verify the condition of the test vehicle and sensors. These amendments would apply to 2024 and subsequent model year engines, and would replace the current NTE-based methodology with a new three-bin moving average windows based methodology. The three bins cover idle, low load, and medium to high load operation. Compliance would be determined by comparing the average NOx emissions for each bin to the in-use threshold, defined as one and a half times the applicable standard for the model year.

3. Proposed Amendments to Warranty and Useful Life Periods

To help ensure emission controls are well-maintained and repaired when needed, and to help ensure more durable emission control systems, CARB staff is proposing to extend the criteria pollutant emissions warranty and useful life period requirements for heavy-duty vehicles and engines. The proposed revisions would be phased-in beginning with the 2027 model year engines with the final phase-in occurring in 2031. The current and proposed useful life and warranty periods are shown in Tables 3 and 4, respectively.

Table 3. Current and Proposed Useful Life Periods

Model Year	Useful Life (miles)			
	LHDD	MHDD	HHDD	HDO
Current-2026	110,000 10 years	185,000 10 years	435,000 10 years/ 22,000 hours	110,000 10 years
2027-2030	190,000 12 years	270,000 11 years	600,000 11 years/ 30,000 hours	155,000 12 years
2031 and Subsequent	270,000 15 years	350,000 12 years	800,000 12 years/ 40,000 hours	200,000 15 years

Table 4. Current and Proposed Warranty Periods

Model Year	Warranty (miles)			
	LHDD	MHDD	HHDD	HDO
June 2018 Step 1 Warranty 2022-2026	110,000 5 years	150,000 5 years	350,000 5 years	50,000* 5 years
2027-2030	150,000 7 years/ 7,000 hours	220,000 7 years/ 11,000 hours	450,000 7 years/ 22,000 hours	110,000 7 years/ 6,000 hours
2031 and Subsequent	210,000 10 years/ 10,000 hours	280,000 10 years/ 14,000 hours	600,000 10 years/ 30,000 hours	160,000 10 years/ 8,000 hours

* Not included under Step 1 Warranty, but current periods are shown here for completeness.

4. Proposed Amendments to Heavy-Duty Durability Demonstration Program

For heavy-duty diesel engines, the Proposed Amendments would establish a new standardized methodology for demonstrating durability. The standardized methodology would increase the default break-in period from the current 125 hours to 300 hours for on-road heavy-duty diesel engines, and require standardized certification cycles for engine and aftertreatment system aging in order to validate component durability and determine exhaust emissions deterioration factors. The Proposed Amendments would also require additional engine aging (i.e., increased durability hours) compared to what existing certification requirements.

The Proposed Amendments would also allow manufacturers to use of accelerated aging cycles for a portion of the useful life demonstration for aftertreatment systems, provided that those manufacturers periodically submit in-use emissions data generated from their on-road heavy-duty diesel engines.

5. Proposed Amendments to the Emissions Averaging, Banking, and Trading Program

The Proposed Amendments would establish a separate California-only averaging, banking, and trading (CA-ABT) program starting with 2022 model year engines. This element of the rulemaking action is needed to reflect the difference in heavy-duty emission standards between the proposed California heavy-duty engine standards and the existing federal heavy-duty engine standards. The Proposed Amendments would allow manufacturers to transfer credits from their existing federal ABT accounts for 2010 to 2021 model years, as adjusted based on the fraction of California to 50-state sales volumes for 2019-2021 model years. The Proposed Amendments would also allow heavy-duty zero-emission vehicles (ZEV) to generate NOx credits in order to incentivize

the sales of heavy-duty ZEVs earlier than would be required by CARB's proposed Advanced Clean Trucks (ACT) Regulation.

6. Proposed Amendments to Powertrain Certification Test Procedures for Heavy-Duty Hybrid Vehicles

The Proposed Amendments would provide manufacturers a voluntary option to certify hybrid powertrains to criteria pollutant emission standards, using specified powertrain testing procedures. The proposed powertrain testing procedures would align with federal procedures for powertrain testing and would be based on the U.S. EPA Phase 2 GHG technical amendments for powertrain testing.

7. Proposed Amendments to Emissions Warranty Information and Reporting (EWIR), and Corrective Action Procedures

The Proposed Amendments would amend the existing EWIR program and specify corrective actions to improve the effectiveness of the existing program and to ensure that corrective action is taken in a timely manner if failure rates exceed specified corrective action thresholds.

8. Proposed Amendments to Clean-up Items, and Provide Clarifications, and Corrections

The Proposed Amendments would make some minor but needed clarifications and corrections related to the Phase 2 GHG standards, diesel auxiliary power unit requirements, OBD system requirements, and medium-duty engine and medium-duty vehicle requirements. These amendments are needed to better align with federal requirements, to clarify existing requirements, to conform with proposed emission standards, and to correct inadvertent ambiguities.

9. Proposed Amendments to Existing Phase 2 GHG Regulations

In addition to the minor clarifications and corrections needed for the California Phase 2 GHG Regulation mentioned above, the Proposed Amendments would update the environmental performance label specifications to clarify and improve the implementation of the original label specifications requirements. The proposed revisions would also modify certain trailer requirements of the California Phase 2 GHG regulation, including providing compliance flexibility to exempt specific trailer configurations if it is determined that technology is not available for trailers subject to the Phase 2 requirements.

U.S. EPA has recently proposed technical amendments to the Phase 2 GHG test procedures for heavy-duty engines that are largely intended to provide manufacturers compliance flexibility and to reduce variability in test results. CARB staff is currently not proposing any amendments to the California Phase 2 GHG regulation or to the test procedures in response to that U.S. EPA notice of proposed rulemaking on

Improvements for Heavy-Duty Engine and Vehicle Test Procedures, and Other Technical Amendments,⁹ but may propose specific amendments as this rulemaking action proceeds.

CARB may also consider other changes to the sections affected, as listed on page 2 of this notice, during the course of this rulemaking process.

Objectives and Benefits of the Proposed Regulatory Action:

Objectives

The Proposed Amendments are designed to reduce NOx emissions from the engines in heavy-duty vehicles with GVWR greater than 14,000 pounds (Class 4 and above), and engines used in medium-duty vehicles with GVWR 10,001 to 14,000 pounds (Class 3 vehicles). The proposed NOx certification emission standards and in-use standards would significantly reduce tailpipe NOx emissions during most vehicle operating modes such as high-speed steady-state, transient, low load urban driving, and idling modes of operation. The proposed revisions to the emissions warranty, useful life, emissions warranty and reporting information and corrective action procedures, and durability demonstration procedures would also provide emission benefits by encouraging more timely repairs to emission-related malfunctions and encouraging manufacturers to produce more durable emission control components, thereby reducing the rate at which emissions deteriorate.

Environmental and Health Benefits

Table 5 below shows the projected NOx reductions attributable to the Proposed Amendments. In 2031, the target SIP date to meet the 2008 ozone ambient air quality standards, NOx emission benefits relative to the legal baseline¹⁰ are estimated to be approximately 23.2 tpd statewide and 7.0 tpd in the South Coast Air Basin.

⁹ “Improvements for Heavy-Duty Engine and Vehicle Test Procedures, and Other Technical Amendments,” Proposed Rule, Federal Register, Vol. 85, No. 92, page 28140-28361, May 12, 2020, (<https://www.govinfo.gov/content/pkg/FR-2020-05-12/pdf/2020-05963.pdf>) (last accessed May 13, 2020)

¹⁰ The legal baseline reflects implementation of currently existing state and federal laws and regulations.

Table 5. Projected NOx Emission Benefits from the Proposed Amendments (tpd)

Calendar Year	Statewide	South Coast	San Joaquin Valley
2024	0.4	0.1	0.1
2031	23.2	7.0	5.7
2040	54.5	16.3	13.6
2050	75.9	23.0	19.0

The proposed PM standard of 0.005 g/bhp-hr is intended to prevent “backsliding” by encouraging manufacturers to continue using current robust DPFs capable of reducing PM emissions down to 0.001 g/bhp-hr levels. Manufacturers would likely continue to use the same DPFs that they are currently using and thus no additional PM benefits are expected from this requirement. However, since NOx is also a precursor to secondary PM2.5 formation, NOx emission reductions would also provide ambient PM2.5 emission benefits resulting in significant health benefits. The emission reductions from the Proposed Amendments are expected to prevent nearly 3,900 deaths, as well as more than 1,300 hospitalizations and 1,800 emergency room visits.

Other proposed associated amendments related to the Phase 2 GHG regulation are not expected to have additional GHG emission benefits beyond those claimed in that regulation. However, they would improve implementation as well as effectiveness of the Phase 2 GHG regulations, and help realize the expected GHG emission benefits of the regulation.

Economic Impacts

The Proposed Amendments would require engine manufacturers to produce lower-emitting heavy-duty engines, which would increase upfront production and operational costs. Elements contributing to increased costs include reduction of emission standards over existing regulatory cycles, amendments to in-use test procedures, modifications to the durability demonstration for certification, lengthened warranty periods, lengthened useful life periods, amendments to EWIR reporting, and emissions data collection and reporting. Table 6 presents the total statewide incremental costs of the Proposed Amendments on manufacturers. All costs were evaluated relative to the baseline scenario in 2018 dollars. As Table 6 shows, the Proposed Amendments’ costs on manufacturers are expected to total \$4.07 billion from calendar year 2022 through 2050.

Table 6. Projected Cost Impact of the Proposed Amendments to Manufacturers

Engine Model Year ^a	Standards, Certification, and New Technology	In-Use Amendments	Lengthened Warranty	Durability Demonstration	EWIR Amendments	ABT	Total Costs on Manufacturers
2024	\$45,200,000	\$59,000	\$0	141,000	\$10,237,000	\$43,000	\$55.7 million
2027	\$109,540,000	\$62,000	\$13,611,000	\$755,000	\$21,017,000	\$43,000	\$145 million
2031	\$134,784,000	\$67,000	\$41,449,000	\$2,002,000	\$7,445,000	\$43,000	\$186 million
Total Costs for Calendar Year 2022 to 2050	\$2.78 billion	\$2.00 million	\$933 million	\$82.3 million	\$276 million	\$1.43 million	\$4.07 billion

^a Light heavy-duty diesel (LHDD), medium heavy-duty diesel (MHDD), and heavy heavy-duty diesel (HHDD) model year engines will appear in the following year's vehicles.

Medium- and heavy-duty engine/vehicle manufacturers would likely pass their costs on to their customers, i.e., to the California vehicle fleets who purchase vehicles with California-certified engines. Vehicle owners would also face increased costs for DEF usage, because the Proposed Amendments would require SCR systems to operate for a greater proportion of the time and hence consume more DEF. At the same time, the Proposed Amendments would provide savings to vehicle owners via repair cost savings resulting from longer emission warranties. Table 7 below shows the net cost impact upon full implementation of the regulation for various affected vehicle classes with 2031 or later engine model year. As Table 7 shows, on average, the net impact of the Proposed Amendments would be equivalent to an approximately 5.8 percent increase in the baseline purchase price of vehicles.

Table 7. Net Cost Impact of a Vehicle with Engine Model Year 2031 or Later Under the Proposed Amendments (2018\$)

Vehicle Class	Increased Purchase Price	Lifetime DEF Cost	Lifetime Savings	Lifetime Net Impact	Baseline Purchase Price	Net Costs as % of Purchase Price
HHDD	\$8,478	\$1,294	\$930	\$8,841	\$171,107	5.2%
MHDD	\$6,923	\$532	\$1,641	\$5,814	\$104,217	5.6%
LHDD	\$6,041	\$659	\$1,143	\$5,557	\$58,258	9.5%
HDO	\$1,015	\$0	\$582	\$433	\$98,583	0.4%
MDDE-3	\$4,354	\$235	\$0	\$4,589	\$52,424	8.8%
MDOE-3	\$412	\$0	\$0	\$412	\$44,843	0.9%
Population Average	\$6,410	\$700	\$1,197	\$5,912	\$109,889	5.8%

As the requirements of the Proposed Amendments would go into effect, they would have a small negative impact on the rate of growth of the state's economy. Affected sectors such as retail and wholesale trade, truck transportation, construction, and

manufacturing sectors and upstream industries would experience increases in production costs and decreases in employment growth. Overall, CARB staff expects the Proposed Amendments would cause very small slowing in the rate of growth of California employment, gross state product, output, and investment; the Proposed Amendments would cause no more than a 0.02 percent decrease in any of these quantifies in any year from 2022 to 2050. Overall, because the impact is projected to be so small compared to the scale of the California economy, CARB staff estimates the Proposed Amendments would be unlikely to have a significant impact on the California economy.

Comparable Federal Regulations:

Both California and U.S. EPA have the authority and responsibility to set emission standards for new heavy-duty engines and vehicles. For the past several decades, California's and U.S. EPA's heavy-duty engine emissions standards and other emission-related requirements have largely been harmonized. Thus, for many years the regulated industry has been able to design and produce a single product line of engines and vehicles that comply with both U.S. EPA and CARB emission standards and sold in all 50 states. So-called "50-state" standards enable technology suppliers and manufacturers to efficiently produce a single set of reliable and compliant products.

Staff is now proposing California emission standards and other emission-related requirements for new heavy-duty engines that are more stringent than corresponding federal emission standards and emission-related requirements for heavy-duty engines and vehicles, because California needs those standards to meet the State's SIP commitments to attain federal ambient air quality standards and to protect the health and welfare of its citizens.

Heavy-duty vehicles comprise the largest NOx emission source category in California, and further emission reductions from them are urgently needed to meet the State's SIP commitments and protect public health. Due to the contribution of heavy-duty trucks to the NOx inventory nationwide, and as mentioned earlier, in response to a petition from over 20 organizations, U.S. EPA announced on November 13, 2018 the "Cleaner Trucks Initiative" to develop regulations to reduce NOx emissions from on-road heavy-duty vehicles and engines.¹¹ Due to the federal lead time requirements described above and because U.S. EPA began their effort after CARB began work on the proposed HD Omnibus Regulation, the Cleaner Trucks Initiative would take effect a few years later than the proposed HD Omnibus Regulation, most likely beginning with the 2027 model year.

CARB has been developing its proposed HD Omnibus Regulation for many years because it has long recognized that it needs to significantly reduce emissions from new heavy-duty engines and vehicles as soon as possible. However, to maintain a future harmonized national heavy-duty program, CARB staff has encouraged U.S. EPA to align with the Proposed Amendments contained in the HD Omnibus Regulation as

¹¹ Refer to footnote 8.

much as possible in the Cleaner Trucks Initiative. In addition, to encourage manufacturers to make one set of 50-state clean vehicles, CARB staff has proposed that the amendments include an option allowing manufacturers to voluntarily certify their engines to a proposed standard on a national basis, beginning in model year 2024.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed HD Omnibus Regulation, CARB staff conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations.

DISCLOSURE REGARDING THE PROPOSED REGULATION

Fiscal Impact/Local Mandate Determination Regarding the Proposed Action (Gov. Code, § 11346.5, subds. (a)(5)&(6)):

The determinations of the Board's Executive Officer concerning the costs or savings incurred by public agencies and private persons and businesses in reasonable compliance with the proposed HD Omnibus Regulation are presented below.

Under Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Executive Officer has determined that the proposed regulatory action would create costs or savings to any State agency, would create costs or savings in federal funding to the State, would create costs or mandate to any local agency or school district, whether or not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

Cost to any Local Agency or School District Requiring Reimbursement under section 17500 et seq.:

Pursuant to Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the proposed HD Omnibus Regulation is a mandate that would create costs and cost-savings to local agencies and school districts. However, these costs to local agencies are not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500). The mandate is not reimbursable because costs associated with the proposed HD Omnibus Regulation apply generally to all entities that purchase affected vehicles, including local agencies. Therefore, the regulation does not constitute a "Program" imposing any unique requirements on local agencies as set forth in section 17514 of the California Government Code.

Cost or Savings for State Agencies:

The proposed HD Omnibus Regulation implementation would create additional workload on CARB staff that would be impossible to absorb with existing staff resources. Staff estimates an addition of ten positions (two Air Pollution Specialists and eight Air Resources Engineers) would be needed to implement the proposed HD Omnibus Regulation:

- Two Air Resources Engineers would be required starting in 2024 to review certification applications using new strategies and technologies, and to manage and review the new standardized extended durability testing.
- Two additional Air Resources Engineers would be required starting in 2024 to coordinate test plans with manufacturers, implement new procedures, and verify submitted test data with the amended HDIUT program.
- Two additional Air Resources Engineers would be required starting in 2024 to review the NOx sensor data submissions and certify the additional OBD certification requirements associated with the newer technologies expected in low NOx engines.
- Two Air Resources Engineers would be required starting 2024 for increased enforcement at dealerships due to the difference in emission standards compared to the federal program.
- Two Air Pollution Specialists would be required starting in 2027 to process anticipated increased EWIR claims and corrective actions.

Sales taxes are levied in California to fund a variety of programs at the state and local level. The proposed HD Omnibus Regulation would result in the sale of more expensive (higher upfront cost) vehicles as well as increased DEF consumption in those vehicles in California, which would result in higher sales taxes collected by the state government. The entire population of new California-sold vehicles and DEF consumption over the entire state was used for this analysis. State government collects about 46 percent of the total sales tax revenue (i.e., approximately 3.9 percent out of 8.6 percent of the sales tax rate) based on data from the REMI (Regional Economic Models, Inc.) model.

The Proposed Amendments could encourage California fleets to hold onto their existing vehicles slightly longer, to purchase used vehicles in lieu of new vehicles in California, or to purchase more out-of-state vehicles. Staff did not attempt to quantify any such changes in fleet purchase behavior and hence any state sales tax impacts of such changes in fleet purchase behavior are also not included.

The fiscal impacts to the state government due to the proposed HD Omnibus Regulation were estimated relative to baseline conditions. The net fiscal impact on

state government in 2022 and 2023 would be \$1,000 and \$55,000 in revenue, respectively. Starting in 2024, state government would have an annual fiscal cost impact ranging from \$561,000 to \$1,496,000 within the considered regulations' period of analysis.

Other Non-Discretionary Costs or Savings on Local Agencies:

Sales taxes are levied in California to fund a variety of programs at the state and local level. The Proposed Amendments would increase the upfront cost of each heavy-duty vehicle and engine sold in the state in 2024 and subsequent model years by about 0.5 to 10.4 percent. The Proposed Amendments would also require additional DEF fluid consumption in California, which would result in a direct increase in sales tax revenue collected by local governments. The average local tax rate in California is 0.853 percent. Overall, local sales tax revenue may increase less than the direct increase from vehicle sales if overall business spending does not increase.

Local government fleets are estimated to own 10.7 percent of California's total heavy-duty vehicles. So, for example, in year 2025, local government fleets would face approximately \$6.09 million of the total statewide cost of \$56.9 million due to the Proposed Amendments. Similarly, in year 2028, local government fleets would expect approximately \$16.1 million of the total statewide \$150 million in cost expected due to the Proposed Amendments.

The net fiscal impact on local government in 2022 would be a cost of \$11,000 and the ongoing fiscal impact on local government would range from \$165,000 to \$10.5 million in cost within the proposed HD Omnibus Regulation's lifetime of 29 years.

Cost or Savings in Federal Funding to the State:

The proposed HD Omnibus Regulation is not expected to impose any costs or savings in Federal Funding to the state.

Housing Costs (Gov. Code, § 11346.5, subd. (a)(12)):

The Executive Officer has also made the initial determination that the proposed HD Omnibus Regulation will not have a significant effect on housing costs.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

The Executive Officer has made an initial determination that the proposed HD Omnibus Regulation would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

Results of The Economic Impact Analysis/Assessment (Gov. Code, § 11346.5, subd. (a)(10)):

MAJOR REGULATION: Statement of the Results of the Standardized Regulatory Impact Assessment (SRIA) (Gov. Code, § 11346.3, subd. (c)):

In February 2020, CARB submitted a Standardized Regulatory Impact Assessment (SRIA) to the Department of Finance (DOF) for its review. CARB has updated the proposed HD Omnibus Regulation since the original SRIA submittal, to reflect new information and address DOF comments. The revisions are discussed in the Initial Statement of Reasons (ISOR), Chapter IX.

(A) The creation or elimination of jobs within the state.

The Proposed Amendments would result in a slightly negative employment impact from about 2022 to 2050. CARB staff expects the change in employment growth due to the Proposed Amendments would represent no more than 0.01 percent of baseline California employment. CARB staff's analysis predicts that as the requirements of the Proposed Amendments would go into effect, affected sectors would experience increases in production costs and hence decreases in employment growth. This includes the truck transportation, construction, and manufacturing sectors and upstream industries. The largest decrease in employment growth would manifest in the retail and wholesale trade sector, which is estimated to realize an increase in production costs due to the increased heavy-duty truck prices driven by the Proposed Amendments.

(B) The creation of new businesses or the elimination of existing businesses within the state.

The trend of increasing production costs for the truck transportation industry has the potential to result in a contraction or decrease in business in this industry if sustained over time. On the other hand, the projected increase in demand for automotive repair and services, motor vehicle parts manufacturing, and vehicle manufacturing resulting from the proposed HD Omnibus Regulation has the potential to result in an increase in growth for businesses in those industries if maintained for a long duration.

(C) The competitive advantages or disadvantages for businesses currently doing business within the state.

The proposed HD Omnibus Regulation would impose new emissions requirements on heavy-duty engine manufacturers. These manufacturers are headquartered and produce engines entirely outside of California for a national and international market. The costs for meeting the proposed HD Omnibus Regulation would increase costs to California fleets through an increase in new heavy-duty vehicle prices to truck buyers. The expected percent increases in vehicle's upfront cost range between 0.5 and 10.4 percent and would be partially offset by savings starting in 2032.

Because U.S. EPA is concurrently working on a proposal to lower federal emission standards for the same engines affected by the proposed HD Omnibus Regulation, U.S. EPA's Cleaner Trucks Initiative, it is not certain how much stricter the California standards will likely be compared to the federal standards. It is also not clear how the model year applicability would line up between the two programs. However, due to federal lead time requirements, it seems certain that California standards would be stricter than the federal standards for the model years 2024 through 2026. That means that at least for some model years, California would have slightly higher truck prices (potentially 0.5 to 3.0 percent higher) than in other states. This difference in California truck prices could affect heavy-duty truck fleets and heavy-duty truck dealers.

For heavy-duty truck fleets, in years when California emission standards are stricter than federal emission standards, fleets that buy trucks predominantly in California could be at a small competitive disadvantage versus fleets that buy trucks elsewhere. California fleets may react by trying to minimize the competitive disadvantage by holding onto old trucks slightly longer, purchasing used trucks, or purchasing out-of-state trucks. However, staff believes the impact of the proposed HD Omnibus Regulation would be mitigated by several factors. First, used trucks and engines must comply with CARB's Truck and Bus Regulation to legally operate and be registered with the California Department of Motor Vehicles (DMV). The Truck and Bus regulatory requirements, which are designed to reduce NOx and PM emissions, will mean it is illegal to register many older used trucks in California.

Second, purchases of new out-of-state trucks are forbidden as well. Vehicles with less than 7,500 miles on the odometer are considered new and may not legally be purchased by California fleets for operation in California or registered with California DMV. Any new vehicle submitted for California registration will be required to comply with California emissions regulations.

Under the proposed HD Omnibus Regulation, it is likely that there would be some financial incentive for fleets to purchase new vehicles outside of California and bring them in for registration when they no longer qualify as a "new vehicle" (i.e., after they have over 7,500 miles on the odometer). How strong the financial incentive is for the fleets depends on the location of the fleet's headquarters, shipping fees, the inconvenience of accumulating the necessary 7,500 miles for a vehicle to no longer be considered "new," and whether the prices of heavy-duty vehicles and engines in neighboring states significantly differ in response to the change of vehicle and engine prices in California.

Finally, some companies that operate trucking fleets may choose to relocate outside of California in order to avoid the regulatory costs, in instances that would be logistically and financially feasible for them.

In addition to fleets, the proposed HD Omnibus Regulation would impact California truck dealers as well. Because of the impact on fleets described above, overall new heavy-duty vehicle sales in California may decrease slightly versus what they would have been

without the proposed HD Omnibus Regulation and sales outside California may increase slightly. Hence, California truck dealers could be at a small competitive disadvantage versus out-of-state dealers. However, as noted above, out-of-state sales by California fleets would be somewhat limited both by CARB's Truck and Bus Regulation and by the ban on bringing new vehicles in from out-of-state. In addition, any competitive disadvantage for California dealers would only exist to the extent California emission standards are stricter than federal emission standards. It is not certain how much stricter the California standards would be compared to the federal standards, nor for precisely which model years California standards would be different.

Staff has thus concluded it is not possible to precisely quantify impacts on California competitiveness. CARB staff was unable to obtain complete information on business level responses to regulatory costs due to the highly competitive nature of the Truck Transportation Industry. In addition, CARB staff searched the literature and concluded that empirical research focusing on the impact of regulatory costs on heavy-duty vehicle and engine prices does not exist. A number of studies have explored the relationship between general cost increases and the likelihood of out-of-state or used truck and engine purchases. These studies found that there is a very wide range of estimates for how increased costs may impact purchasing behavior that the estimates are highly uncertain, and that these responses may change markedly in the span of only several years due to the dynamics of industry, and modern global economics.

(D) The increase or decrease of investment in the state.

Private domestic investment consists of purchases of residential and nonresidential structures and of equipment and software by private businesses and nonprofit institutions. It is used as a proxy for impacts on investments in California because it provides an indicator of the future productive capacity of the economy.

The relative changes to growth in private investment due to the proposed HD Omnibus Regulation are estimated to result in a decrease of private investment of about \$38 million in 2028 and by \$48 million in 2050. Decreases in private investment are expected to be no more than 0.02 percent of baseline investment in any year.

(E) The incentives for innovation in products, materials, or processes.

The proposed HD Omnibus Regulation contains several elements that encourage innovation. The warranty, useful life, and EWIR amendments would incentivize production of more durable engine add-ons, parts, and systems. Engines operating with more durable parts would need less scheduled replacements and potentially could result in overall lower maintenance requirements with resulting savings. Manufacturing engines with more durable parts (or parts replaced less frequently) would result in generally more reliable operation, which would represent a positive externality resulting from the proposed HD Omnibus Regulation.

The proposed low load cycle and more rigorous durability testing, and the option to transmit “real-time” data via telematics in lieu of some durability testing would provide CARB staff additional assurances that the engine’s emission control technologies are effective and durable throughout the useful life of the engine. At the same time, they would help manufacturers better identify problems and take more immediate corrective action to improve their emission control systems. These more thorough testing techniques would help accelerate innovation and allow manufacturers to better optimize emission control systems, which could also eventually help reduce manufacturer costs associated with corrective action and recalls. All in all, the Proposed Amendments would support improved emission control technology performance while at the same time encourage innovation by manufacturers to meet the more stringent standards.

(F) The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.

The proposed HD Omnibus Regulation is expected to achieve a reduction of 23.2 tpd of NOx by 2031, which is a key year in meeting the commitments called for in California’s SIP. The proposed HD Omnibus Regulation is expected to reduce NOx emissions by approximately 353,000 tons statewide between the years 2022 through 2050, and is expected to prevent nearly 3,900 deaths, as well as more than 1,300 hospitalizations and 1,800 emergency room visits. These health benefits equate to \$36.8 billion in expected monetized benefits from the Proposed Amendments, largely stemming from avoided premature mortality.

The proposed HD Omnibus Regulation would also result in benefits to businesses and the State of California as a whole, as summarized here and discussed in detail in the ISOR, Chapter V.

(G) Department of Finance SRIA Comments and Responses.

DOF Comments: Finance generally concurs with the methodology used to estimate impacts of the proposed regulations, with two exceptions.

1. While we appreciate the discussion on the interactions of the proposed regulations with other proposed regulations, the main impact analysis must be done relative to the legal baseline, which only accounts for existing regulations. The SRIA must incorporate a comprehensive discussion of impacts relative to the legal baseline, done in level of details similar to the current analysis which includes the proposed clean truck regulations as part of the baseline.
2. The SRIA must discuss the disparate impacts of the regulations on businesses and individuals. This should be done by clearly describing the number and concentration of affected entities by region, business and fleet size, and industry, and by expanding the cost analysis from the up to \$9,000 cost per truck to cost per affected entity. In addition, given the existence of concurrent heavy-duty

truck regulations, the additional effect of these proposed regulations might be particularly burdensome for small businesses and select industries. On the benefits side, health effects from improved air quality will vary based on differences in initial air quality across regions and among different socio-economic groups.

Responses:

1. CARB staff's original SRIA analysis submitted to DOF included the proposed ACT Regulation in the baseline calculations because both the proposed ACT Regulation and the Proposed Amendments affect the same manufacturers and vehicle categories in approximately the same timeframe. This was done to provide results that are more informative and likely to reflect the real impacts of the Proposed Amendments. However, to address DOF's Comment 1, CARB staff has reanalyzed the impacts relative to the legal baseline which includes all existing laws and regulations. This revised analysis to compare with the original SRIA analysis is provided in the attachment to this Notice.
2. CARB staff has added information to respond to DOF's Comment 2 that discusses the impacts of the Proposed Amendments by air basin and California fleets. All of the affected manufacturers are located outside of California so staff assumed that the direct cost impact on these manufacturers would be passed on to California fleets that purchase California-certified vehicles. The highest proportion of affected fleets would be registered in the South Coast, San Joaquin Valley, and San Francisco Bay Area air basins. More detailed information is included in the attachment to this Notice.

Business Report (Gov. Code, §§ 11346.5, subd. (a)(11); 11346.3, subd. (d)):

In accordance with Government Code sections 11346.5, subdivisions (a)(11) and 11346.3, subdivision (d), the Executive Officer finds the reporting requirements of the proposed HD Omnibus Regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Cost Impacts on Representative Private Persons or Businesses (Gov. Code, § 11346.5, subd. (a)(9)):

In developing this proposed HD Omnibus Regulation, CARB staff evaluated the potential economic impacts on representative private persons or businesses. CARB is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the Proposed Amendments.

There are no direct costs on individuals as a result of the Proposed Amendments. Individuals may see health benefits as described in the ISOR, Chapter V, Section E due to the statewide, regional, and local emission benefits of the Proposed Amendments. CARB staff estimates that manufacturers and fleets will see increased costs as a result of this rule and will likely pass the costs through to businesses that buy vehicles with

affected engines in the state. Individuals may see macroeconomic indirect and induced benefits and costs; these costs are discussed in the ISOR, Chapter IX, Section E.

Effect on Small Business (Cal. Code Regs., tit. 1, § 4, subds. (a) and (b)):

The Executive Officer has also determined under California Code of Regulations, title 1, section 4, that the proposed HD Omnibus Regulation would affect small businesses.

Based on California DMV 2017 registration data, small businesses, defined here as fleets of three or fewer medium- and heavy-duty vehicles (GVWR >10,000 pounds), represent 52 percent of the affected vehicle population due to the proposed HD Omnibus Regulation.

Similar to typical fleets, the actual cost impact on small fleets would depend on the number of new California-certified vehicles that fleets would purchase during the lifetime of this cost analysis. For a small fleet that would buy one new medium heavy-duty diesel vehicle with a 2024, 2027, or 2031 engine model year, the increase in net lifetime costs of ownership is estimated to be \$2,839, \$5,317, or \$5,814, respectively.

Consideration of Alternatives (Gov. Code, § 11346.5, subd. (a)(13)):

Before taking final action on the proposed HD Omnibus Regulation, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

The analysis of such alternatives can be found in Chapter X of the ISOR for the proposed alternatives. Staff has discussed two alternative concepts in the ISOR, including accelerated timeline and voluntary national program. No alternative proposed was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the authorizing law. The Board has not identified any reasonable alternatives that would lessen any adverse impact on small business.

STATE IMPLEMENTATION PLAN REVISION

If adopted by CARB, CARB plans to submit the proposed HD Omnibus Regulation to U.S. EPA for approval as a revision to the SIP required by the federal Clean Air Act (CAA). The adopted HD Omnibus Regulation would be submitted as a SIP revision because it adopts regulations intended to reduce emissions of air pollutants in order to attain and maintain the National Ambient Air Quality Standards promulgated by U.S. EPA pursuant to CAA.

ENVIRONMENTAL ANALYSIS

CARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the state's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA) (14 CCR 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. Instead, CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report to comply with CEQA (17 CCR 60000-60008).

Because the Proposed Amendments implement two measures within CARB's Revised Proposed 2016 State Strategy for the SIP, "Low-NOx Engine Standard" and "Lower In-Use Emission Performance Level," the environmental impact of the Proposed Amendments were already examined as part of the EA for that Plan. The report is entitled: Final Environmental Analysis for the Revised Proposed 2016 State Strategy for the State Implementation Plan, or Final EA. The Final EA concluded that implementation of the SIP measures could result in short-term and long-term beneficial impacts to air quality, energy demand, and greenhouse gases. It further concluded that the proposed measures would result in less-than-significant impacts to: energy demand, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, and recreational services. The Final EA also concluded that there could be potentially significant and unavoidable adverse impacts to aesthetics, agriculture and forest resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation/traffic, and utilities and service systems.

Staff has determined that no additional environmental review is required for the current Proposed Amendments because there are no changes proposed to the originally approved project that involve new significant environmental effects or a substantial increase in severity of previously identified significant effects than previously identified in the prior Final EA for the 2016 SIP. The basis for reaching this conclusion is provided in Chapter VII of the ISOR report.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; and
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerks' Office at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alterno u otro idioma; y
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulatory action may be directed to the agency representative Daniel Hawelti, Staff Air Pollution Specialist, On-Road Heavy Duty Diesel Section, at (626) 450-6149 or (designated back-up contact) Paul Adnani, Staff Air Pollution Specialist, at (626) 459-4476.

AVAILABILITY OF DOCUMENTS

CARB staff has prepared a Staff Report (the Initial Statement of Reasons, or ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: Staff Report: Initial Statement of Reasons-Public Hearing to Consider the Proposed Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments.

Copies of the ISOR and the full text of the proposed regulatory language, may be accessed on CARB's website listed below, or may be obtained from the Public Information Office, California Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, on June 23, 2020. Because of current travel, facility, and staffing restrictions, the California Air Resources Board's offices may have limited public access. Please contact Chris Hopkins, Regulations Coordinator, at chris.hopkins@arb.ca.gov or (916) 445-9564 if you need physical copies of the documents.

Further, the agency representative to whom non-substantive inquiries concerning the proposed administrative action may be directed to Chris Hopkins, Regulations Coordinator, (916) 445-9564. The Board staff has compiled a record for this rulemaking

action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may take action to approve for adoption the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also approve for adoption the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action. If this occurs, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before final adoption.

The public may request a copy of the modified regulatory text from CARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814.

FINAL STATEMENT OF REASONS AVAILABILITY

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on CARB's website listed below.

INTERNET ACCESS

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on CARB's website for this rulemaking at <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>

CALIFORNIA AIR RESOURCES BOARD



Richard W. Corey
Executive Officer

Date: June 9, 2020

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.