BEFORE THE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of	)
California's Request for Waiver	)
Pursuant to Clean Air Act Section 209(b) for	)
California's "Advanced Clean Cars II"	)
Regulations	)
	)

CLEAN AIR ACT § 209(b) WAIVER REQUEST SUPPORT DOCUMENT

SUBMITTED BY THE CALIFORNIA AIR RESOURCES BOARD

May 22, 2023

I. INTRODUCTION AND OVERVIEW

This document supports the request of the California Air Resources Board (CARB or Board) that the Administrator of the United States Environmental Protection Agency (EPA) grant California a waiver, pursuant to section 209(b)[1] of the federal Clean Air Act (CAA), to enforce regulations applicable to new 2026 and subsequent model year (MY) California on-road light- and medium-duty engines and vehicles (hereinafter the "Advanced Clean Cars (or ACC) II Regulations").

Motor vehicles and other mobile sources of air pollution are the greatest contributors in California to emissions.[2] They produce the criteria air pollutants under the federal Clean Air Act of fine particulate matter ($PM_{2.5}$), oxides of nitrogen (NOx) and hydrocarbons (HC), which are precursors of ground-level ozone, greenhouse gases (GHG) that are contributing to climate change, and toxic air contaminants. Among other harms, these pollutants collectively increase premature mortalities, cause cardiovascular and respiratory diseases, increase the risk of cancer, and threaten the stability of the climate.

The California Legislature has authorized and directed CARB to systematically reduce the threat to public health and welfare presented by such emissions. Controlling and eliminating emissions of air pollutants from motor vehicles is of "prime importance" to public health and well-being.[3] CARB is directed to adopt vehicle standards to

[1] 42 U.S.C. § 7543(b).

[2] Cal. Health & Safety Code § 43000(a).

[3] Cal. Health & Safety Code § 43000(b).

maximize emission reductions.[4] CARB is also required to adopt regulations that will enable California to attain compliance with federal ambient air quality standards for criteria pollutants like particulate matter and ozone, in all areas of the state by the applicable attainment dates.[5] CARB is further authorized and directed to adopt regulations "to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving the statewide greenhouse gas emissions limit . . . ."[6]

The ACC II Regulations constitute the latest development in CARB's decades-long history of promulgating increasingly stringent emission standards to protect the public health and the environment of all Californians. They include two sets of requirements beginning with the 2026 model year: one for conventional vehicles powered by internal combustion engines, and one for zero-emission vehicles (with plug-in hybrid electric vehicles subject to both sets).

For conventional vehicles, the ACC II Regulations reduce exhaust and evaporative emissions by measuring compliance exclusively from emissions from engines and fuel systems. The Regulations discontinue the provisions in existing regulations for manufacturers to receive credit towards compliance with the standards for conventional vehicles from the lack of emissions from the zero-emission vehicles that are a part of the fleets of vehicles that they deliver for sale. The Regulations also require compliance based on emissions measured during a wider range of operating conditions that are more representative of real-world driving conditions.

The ACC II Regulations also establish new requirements for zero-emission vehicles. They require that by the 2035 model year, all new light-duty vehicles sold in California must be zero-emission vehicles (ZEVs, which have no exhaust or evaporative emissions)[7] or plug-in hybrid vehicles (which have a conventional engine and a battery to provide motive power, the capability for the battery to be recharged from an external source, and meet minimum requirements for all-electric range).[8] The regulations include provisions to ensure that these vehicles will displace emissions from conventional vehicles and to ensure more equitable access to these vehicles across California. Through these requirements, the Regulations will result in a wide range of zero-emission vehicle types.

The emission reductions from the ACC II Regulations, taken together, are necessary to attain the State and National Ambient Air Quality Standards (NAAQS) for criteria pollutants in California, reduce the burden of air pollution throughout the State (including and especially in overburdened communities near roadways and other high-

[4] Cal. Health & Safety Code §§ 43013, 43018, 43018.5.

[5] Cal. Health & Safety Code § 39602.5(a).

[6] Cal. Health & Safety Code § 38562.

[7] *See* Cal. Code Regs., tit. 13, §§ 1962.1(a), 1962.4(b).

[8] *See* Cal. Code Regs., tit. 13, §§ 1961.1(e)(5), 1962.4(e)(1)(A).

traffic areas), and reduce statewide GHG emissions to at least 85% below the levels of 1990 to achieve the State's goal of carbon neutrality by 2045.[9]

The Regulations are projected to reduce emissions in California by 30.4 tons per day of NOx, 2.0 tons per day of $PM_{2.5}$, and 58.4 million metric tons per year of GHGs by 2040. These reductions are estimated to lead to 4,057 fewer cardiopulmonary deaths, 677 fewer hospital admissions for cardiovascular illness, 808 fewer hospital admissions for respiratory illness, and 1,990 fewer emergency room visits for asthma. Over the period between 2026 and 2040, the ACC II Regulations are estimated to deliver a cumulative net benefit of $91.1 billion, with $210.35 billion in costs and total benefits of $301.41 billion. This is a benefit-cost ratio of 1.43, reflecting that overall benefits are greater than compliance costs.

Section II discusses some of the waivers that EPA has previously granted California for on-road light- and medium-duty engine and vehicle regulations. Section III briefly describes the Board's ACC II rulemaking action. Section IV summarizes the elements of the ACC II Regulations for which California seeks a waiver. Section V identifies the principles applicable to waivers. Section VI demonstrates that EPA has no basis on which to deny the requested waiver.

II. PREEXISTING CALIFORNIA ON-ROAD LIGHT- AND MEDIUM-DUTY ENGINE AND VEHICLE EMISSION REGULATIONS THAT HAVE BEEN GRANTED WAIVERS

A. California's Low-Emission Vehicle Program

California's low-emission vehicle (LEV) program establishes emission standards and other requirements for light- and medium-duty vehicles. In 1990, CARB adopted the initial LEV regulation (LEV I), which required vehicle manufacturers to introduce progressively cleaner light- and medium-duty vehicles, with more durable emission controls, from model years 1994 through 2003. The LEV I regulation included three primary elements for reducing criteria and toxic emissions:

- tiers of increasingly stringent exhaust emission standards for categories of low-emission vehicles;
- requirements that manufacturers phase-in a progressively cleaner mix of vehicles each year, with separate fleet average requirements for passenger cars and light-duty trucks, and the option of banking and trading credits; and
- a requirement that specified percentages of passenger cars and lighter light-duty trucks be ZEVs.

[9] Cal. Health & Saf. Code § 38562.2(c).

EPA granted California a waiver for the LEV I regulation emission standards applicable to passenger cars and light-duty trucks in 1993,[10] and granted California a waiver for the LEV I regulation emission standards applicable to medium-duty vehicles in 1998.[11]

Since 1991, CARB has repeatedly amended the LEV program to establish progressively more stringent emission requirements for light-and medium-duty vehicles, and EPA has granted California waivers for each of these amendments.[12] In 1999, CARB adopted the second phase of the LEV regulation, known as the LEV II regulation. The LEV II regulation:

- increased the stringency of emission standards for all light- and medium-duty vehicles beginning with the 2004 model year;
- expanded the light-duty truck category to include vehicles up to 8,500 pounds gross vehicle weight (GVW) so that most sport utility vehicles, mini-vans, and pick-up trucks were subject to the same low-emission vehicle standards as passenger cars; and
- established more stringent 2004 through 2010 model year phase-in requirements for passenger cars, light-duty trucks, and medium-duty vehicles.

EPA granted California a waiver for the LEV II emission standards in 2003,[13] and confirmed that CARB's subsequent amendments to the LEV II regulation fell within the scope of the LEV II waiver.[14] The LEV II regulations were estimated at the time to deliver significant health benefits and emission reductions, including by reducing smog-forming emissions of reactive organic gases and oxides of nitrogen by approximately 57 tons per day in the South Coast air basin.[15]

B. California's GHG Vehicle Emissions Program

Recognizing the increasing threat of climate change to the well-being of California's citizens and the environment, in 2002 California enacted Assembly Bill (AB) 1493.[16] AB 1493 directed CARB to adopt the maximum feasible and cost-effective reductions in GHG emissions from light-duty vehicles. Vehicle GHG emissions included carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that are emitted from the

[10] 58 Fed. Reg. 4,166 (January 13, 1993).

[11] 63 Fed. Reg. 18,403 (April 15, 1998).

[12] 68 Fed. Reg. 19,811 (April 22, 2003); 70 Fed. Reg. 22,034 (April 28, 2005).

[13] 68 Fed. Reg. 19,811 (April 22, 2003).

[14] 70 Fed. Reg. 22,034 (April 28, 2005).

[15] CARB, Staff Report: Initial Statement of Reasons, Proposed Amendments to California Exhaust and Evaporative Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles "LEV II", September 18, 1998, p. VII-1, available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/levii/isor.pdf.

[16] Stats. 2002, ch. 200, Pavley.

tailpipe, as well as emissions of HFC134a, the refrigerant then currently used in most vehicle air conditioning systems.

As directed by AB 1493, CARB adopted what is commonly referred to as the Pavley regulations named for the bill's author. These regulations, covering the 2009-2016 and later model years, called for a 17% overall reduction in climate-changing emissions from the light-duty fleet by 2020 and a 25% overall reduction by 2030. EPA granted CARB's associated waiver request on July 8, 2009.[17]

C. California's Zero-Emission Vehicle Program

As noted above, in 1990, CARB adopted an ambitious program to significantly reduce the environmental impact of light-duty vehicles through the commercial introduction of ZEVs into the California fleet. ZEVs drastically reduce air pollution from passenger vehicles. The ZEV program was a component of California's first-generation LEV I regulations discussed above, and the ZEV program has subsequently been amended several times.[18]

EPA granted California a waiver of federal preemption for the initial 1990 ZEV regulation in January 1993 as part of the LEV I waiver.[19] In January 2001, EPA found that the 1996 ZEV amendments were within the scope of the 1993 waiver.[20] In December 2006 EPA determined that further ZEV amendments, as they applied to 2007 and prior model year passenger cars and light-duty trucks equal to or less than 3,750 pounds loaded vehicle weight, also fell within the scope of the 1993 waiver.[21] EPA also granted California a new waiver for model year 2007 through 2011 passenger cars and light-duty trucks, including light-duty trucks with a loaded vehicle weight greater than 3,750 pounds.[22] In that December 2006 decision, EPA made no finding as to model years 2012 and later.[23]

On October 3, 2011, EPA determined that the ZEV amendments adopted in 2008 and affecting 2011 and prior model year vehicles were within the scope of previous waivers or in the alternative qualified for a new waiver.[24] EPA also granted a waiver allowing

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[17] 74 Fed. Reg. 32,744 (July 8, 2009).

[18] A detailed account of these amendments and their associated waivers is set forth in 71 Fed. Reg. 78,190-78,191 (Dec. 28, 2006), 76 Fed. Reg. 61,095-61,096 (Oct. 3, 2011), and 78 Fed. Reg. 2,114-2,115 (Jan. 9, 2013).

[19] 58 Fed. Reg. 4,166 (Jan. 13, 1993).

[20] 66 Fed. Reg. 7,751 (Jan. 25, 2001).

[21] 71 Fed. Reg. 78,190 (Dec. 28, 2006). In the alternative, EPA found the amendments affecting these vehicles met the requirements for a full waiver. *Id.,* Decision Document accompanying waiver decision at 61.

[22] *Id.*

[23] *Id*.

[24] 76 Fed. Reg. 61,095 (Oct. 3, 2011).

California to enforce the 2008 ZEV amendments as they affected 2012 and later model year vehicles.[25]

In January 2012, CARB adopted further amendments to the ZEV regulation as part of its initial adoption of California's Advanced Clean Cars (ACC) program discussed below. CARB adopted subsequent minor amendments to the ACC program in November 2012, and EPA granted California a waiver for the ACC program, as modified in November 2012, in January 2013.[26] That included the ZEV regulations applicable through model year 2025. EPA further determined that the 2012 ZEV Amendments, as they affect 2017 and prior model year vehicles, were within the scope of previous waivers granted to the ZEV regulation, and alternatively granted California a waiver for the 2012 ZEV Amendments as they affect all model year vehicles, including 2017 and prior model year vehicles.[27]

On May 30, 2014, May 21, 2015, and September 3, 2015, CARB adopted its 2014 and 2015 amendments to the California ZEV regulation.[28] The 2014 amendments provided regulatory flexibility to manufacturers. The 2015 amendments provided greater flexibility to intermediate volume manufacturers in complying with their ZEV credit obligations, while still maintaining the Board's commitment to a strengthened ZEV regulation.

D. California's Advanced Clean Cars (ACC) Program

Building on the success of its regulations discussed above, in 2012 CARB adopted the ACC program to address both criteria pollutants and GHGs emitted from light and medium-duty motor vehicles in a coordinated approach. The first two components of the ACC Program created a pair of LEV III regulations by amending the LEV II criteria emission program and the original Pavley greenhouse gas (GHG) emissions program into a coordinated package of requirements for 2015 through 2025 model year vehicles.[29] The third component consisted of amendments to California's ZEV

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[25] *Id.*at 61,097.

[26] 78 Fed. Reg. 2,112 (Jan. 9, 2013).

[27] *Id.* At 2,145.

[28] California Air Resources Board, Executive Order No. R-14-004 (May 30, 2014); Resolution 15-7 (May 21, 2015); Executive Order No. R-15-003 (Sept. 3, 2015), CARB EO R-15-003 ZEV.pdf. On September 21, 2016, CARB submitted a request for waiver action on these amendments to EPA that is still pending EPA's decision.

[29] The ACC II Regulations do not amend, other than where necessary for conformity as described below, the ACC GHG regulations for passenger cars, light-duty trucks, and medium-duty vehicles for model years through 2025 and beyond, in Cal. Code Regs., tit. 13, § 1961.3. EPA granted a waiver for the ACC GHG regulations in 2012. 78 Fed. Reg. 2,112 (Jan. 9, 2013), and restored that waiver in 2022, 87 Fed. Reg. 14,332 (Mar. 14, 2022). CARB amended the text of those regulations in 2018 to clarify without making substantive changes that the option for manufacturers to comply with CARB's standards by complying with federal standards referred to the federal standards then in effect. CARB Reso 18-35 (Sept. 28, 2018), https://www.arb.ca.gov/board/res/2018/res18-35.pdf?_ga=2.268928689.1126027494.1679238868-196160350.1678468584. If necessary, CARB will

regulation.[30] The ACC program constituted California's comprehensive approach of addressing both criteria and GHG emissions from light- and medium-duty motor vehicles.

The major elements of the LEV III criteria emission regulation:

- reduced fleet average emissions of new passenger cars (PCs), light-duty trucks (LDTs), and medium-duty passenger vehicles (MDPVs)[31] to super ultra-low-emission vehicle (SULEV) levels by 2025, which represents an approximate 75 % reduction of emissions from 2010 levels;
- replaced separate non-methane organic gas (NMOG) and NOx emissions standards with combined NMOG+NOx emission standards;
- established additional light-duty vehicle emission standard categories or bins, such as ULEV70, ULEV50, and SULEV20 to provide vehicle manufacturers additional options for complying with the SULEV fleet average;[32]
- established more stringent particulate matter (PM) emission standards for light- and medium-duty vehicles;
- established near-zero evaporative emission standards for passenger cars and light-duty trucks, and more stringent evaporative standards for medium-duty vehicles; and
- increased full useful life durability requirements from 120,000 miles to 150,000 miles.

The LEV III regulation also established more stringent supplemental federal test procedure (SFTP) standards for passenger cars and light-duty trucks, and, for the first time, subjected medium-duty vehicles to SFTP standards and test procedures. The revised SFTP more accurately represents real-world driving conditions than the test procedures incorporated in the Federal Test Procedure (FTP). The LEV III regulation also includes emission standards on the US06 test cycle for aggressive driving conditions, the SC03 test cycle when air conditioning is being used, and the highway

seek confirmation those amendments are within the scope of the waiver granted for those regulations, or request a new waiver if necessary.

[30] The ACC program also initially included amendments to the Clean Fuels Outlet regulation, but those amendments never became effective due to subsequent legislation that provided dedicated funding for hydrogen fueling infrastructure to support hydrogen fuel cell vehicles, and revoked CARB's authority for this regulation. See Assem. Bill 8, stats. 2013, ch. 401. CARB did not seek a waiver determination for these amendments.

[31] MDPVs are a subset of MDVs, MDPVs are commonly passenger cans and MDVs are commonly cargo vans and pickup trucks.

[32] The numerical part of the standard category, such as 20 in SULEV20, refers to the emission standard, in thousandths of a gram per mile of NMOG+NOx emissions.

test cycle. These provisions continue to be part of the LEV IV regulations, as described below.

The LEV III regulation included several other provisions that are also carried forward into the LEV IV criteria emission program under the ACC II Regulations. These include:

- options for manufacturers to meet the fleet-average emission standards in California and separately in any state that had adopted LEV III, or to pool compliance across all the states that adopted LEV III;
- provisions for small-volume manufacturers;
- provisions for flex- or bi-fuel vehicles to ensure emission standards are met on both fuels;
- requirements that if a vehicle is certified to both a California standard and a federal standard, it must meet in California the more stringent standard ;
- requirements to submit certification information electronically and options to attest to compliance;
- exemptions from FTP emission standards at cold temperatures for natural gas and diesel vehicles;
- provisions for extra credit towards compliance by offering an extended emissions warranty or direct ozone-reduction technology; and
- requirements for fuel-fired passenger cabin heaters.

The LEV III regulation additionally harmonized California's labeling requirements with federal law to allow use of the federal label in lieu of the California Environmental Performance label. The LEV III regulation also included several other components that are not discussed here because they were not amended by the ACC II Regulations.

EPA granted California a waiver for the ACC I program, including the LEV III regulation, in 2013.[33]

III. ACC II BECAME EFFECTIVE NOVEMBER 30, 2022.

CARB held its first public hearing on the proposed ACC II Regulations on June 9, 2022. After considering the comments on the proposed regulations, CARB amended the proposal and added material to its rulemaking record and held a comment period on the additional documents from July 12 through 28, 2023.[34] CARB subsequently held an additional public comment period from August 8 through 23, 2023, on further

[33] 78 Fed. Reg. 2,112 (Jan. 9, 2013).

[34] Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (First 15-Day Notice), July 12, 2023, Attachment 3; Errata and Comment Period Extension, July 13, 2023, Errata (ca.gov), Attachment 5.

materials it added to the rulemaking record.[35] At its public hearing on August 25, 2022, the Board adopted the ACC II Regulations by Resolution 22-12 (Attachment 1). The ACC II Regulations were approved by California's Office of Administrative Law (OAL), filed with California's Secretary of State, and became effective under state law on November 30, 2022.

IV. SUMMARY OF THE ACC II REGULATION'S PROVISIONS

This section provides an overview of the provisions of the ACC II Regulations.[36] More detailed descriptions of these provisions are provided in the Staff Report: Initial Statement of Reasons (Staff Report or ISOR, Attachment 2), the Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (First 15-Day Notice, Attachment 3), and the Final Statement of Reasons (FSOR, Attachment 4).

A. LEV IV Regulations

The LEV IV regulations build on existing requirements to continue reducing criteria-pollutant and toxic emissions beyond current requirements, with a focus on reducing emissions in real world driving conditions, beginning with model year 2026. They comprise three primary elements. First, they prevent potential emission backsliding of conventional vehicles that is otherwise possible under the existing regulations by applying the exhaust and evaporative emission fleet-average standards exclusively to vehicles powered by internal combustion engines and excluding ZEVs from the fleet calculation. Second, they reduce the maximum allowed exhaust and evaporative emission rates from vehicles under the existing fleet-average standard. Third, they

[35] Second Notice of Public Availability of Additional Documents (Second 15-Day Notice), August 8, 2023, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/2nd15daynotice.pdf, Attachment 6.

[36] The ACC II Regulations consist of the following new sections of Cal. Code Regs., tit. 13: 1961.4, 1962.4, 1962.5, 1962.6, 1962.7, and 1962.8; and amendments to the following sections of tit. 13: 1900, 1961.2, 1961.3, 1962.2, 1962.3, 1965, 1968.2, 1969, 1976, 1978, 2037, 2038, 2112, 2139, 2140, 2147, 2317, and 2903. These are in Attachment 7, Office of Administrative Law Approval with regulatory text, November 30, 2022. The ACC II Regulations also adopted the following incorporated test procedures: California 2015 Through 2025 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; California 2026 And Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, And Medium-Duty Vehicles; California Evaporative Emission Standards and Test Procedures For 2026 And Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, And Heavy-Duty Vehicles; California Refueling Emission Standards and Test Procedures For 2001 And Subsequent Model Motor Vehicles; California Non-Methane Organic Gas Test Procedures For 2017 And Subsequent Model Year Vehicles; California Test Procedures For Evaluating Substitute Fuels And New Clean Fuels In 2015 And Subsequent Years; California Exhaust Emission Standards and Test Procedures For 2018 Through 2025 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, In The Passenger Car, Light-Duty Truck And Medium-Duty Vehicle Classes; and California Test Procedures for 2026 and Subsequent Model Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes. These are in Attachment 8.

reduce cold-start[37] emissions by applying the emission standards to a broader range of in-use driving conditions, including when a vehicle is started after it has been shut off for a period of time.

Manufacturers must currently demonstrate that their vehicles will meet applicable emissions standards when tested in accordance with specified testing procedures over the full useful lives of the vehicles. Those test procedures include test cycles designed to predict the emissions performance of vehicles as they operate under various real-world conditions, such as urban and highway traffic (the FTP test cycle). The procedures additionally include test procedures intended to replicate vehicle operations under more aggressive driving conditions (the US06 cycle), and usage of air conditioning systems (the SCO3 cycle), referred to as Supplemental Federal Test Procedures (SFTP). Manufacturers certify vehicles according to test groups for exhaust standards and families for evaporative standards. The test groups are certified to meet discrete categories or bins based on their emission rates. For instance, as described above, there are bins at the ULEV70, ULEV50, and SULEV20 emission rates, corresponding, respectively, to 70, 50, and 20 milligrams per mile of NMOG+NOx. The comprehensive fleet-average emission standard is 30 milligrams per mile (or 0.030 grams per mile) and compliance is determined based on the sales of vehicles in the various bins.[38] LEV IV maintains this approach with the changes described below to make the overall effect of the standards more stringent.

1. LDV Exhaust Emission Standards

The primary exhaust emission standards for light-duty vehicles are:[39]

- NMOG + NOx Fleet Averages[40]
    - Maintain NMOG+NOx fleet average at 0.030 g/mile
    - Phase-out ZEVs from NMOG+NOx fleet average
    - Phase-out NMOG+NOx emission credits given to PHEVs for their potential for all-electric driving
    - Eliminate certification bins ULEV125 and LEV160 and add new lower emission bins SULEV15, SULEV25, ULEV40, and ULEV60 vehicles to enable more vehicles to be certified to cleaner emission standards and eliminate potential for vehicles to emit at higher levels, reducing overall emissions from manufacturers' fleets

[37] Cold starts occur when the vehicle engine is started after the vehicle has been shut-off for a period of time.

[38] *See* CARB, Public Hearing to Consider the Proposed Advanced Clean Cars II Regulations, Staff Report: Initial Statement of Reasons (ISOR), April 12, 2022, pp. 90-91.

[39] *See* ISOR, Table ES-03, pp 12-13.

[40] Cal. Code Regs., tit. 13, § 1961.4(d)(1), (2)(A).

- SFTP Emission Standards[41]
    - Eliminate the composite SFTP certification option that otherwise allows vehicles to emit at high levels under certain driving conditions if those emissions are offset under other driving conditions during testing, because this can result in greater emissions under real-world conditions
    - Require all light-duty vehicles to meet FTP NMOG+NOx emission levels on the aggressive driving US06 cycle
    - Require attestation that vehicles will meet FTP NMOG+NOx emission levels on the SC03 cycle
- PM Emission Standards – Reduce US06 PM emission standard from 6 to 3 mg/mile[42]
- Cold-start NMOG+NOx Emission Control[43]
    - Establish new FTP emission standards to improve cold-start emission control following partial soaks of 10 minutes to 12 hours
    - New emission standards to improve cold-start emission control during quick drive-aways on an 8-second initial idle FTP test
- Plug-in Hybrid Electric Vehicles - Establish new cold-start US06 emission certification test to demonstrate compliance with new high-power cold-start NMOG+NOx emission standards[44]

In addition to these substantive updates, several conforming changes are made to other regulations to maintain consistency with existing regulations and maintain existing requirements in regulations that have not been amended.[45]

With respect to comparable federal regulations, the LEV IV Regulations establish requirements that are more stringent than the corresponding federal Tier 3 standards.[46]

2. MDV Regulations

The LEV IV provisions for chassis-certified medium-duty vehicles also reduce emissions under a broader range of real-world driving conditions by establishing more stringent

[41] Cal. Code Regs., tit. 13, § 1961.2(d)(3), (4).

[42] Cal. Code Regs., tit. 13, § 1961.4(d)(3)(A).

[43] Cal. Code Regs., tit. 13, § 1961.4(d)(2)(B), (C).

[44] Cal. Code Regs., tit. 13, § 1961.4(d)(3)(B).

[45] *See* ISOR, p. 12.

[46] *See* Notice of Public Hearing to Consider Proposed Advanced Clean Cars II Regulations, pp. 8-9, Attachment 9.

exhaust emissions standards, including a new moving average window (MAW) in-use standard for vehicles that are capable of towing, and accordingly requiring on-road testing using a portable emission measurement systems (PEMS) to ensure the standard is met. The regulations also reduce the fleet-average emission standard and the maximum emission rate from medium-duty vehicles.

The primary emission standards for medium-duty vehicles are:[47]

- NMOG+NOx Fleet Average[48]
    - Reduce fleet average to 150 mg/mile for class 2b and 175 mg/mile for class 3
    - Remove ZEVs from the fleet average calculation
    - Eliminate the ULEV250 and ULEV200 emission certification bins for class 2b vehicles, and the ULEV270 and ULEV400 bins for class 3 vehicles
    - Add new lower emission certification bins for class 2b (SULEV150, SULEV100, SULEV85, SULEV75) and for class 3 (SULEV175, SULEV150, SULEV125, SULEV100) vehicles
- SFTP Emission Standards[49]
    - Eliminate composite SFTP certification standards
    - Require all Class 2b MDVs to meet FTP NMOG+NOx emission levels on the US06 cycle
    - Require all Class 3 MDVs to meet FTP NMOG+NOx emission levels on the California Unified Cycle (UC)
    - Require attestation that SC03 emissions will be lower than FTP certification bin standard
- PM Emission Standards[50]
    - Eliminate composite SFTP certification option that otherwise allows vehicles to emit at high levels under certain driving conditions if those emissions are offset under other driving conditions during testing, because this can result in greater emissions under real-world conditions
    - Require all medium-duty vehicles to meet stand-alone PM standards for aggressive driving cycles: 8 mg/mile for class 2b on full US06 cycle, 6

[47] *See* ISOR, Table ES-04, pp. 13-14.

[48] Cal. Code Regs., tit. 13, § 1961.4(e)(1), (2).

[49] Cal. Code Regs., tit. 13, § 1961.4(e)(3), (4).

[50] Cal. Code Regs., tit. 13, § 1961.4(e)(3).

mg/mile for class 2b on bag 2 US06 cycle, and 5 mg/mile for class 3 on the Unified Cycle for MDVs

- MAW In-Use Standards - Establish new PEMS standards for MDVs over 14,000 pounds Gross Combined Weight Rating for better emission control during towing.[51] PEMS are portable emissions monitoring devices that can be easily mounted to vehicles and can detect and measure emissions levels as vehicles operate in real-time. The new standards adopt emission standards when vehicles are used for towing and a means of ensuring they are met.

The MAW and PEMS requirements are being imposed through the ACC II Regulations for the first time on chassis-certified medium-duty vehicles. These requirements are necessary to confirm that real-world emissions are controlled when towing over the full useful lives of these vehicles, as laboratory testing for performance when towing is inadequate. These requirements also ensure consistency with requirements for engine-certified medium-duty vehicles and heavy-duty vehicles.

3. Evaporative Emission Standards

CARB's preexisting evaporative emission standards in California Code of Regulations, title 13, section 1976, apply to light-, medium-, and heavy-duty vehicles that use gasoline, liquified petroleum gas, or alcohol, and hybrid electric vehicles.[52] The LEV IV Regulations establish new requirements for light- and medium-duty vehicles beginning with the 2026 model year to reduce evaporative emissions in two primary ways. One, they reduce running losses, or evaporative emissions generated while vehicles are operating. Two, they reduce refueling emissions that are generated from fuel vapors that escape when vehicles are refueling.

a. Loss Standards

The pre-existing running loss emission standard of 0.05 gram of hydrocarbons per mile had not been changed since its introduction in the 1990s. Yet, most vehicles today have been certified as emitting at or below 0.01 grams per mile. Therefore, the evaporative emission running loss standard has been reduced to 0.01 grams per mile of hydrocarbons.[53] This ensures that vehicles already meeting stringent running loss emissions levels continue to perform at those levels and that the small proportion of vehicles that are currently certifying at higher running loss emission levels reduce their emissions. The new running loss standard phases in as follows:

[51] Cal. Code Regs., tit. 13, § 1961.4(e)(6)

[52] Cal. Code Regs., tit. 13, § 1976. These standards apply to passenger cars, light-duty trucks, medium-duty passenger vehicles, medium-duty vehicles, and heavy-duty vehicles. *See* § 1976 (b)(1)(G).

[53] Cal. Code Regs., tit. 13, § 1976.

Model Year	Minimum Percentage of Vehicle Fleet (1)
2026	30
2027	60
2028 and subsequent	100
(1) Small-volume manufacturers are not required to comply with the phase-in schedule set forth in this table. Instead, they must certify 100% of their 2028 and subsequent model year vehicle fleet to the standards.	

The federal running loss standard is 0.05 grams per mile, as was California's prior to this change.

b. Minimum canister size requirement

Contemporary conventional vehicles are equipped with a canister of activated carbon to adsorb fuel vapors that would otherwise be released into the atmosphere. The LEV IV Regulations include a new design requirement to limit "puff" emissions of hydrocarbons from the vehicle that result when vehicle fuel tanks are opened for refueling on a hot day, and the canister is overwhelmed with hydrocarbon emissions from the fuel. The existing LEV III requirements do not ensure emissions are controlled under such conditions. The LEV IV Regulations accordingly require that vehicles with fuel tanks that reach a specified pressure threshold must be equipped with evaporative canisters that meet minimum size or capacity requirements.[54] This new requirement applies to 2028 and subsequent model-year vehicles.

The federal Tier 3 program does not contain a comparable requirement.

4. On-Board Diagnostic System Amendments

CARB's existing regulations require light- and medium-duty vehicles to be equipped with on-board diagnostic (OBD) systems to timely detect and indicate malfunctions of emission controls.[55] The OBD regulations specify malfunction detection thresholds that are in turn based upon the applicable certification emissions levels (i.e., emissions bins) for the vehicles. Because the ACC II Regulations established new LEV IV emission standards with additional emission bins, the OBD regulations required corresponding amendments to ensure OBD systems in LEV IV-compliant vehicles will properly monitor and timely detect malfunctions in emission control systems.

[54] For additional information about this requirement, *see* ISOR, App. F-1, Purpose and Rationale for Proposed Changes to Title 13, CCR and Incorporated Test Procedures, Attachment 10, pp. F-1-218 through 220.

[55] Cal. Code Regs., tit. 13, §§ 1968.2, 1968.5.

The LEV IV Regulations update the OBD system requirements to provide interim OBD malfunction detection thresholds that reflect the more stringent LEV IV emissions standards and also provide greater allowances for OBD systems to detect exceedances of those thresholds. These interim allowances will provide manufacturers adequate time to deploy the emission controls necessary to meet the standards and to incorporate the OBD system monitoring changes needed to ensure those controls are properly functioning.[56]

5. Auxiliary Fuel System Evaporative Emission Requirements

The LEV IV Regulations amended the preexisting evaporative emission test requirements for vehicles with auxiliary fuel systems to include any type of auxiliary fuel systems other than the fuel systems used to propel the vehicle. It is possible that such systems could include fuel-fired heaters, so the test requirements were amended to include fuel-fired heaters.[57] The LEV IV Regulations additionally expand the auxiliary fuel system evaporative emission test requirement to encompass vehicles that would otherwise be exempt from evaporative emission requirements including motor vehicles that are exempt from exhaust emission certification (e.g. ZEVs), diesel-fueled, and compressed natural gas (CNG) fueled vehicles.[58]

6. Accompanying Enforcement Procedures

The LEV IV Regulations also established accompanying enforcement procedures to ensure that emissions from affected vehicles will be reduced as expected, and that the LEV IV program would synchronize with the LEV III provisions of the ACC I program. These include provisions for:

- offsetting debits and carrying credits forward for light-duty vehicles,[59]
- calculating credits and debits, offsetting debits, carrying forward credits, and converting credits for medium-duty vehicles,[60]

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[56] These amendments were made in coordination with substantive amendments to CARB's OBD system requirements that became effective on November 22, 2022, through a separate rulemaking proceeding. *See* the Proposed Revisions to the On-Board Diagnostic System Requirements and Associated Enforcement Provisions for Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles and Engines, and Heavy-Duty Engines, amending Cal. Code Regs., tit. 13, §§ 1968.2, 1968.5, 1971.1, at On-Board Diagnostic System Requirements (OBD II & HD OBD) | California Air Resources Board. CARB will submit a separate request for a waiver of federal preemption for those regulations.

[57] These LEV IV requirements reference existing federal requirements in 40 C.F.R. §§ 86.1813-17(e), 1037.103(g) that focus on vehicles with auxiliary engines to require that, when testing complete vehicles, auxiliary engines and associated fuel-system components must be installed so that emissions from such engines and systems are measured against the standards.

[58] Cal. Code Regs., tit. 13, § 1976(b)(1)(G)(7).

[59] Cal. Code Regs., tit. 13, § 1961.4(d)(1)(E), (F).

[60] Cal. Code Regs., tit. 13, § 1961.4(e)(1)(E) – (H).

- providing additional emission credits for extended warranties and directly reducing ozone emissions,[61] and
- disclosing records.[62]

B. ZEV Regulations

The ZEV components of the ACC II Regulations are designed to reduce emissions by requiring that 100% of new vehicles delivered for sale in California meet zero-emission standards by the 2035 model year. Additionally, the program ensures the emission reductions from this requirement are permanent by imposing ZEV assurance measures. These measures comprise ZEV warranty and durability requirements, serviceability, charging, battery labeling, and other requirements. These measures will help ensure that consumers can successfully replace their conventional vehicles with new or used ZEVs and PHEVs that both meet their needs for transportation and protect the emission benefits of the program, and that accordingly ensure that ZEVs and PHEVs permanently reduce and displace the emissions from conventional vehicles.

1. ZEV Standards

Beginning with the 2026 model year, the ZEV requirements of the ACC II Regulations require manufacturers to sell increasing percentages of ZEVs. The table below identifies the percentage requirement to be used in the calculation of the Annual ZEV Requirement for the applicable model year.

[61] Cal. Code Regs., tit. 13, § 1961.4(f)(1), (2).

[62] Cal. Code Regs., tit. 13, § 1961.4(g).

Model Year	*Percentage Requirement*
2026	35%
2027	43%
2028	51%
2029	59%
2030	68%
2031	76%
2032	82%
2033	88%
2034	94%
2035 and subsequent	100%

These percentages are calculated based on vehicle sales. Unlike the ACC I regulations, under the ACC II Regulations ZEVs do not earn varying numbers of credits based on their zero-emission characteristics. Instead, any ZEV that meets the minimum technical requirements and ZEV Assurance Measures as discussed below, counts equally and, under the accounting terminology of the regulations, earns one ZEV vehicle value. Manufacturers can use PHEVs that meet specified requirements to meet up to 20% of their ZEV sales requirements.[63] Other flexibilities are also available under provisions to encourage wider access to clean transportation technologies, including by groups that have traditionally suffered disproportionate levels of air pollution,[64] that enable manufacturers to optionally certify medium-duty vehicles to these requirements,[65] and to increase sales of ZEVs before the ACC II Regulations apply.[66]

[63] Cal. Code Regs., tit. 13, § 1962.4(e)(1).

[64] Cal. Code Regs., tit. 13, § 1962.4(e)(2).

[65] Cal. Code Regs., tit. 13, § 1962.4(i)(7).

[66] Cal. Code Regs., tit. 13, § 1962.4(e)(3).

While manufacturers will continue to be allowed to bank excess ZEV values associated with production beyond minimum compliance requirements to meet obligations in future years, deficits must first be entirely satisfied from vehicle values generated from a manufacturer's current model year's production of ZEVs and PHEVs. In the event of a shortfall after a manufacturer uses accrued vehicle values, a manufacturer could carry a deficit forward for up to three years.

Other substantive provisions provide conversion factors for continued use of credits accrued under the ACC I ZEV regulation[67] in terms of vehicle values under the terms of the ACC II Regulations, flexibilities for applying those converted values in various model years, and to a greater extent if manufacturers take actions to expand access to clean vehicle technology.[68] The ZEV regulations also provide for earning vehicle values based on sales in other states of fuel-cell electric vehicles (FCEVs)[69] and an option for manufacturers to certify medium-duty zero-emission vehicles under the ACC II ZEV regulation or certify them under California's Advanced Clean Truck rule.[70]

The ACC II Regulations also include provisions for pooling ZEV sales across the states that have adopted the ZEV regulations under Section 177 of the Clean Air Act.[71] To ensure that emissions are reduced as intended, these provisions are limited to no more than 25% of a manufacturer's obligation in model year 2026 and phase out completely after model year 2030.[72]

There are no comparable federal ZEV sales requirements.

2. ZEV Assurance Measures

The ACC II Regulations are intended to address multiple requirements and goals to reduce air pollution, protect public health, and stabilize the climate over the long term, and consequently their success over the long term is dependent on ZEVs and PHEVs permanently displacing all emissions from conventional internal combustion engine powered light- and medium-duty vehicles in California. If ZEVs do not meet the drivers' needs, they could be replaced with a new or used conventional vehicle.

CARB has long designed its regulations to ensure that vehicle emission control systems perform properly throughout their useful lives. The ZEV Assurance Measures accordingly establish requirements to ensure that ZEVs will properly operate throughout their useful lives.

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[67] Cal. Code Regs., tit. 13, § 1962.2.

[68] Cal. Code Regs., tit. 13, § 1962.4(g)(2).

[69] Cal. Code Regs., tit. 13, § 1962.4(g)(4).

[70] Cal. Code Regs., tit. 13, §§ 1962.4(c)(1)(C), (i)(7); 1963.

[71] 42 U.S.C. § 7507.

[72] Cal. Code Regs., tit. 13, § 1962.4(g)(1)(D).

a. Durability

Model year 2026 through 2029 ZEVs must be designed to maintain, for at least 70% of the vehicles in a test group, at least 70% of the certification range value,[73] for a useful life of 10 years or 150,000 miles, whichever occurs first, and comply with data reporting requirements. Model year 2030 and subsequent ZEVs must be designed to maintain, on average for all the vehicles in a test group, at least 80% of the certification range value for a useful life of 10 years or 150,000 miles, whichever occurs first, and comply with data reporting requirements.[74]

Manufacturers must submit data on the expected degradation of battery state of health over the vehicle's useful life. The data is to confirm the test group has been designed to meet the durability requirement. Manufacturers must also collect and submit battery state of health data from 30 vehicles per test group at ages 3 and 6 years to CARB on the battery degradation. CARB may also conduct compliance and enforcement testing, whereby if a certain percentage of the vehicles in the test sample group fall below the specified threshold of certified all-electric range, the manufacturer could be subject to corrective action for vehicles within the test group.[75]

b. Warranty

The vehicle manufacturer of each BEV and PHEV must warrant the vehicle's battery is free from defects in materials and workmanship, which cause the battery state of health to deteriorate to less than 70% for a warranty period of eight years or 100,000 miles, whichever first occurs, for 2026 through 2030 model years, and 75% for a warranty period of eight years or 100,000 miles, whichever first occurs, for 2031 and subsequent model years. Manufacturers must also provide an emissions warranty for ZEV propulsion-related parts consistent with the emissions warranty requirements applicable to conventional light-duty and medium-duty gasoline-fueled on-road vehicles, for a minimum of 3 years or 50,000 miles, whichever first occurs, and 7 years or 70,000 miles, whichever first occurs, for "high-priced" propulsion-related parts.[76]

c. Battery Labeling

Manufacturers of ZEVs, PHEVs, hybrid electric vehicles (HEV), and 48-Volt conventional vehicles (sometimes called "mild HEVs") must include a label on the vehicle battery

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[73] "Certification range value" means a BEV's or PHEV's calculated combined urban and highway all-electric range values, or a FCEV's calculated combined urban and highway driving range, measured and calculated in accordance with sections D. and E. of the 2026 ZEV and PHEV Test Procedure, and reported on the vehicle's CARB-issued Executive Order of Certification. All-electric range is the total miles a vehicle can be driven electrically after the battery has been fully charged and, in the case of a plug-in hybrid electric vehicle, before the engine turns on for the first time, as determined under the ZEV and PHEV Test Procedure, p. B-1, and Cal. Code Regs., tit. 13, § 1962.4(e).

[74] *See* Cal. Code Regs., tit. 13, § 1962.4(d)(2).

[75] Cal. Code Regs., tit. 13, § 1962.7(e)(1)-(2), (5)(A).

[76] ISOR, pp. 80-82; Cal. Code Regs., tit. 13, § 1962.8(c)(1), (3).

that provides key information about the battery system. The label must include information on the battery chemistry, voltage, electric storage capacity, and manufacturer. The label must also include a digital identifier used to connect the label to a record in a digital repository of battery information.[77] The digital repository will include the information on the physical label (in case damage to the physical label renders it illegible) as well as any hazardous materials or heavy metals, product safety or recall information, and safe disposal information.[78] The digital identifier will also provide an easy means for manufacturers to disclose (optionally or due to other existing or future requirements) further information linked to the battery such as instructions for deactivation or disassembly or additional safety or tracking information. The labeling requirement builds on and draws from existing or proposed international standards and guidelines. These include SAE J2936, the proposed European Directive, and Peoples Republic of China Restriction of Hazardous Substances. The requirement provides a uniform and consistent approach to promoting the availability of requisite battery information and responsible, safe, and efficient handling and possible reuse and recycling of batteries after they are no longer used in a vehicle.[79]

d. Data Requirements

Model year 2026 and subsequent model year BEVs must maintain a "state of health" of the battery which shall be correlated to usable battery energy (UBE), a specific quantity that is determined by defined testing procedures carried out in a laboratory in accordance with the procedures of SAE J1634. The reported battery state of health is required to report a value normalized from 0 to 100% (when the battery is new) and representing a usable battery energy that is no more than 5% higher than the actual usable battery energy determined from testing.[80] In addition to this state of health being accessible by a standardized automotive service tool, it must also be able to be displayed to the driver in the vehicle without the use of a tool - e.g., through a dashboard display. This metric is also linked to the minimum battery warranty requirements.[81]

The ZEV Assurance Measures additionally require specified standardized data parameters and commands to be accessible through a common vehicle connector and scan tool, including vehicle speed and battery voltage and current, to properly quantify the performance of the vehicle during testing. Other required data includes total energy into the vehicle and average energy usage during driving that will enable CARB to verify that certification data is representative of in-use vehicle operation and

[77] Cal. Code Regs., tit. 13, § 1962.6(b).

[78] Cal. Code Regs., tit. 13, § 1962.6(c).

[79] ISOR, p. 84.

[80] Cal. Code Regs., tit. 13, § 1962.5(c)(4)(A).

[81] Cal. Code Regs., tit. 13, § 1962.5(c)(6).

can be used to track degradation that may occur over time.[82] Lastly, the standardized commands include the ability for repair technicians to read propulsion-related fault codes when a problem has been detected by the vehicle.[83] The data standardization requirements include phase-in and deficiency allowances during the initial years of the regulation.[84]

e. Minimum Electric Range Requirements

The minimum range of a ZEV has been updated to require at least a 200-mile combined city and highway test range.[85] Although ZEVs with less than 200 miles of certified range may not be counted in determining the manufacturer's Annual ZEV Requirement, ZEVs with less than 200 miles of certified range must still apply for certification in accordance with the ZEV Regulation and meet the same ZEV Assurance Measures requirements[86] that those ZEVs with over 200 miles of certified range must also meet.[87]

Manufacturers may count PHEVs that demonstrate a minimum certification range value of 70 miles under the ACC II Regulations' test procedures for 2026 and subsequent model year ZEVs and PHEVs (discussed below) and minimum US06 all-electric range value of 40 miles, per the 2026 ZEV and PHEV Test Procedures,[88] as at a value of one towards their annual ZEV requirement. Manufacturers can also generate partial vehicle values under another phase-in provision that allows 2026 through 2028 model year PHEVs that meet the ZEV Assurance Measures requirements and have a minimum certification range value of less than 70 miles and greater than or equal to 43 miles, per the 2026 ZEV and PHEV Test Procedures.[89]

f. Charging Standards

All 2026 and subsequent model year BEVs and PHEVs must be equipped with an on-board charger (OBC) with at least an output of 5.76 kilowatts, or capable of providing sufficient power to enable a full charge in less than 4 hours, whichever is lower.[90] Additionally, all 2026 and subsequent model year BEVs and PHEVs must be equipped

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[82] Cal. Code Regs., tit. 13, § 1962.5(c)(4)(A)1., (c)(4)(D).

[83] Cal. Code Regs., tit. 13, § 1962.5(c)(4)(B).

[84] Cal. Code Regs., tit. 13, § 1962.5(a), (g). See also ISOR, pp. 71-72.

[85] Cal. Code Regs., tit. 13, § 1962.4(d).

[86] These are there the requirements laid out in Cal. Code Regs., tit. 13, § 1962.4(d)(2) through (7) which include the ZEV Durability Requirement for Useful Life, Battery Labeling Requirements, Data Standardization, Service Information Requirements, ZEV Warranty Requirements, and Charging Requirements.

[87] Cal. Code Regs., tit. 13, § 1962.4(i)(6).

[88] Cal. Code Regs., tit. 13, § 1962.4(e)(1)(A).

[89] Cal. Code Regs., tit. 13, § 1962.4(e)(1)(B).

[90] Cal. Code Regs., tit. 13, § 1962.3(c)(1).

with convenience cords at the time of vehicle purchase. These cords shall be at least 20 feet in length and also must be tested and listed by a nationally recognized testing lab as meeting the UL Standards for Electric Vehicle Supply Equipment (UL2594). These cords must have Level 1 and Level 2 capability,[91] meaning they are able to be used with two or more different plugs that could fit into a standard U.S. household alternating current (AC) 110 Volt or 220 Volt outlet. Additionally, the charge cords must have a lower charge rate (amperage) that can be selectable by the user, either on the cord itself, or through the vehicle user interface.[92]

g. Service Information

Existing motor vehicle service information regulations have been amended to require the same access and disclosure of repair information and tooling for 2011 and subsequent model year ZEVs as is required by section 1969 for conventional light-duty vehicles. For ZEVs, the scope of the information required to be made available will be for all propulsion-related parts to ensure that owners and service technicians have the information necessary to service vehicles. As with gasoline vehicles, manufacturers will also be required to comply with the same tooling standardization requirements to be able to reprogram vehicle electronic control units.[93] This will help ensure that there will be a robust and competitive market for vehicle repair so that ZEVs will be able to be maintained to meet users' needs for their full useful lives and thus permanently displace the emissions from conventional vehicles.

3. Accompanying Enforcement Procedures for Vehicle Certification and Information Reporting

In addition to the requirements to produce ZEVs that meet specified requirements to ensure emissions are permanently displaced, the ACC II Regulations adopted several other accompanying enforcement procedures to ensure that emissions would be reduced as expected and that compliance may be confirmed. These include provisions for:

- Recordkeeping and reporting ZEV and PHEV sales,[94] and
- Obtaining certification of ZEVs and PHEVs.[95]

[91] Level 1 alternating current (AC) charging uses a standard household 120-Volt outlet to charge the vehicle. Level 2 AC charging uses charging equipment compatible with a 240-Volt outlet to charge the vehicle at faster rates.

[92] Cal. Code Regs., tit. 13, § 1962.3(c)(3).

[93] Cal. Code Regs., tit. 13, § 1969; ISOR, p. 84.

[94] Cal. Code Regs., tit. 13, § 1962.4(h), (j), (k), (n).

[95] Cal. Code Regs., tit. 13, § 1962.4(i).

C. Test Procedures

The ACC II Regulations adopted or amended several procedures. Test procedures applicable under the ACC I Regulation were amended to reflect the adoption of ACC II, and new test procedures were adopted to implement the new emission standards adopted by ACC II. These procedures are described below according to the category of emissions or vehicles they address: exhaust or evaporative emissions of criteria pollutants from vehicles with conventional engines under the LEV IV standards, or for the requirements of the zero-emission vehicle regulations.

1. LEV Test Procedures

a. LEV Exhaust Emission Test Procedures

i. California 2015 Through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

These existing exhaust emission test procedures applied to 2025 and subsequent model year light- and medium-duty vehicles. They were amended to apply through the 2025 model year and updated to incorporate the most recent version of federal test procedures to ensure better alignment and consistency between the California and federal test procedures. The amended test procedures therefore allow manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

ii. California 2026 And Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

These new test procedures apply to 2026 and subsequent model year light- and medium-duty vehicles certified to the new LEV IV exhaust criteria pollutant emission standards. Consistent with CARB's preexisting test procedures, these test procedures are largely consistent with existing federal test procedures but differ to reflect the greater stringency of California emissions standards. However, even with such differences, these test procedures allow manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

b. LEV Evaporative and Refueling Test Procedures

i. California Evaporative Emission Standards and Test Procedures for 2001 Through 2025 Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles and 2001 and Subsequent Model Year Motorcycles

These existing evaporative emission test procedures applied to 2025 and subsequent model years. They were amended to apply through the 2025 model year (except for

motorcycles, to which they continue to apply for subsequent model years) and updated to incorporate the most recent version of federal test procedures to ensure better alignment and consistency between the California and federal test procedures. The amended test procedures therefore allow manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

ii. California Evaporative Emission Standards and Test Procedures for 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles

The new evaporative emission test procedures adopted as part of the ACC II Regulations apply to 2026 and subsequent model year light-, medium-, and heavy-duty vehicles and are used to demonstrate compliance with the evaporative emission standards in California Code of Regulations, title 13, section 1976, described above in Section IV.A.3. They continue the existing test procedures for the evaporative emission standards in Section 1976 for light-, medium-, and heavy-duty vehicles in Section 1976 that were not amended by the ACC II Regulations. These test procedures adopt new provisions to reflect the new requirements and greater stringency of the California evaporative standards for running losses and minimum canister sizes.[96] However, even with such differences, these test procedures are consistent with the existing federal test procedures and allow manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

iii. California Refueling Emission Standards and Test Procedures for 2001 And Subsequent Model Motor Vehicles; California Non-Methane Organic Gas Test Procedures for 2017 and Subsequent Model Year Vehicles; and California Test Procedures for Evaluating Substitute Fuels and New Clean Fuels in 2015 and Subsequent Years

These three existing test procedures were updated to properly reference the preexisting test procedures through the 2025 model year that were amended by the ACC II Regulations and the new test procedures for 2026 and subsequent model year vehicles that were adopted by the ACC II Regulations. These test procedures were also updated to implement the new requirements for controlling evaporative emissions when refueling that were adopted by the ACC II Regulations. These changes do not alter the existing test procedures used to demonstrate compliance with the applicable standards and continue to allow vehicle manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

[96] *See* ISOR, App.F-1, p. F-1-200, et seq.

2. ZEV Test Procedures

a. California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in The Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes

These preexisting test procedures applied to 2025 and subsequent model year vehicles. They were amended to apply through the 2025 model year, after which the ACC II Regulations and related test procedures apply. The amendments include aligning reporting requirements in cases where a manufacturer is using provisions of the new ACC II ZEV requirements to earn early ZEV values prior to the initial 2026 model year requirements of the new ACC II program. In all cases, the modifications do not alter any of the test procedures or required testing for the vehicles that are the subject of these existing procedures through the 2025 model year and accordingly continue to allow vehicle manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

b. California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes

These newly adopted ZEV test procedures apply to 2026 and subsequent model year light- and medium-duty ZEVs and plug-in hybrid electric vehicles (PHEVs) that are certified to the ZEV emissions standards and other emission-related requirements established by the ACC II Regulations. Consistent with CARB's preexisting test procedures, these test procedures largely incorporate federal test procedures or SAE International (SAE) recommended practices or test procedures but incorporate differences to reflect the greater stringency of the California standards.

For battery-electric and fuel-cell electric vehicles, the test procedures were updated to incorporate more recent versions of SAE procedures and to better align with federal test procedures. However, even with such differences, these test procedures allow manufacturers to demonstrate compliance with both California and federal requirements with one test vehicle.

D. Conforming Amendments to Related Regulations

The ACC II Regulations also amended several existing regulations to ensure internal consistency and maintain existing requirements. These conforming amendments primarily consisted of updates to cross-references and definitions.[97]

[97] For further descriptions of these amendments, *see* ISOR, pp. 93-94, and ISOR App. F-1.

V. WAIVER CRITERIA AND PRINCIPLES

A. Criteria for Granting Waivers of Preemption Under CAA Section 209(b)

Congress has recognized that the nation as a whole benefits from California's longstanding efforts to reduce air pollution emitted from new on-road motor vehicles. For more than 50 years, the Clean Air Act has preserved California authority to regulate motor vehicle pollution.[98] Section 209(a) of the CAA provides:

> No State or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or any new motor vehicle engines subject to this part. No State shall require certification, inspection, or any other approval relating to the control of emissions from any new motor vehicle or new motor vehicle engine as condition precedent to the initial sale, titling (if any), or registration of such motor vehicle, motor vehicle engine, or equipment.[99]

Section 209(b) of the CAA sets forth the protocol for granting California[100] a waiver from the preemption of section 209(a). Under section 209(b), the EPA Administrator must grant a waiver to California if the state has determined that its standards will be, in the aggregate, at least as protective of public health and welfare as applicable federal standards, unless the Administrator finds that (1) the state's protectiveness determination is arbitrary and capricious, (2) California does not need separate state standards to meet compelling and extraordinary conditions, or (3) the state's standards and accompanying enforcement procedures are not consistent with section 202(a) of the CAA.

B. Principles Followed in Granting CAA Section 209(b) Waivers

1. The Burden Is on the Opponents Challenging the Request.

In considering a waiver request, California is presumed to have satisfied the criteria for granting a waiver and the burden to show otherwise is on those persons challenging

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[98] Air Quality Act of 1967, Pub. L. 90-148, 81 Stat. 485, 501, § 208.

[99] 42 U.S.C. § 7543(a).

[100] CAA section 209(b) provides for granting a waiver to "any State that has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966." California is the only State that meets this eligibility criterion. *See, e.g.*, S. Rep. No. 90-403, at 632 (1967) and *Motor and Equipment Manufacturers Association v. EPA (MEMA I)*) 627 F.2d 1095, 1101 fn. 1 (D.C. Cir. 1979).

the request.[101] This has long been EPA's approach,[102] and that approach has been upheld by the D.C. Circuit and ratified by Congress.[103]

2. The Scope of the Waiver Proceeding Is Limited.

The scope of the Administrator's inquiry in considering a waiver request is limited by the express terms of CAA section 209(b)(1). Once California determines that its standards are, in the aggregate, at least as protective of public health and welfare as applicable federal standards, the Administrator must grant the waiver unless one of the three specified findings can be made.

This reading of the statute is consistent with the decision in *MEMA I* and prior EPA waiver decisions interpreting CAA section 209(b), which hold that the review of California's decision to adopt separate standards is a narrow one.[104] For instance, in granting the waiver for the on-board diagnostics (OBD) II regulations in 1996, Administrator Carol Browner concluded that she must grant a waiver if she could not find sufficient evidence in the record to support any of the criteria that would allow a denial.[105] Much earlier Administrator William D. Ruckleshaus stated:

> The law makes it clear that the waiver request cannot be denied unless the specific findings designated in the statute can properly be made. The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209 . . . . [106]

3. Deference Must Be Accorded to California's Policy Judgments.

In granting waivers to California's motor vehicle program, EPA has repeatedly and routinely deferred to the policy judgments of California's decision-makers. EPA has recognized that the intent of Congress in creating a limited review of California's waiver requests was to ensure that the federal government did not second-guess the

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[101] *MEMA I*, 627 F.2d 1095, 1121.

[102] *See, e.g.*, 36 Fed. Reg. 17,458-17,459 (Aug. 31, 1971); 40 Fed. Reg. 23,102, 23,103 (May 28, 1975); Decision Document accompanying 61 Fed. Reg. 53,371 at p. 15-16.

[103] *MEMA I*, 627 F.2d 1095, 1121. When Congress amended Section 209(b)(1) in 1977 to expand California's discretion, it expressly approved EPA's application of the waiver provision. H.R. Rep. No. 95-294, at 301 (1977). Then, in 1990, Congress further ratified EPA's approach to Section 209(b)(1) by re-enacting virtually identical text in Section 209(e)(2).

[104] *See* 40 Fed. Reg. 23,102, 23,103 (May 28, 1975).

[105] 61 Fed. Reg. 53,371 (Oct. 11, 1996); *Motor & Equip. Mfrs Ass'n v. Nichols*, ("MEMA II") 142 F.3d 449 (D.C. Cir. 1998).

[106] 36 Fed. Reg. 17,158 (Aug. 31, 1971); *see also* 40 Fed. Reg. 23,102, 23,104; Decision Document accompanying 58 Fed. Reg. 41,66 (Jan. 7, 1993) at pp. 20-21; 74 Fed. Reg. 32,744, 32,748 (July 8, 2009).

wisdom of state policy.[107] Administrators have recognized that the deference is wide-ranging:

> The structure and history of the California waiver provision clearly indicate both a Congressional intent and an EPA practice of leaving the decision on ambiguous and controversial matters of public policy to California's judgment.
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> It is worth noting . . . I would feel constrained to approve a California approach to the problem which I might also feel unable to adopt at the federal level in my own capacity as a regulator. The whole approach of the Clean Air Act is to force the development of new types of emission control technology where that is needed by compelling the industry to "catch up" to some degree with newly promulgated standards. Such an approach . . . may be attended with costs … and by risks that a wider number of vehicle classes may not be able to complete their development work in time. Since a balancing of these risks and costs against the potential benefits from reduced emissions is a central policy decision for any regulatory agency under the statutory scheme outlined above, I believe *I am required to give very substantial deference to California's judgments on this score.*[108]

VI. THE ACC II REGULATIONS MEET THE CRITERIA FOR A NEW WAIVER.

For the reasons set forth below and in the documents associated with the ACC II regulation's rulemaking, the Administrator must grant California a waiver, as the Administrator has no basis under the criteria of CAA section 209(b) to deny California's request.

A. California's Standards, in the Aggregate, are At Least as Protective as Applicable Federal Standards.

In reviewing CARB's determinations that its regulatory program for reducing emissions from mobile sources, in the aggregate, is at least as protective of public health and welfare as applicable federal standards, EPA traditionally evaluates the stringency of California's newly adopted or amended emissions standards to comparable EPA emission standards, and within the broader context of the previously waived California program, which relies upon protectiveness determinations that EPA has previously determined were not arbitrary and capricious.[109] EPA's evaluation tracks the two

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[107] *See, e.g.*, 74 Fed. Reg. 32,744, 32,748 (July 8, 2009).

[108] 40 Fed. Reg. 23,102, 23,104 (emphasis added); *see also* Decision Document accompanying 58 Fed. Reg. 4,166 (Jan. 17, 1993) at p. 64.

[109] 74 Fed. Reg. 32,744, 32,749 (July 8, 2009); 70 Fed. Reg. 50,322 (Aug. 26, 2005); 77 Fed. Reg. 9,239 (Feb. 16, 2012).

discussions of protectiveness in the text of section 209(b). Specifically, section 209(b)(2) states:

> [i]f each State standard is at least as stringent as the comparable applicable Federal standard, such State standard shall be deemed to be at least as protective of health and welfare as such Federal standards for purposes of [209(b)(1)].[110]

EPA properly considers the individual standards in a given waiver request under Section 209(b)(2) because that text provides that determination as one path to satisfying the protectiveness criterion.

But the statute does not require each state standard to be at least as stringent as comparable federal standards because section 209(b)(1) requires EPA to deferentially review California's "determin[ation] that the State standards will be, *in the aggregate,* at least as protective of public health and welfare as applicable Federal standards."[111]

Thus, in addition to the inquiry under Section 209(b)(2), EPA also considers whether California's standards as a whole program are *collectively* at least as protective as federal standards—an inquiry under which EPA considers whether the standards in the waiver request could somehow undermine the protectiveness of the whole program of existing California standards for which EPA has already granted a waiver.[112] In so doing, EPA considers whether the entire California new motor vehicle emissions program - including the standards for which the waiver is requested—is at least as protective as the federal program.[113]

Congress directed that EPA review California's protectiveness determination under the deferential arbitrary and capricious standard. EPA has correctly understood that this would require "'clear and compelling evidence' to show that proposed [standards] undermine the protectiveness of California's standards."[114]

In adopting the ACC II Regulations, CARB declared in Resolution 22-12 that the ACC II Regulations "will not cause California motor vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards."[115] No basis exists for the Administrator to find that the Board's determination is arbitrary or capricious.

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[110] 42 U.S.C. § 7543(b)(2).

[111] 42 U.S.C. § 7543(b)(1).

[112] 44 Fed. Reg. 38,660 38,661 (July 2, 1979) ("[T]he public record did not contain any evidence that this regulation would cause the California standards, in the aggregate, to be less protective of public health and welfare than the applicable Federal standards.").

[113] 74 Fed. Reg. 32,744, 32,749 (July 8, 2009).

[114] *Id.; MEMA I*, 627 F.2d 1095, 1122.

[115] CARB, Reso. 22-12, p. 20.

As described in Section IV of this document, the ACC II Regulations establish requirements[116] that are significantly more stringent than corresponding federal requirements. The Administrator therefore has no basis to deny this waiver request under the protectiveness criterion—under either the analysis undertaken pursuant to section 209(b)(2) or the aggregate analysis undertaken pursuant to section 209(b)(1).

1. The LEV IV Standards and Accompanying Enforcement Procedures are at Least as Stringent as Corresponding Federal Standards and Associated Accompanying Enforcement Procedures.

The LEV IV criteria pollutant emission standards are more stringent than applicable federal Tier 3 criteria-pollutant exhaust emission standards in two fundamental aspects. First, the LEV IV standards now preclude manufacturers from including ZEVs within their vehicle fleet-average calculations, which will accordingly require all vehicles powered by internal combustion engines to continue to reduce their emissions to comply with the standards given that ZEVs will not be able to offset their emissions in the fleet-average compliance equation. Second, the LEV IV standards eliminate manufacturers' preexisting opportunities to combine emission rates from different test cycles intended to replicate additional driving conditions (often that increase emissions) and instead establish new emission standards for each of these test cycles individually, which ensures emissions are well-controlled under varying conditions.[117]

a. The LDV Standards and Accompanying Enforcement Procedures are at Least as Stringent as Corresponding Federal Standards and Associated Accompanying Enforcement Procedures.

The LEV IV regulations establish several requirements for light-duty motor vehicles that are more stringent than the corresponding federal Tier 3 requirements. Although the LEV IV regulations maintain the preexisting LEV III regulation's NMOG+NOx fleet average of 0.030 g/mile, as discussed above, the LEV IV regulations now: exclude ZEVs from the determination of manufacturers' vehicle fleet-averages, phase-out preexisting provisions that allowed PHEVs to generate NMOG+NOx emission credits to PHEVs for operating during all-electric modes, eliminate emission certification bins associated with less stringent standards (ULEV125 and LEV160 for vehicles that meet emission standards of 0.125 and 0.160 g/mile of NMOG+NOx, respectively), and establish emission bins associated with more stringent emissions standards (SULEV15, SULEV25, ULEV40, and ULEV60 for 0.015, 0.025, 0.040, and 0.060 g/mile of NMOG+NOx, respectively). These amendments will consequently require 2026 and

[116] As discussed above, the ACC II Regulations include provisions that are properly characterized as accompanying enforcement procedures because they constitute criteria designed to determine compliance with applicable standards and are accordingly relevant to a manufacturer's ability to produce vehicles and engines that comply with applicable standards for their useful lives.

[117] Furthermore, because the LEV IV regulations continue the requirement that a California vehicle may not be certified to a California emission bin that is less stringent than a comparable federal bin, this ensures the California standards are at least as stringent as the comparable federal standards.

subsequent model-year light-duty vehicles to demonstrate compliance by producing lower-emitting vehicles, while also providing manufacturers additional flexibility to design and produce their light-duty vehicles to meet a variety of emission bins since the standards are determined on a fleetwide basis.

The LEV IV regulations establish several certification emissions standards on an individual test basis, rather than on a composite test basis. Specifically, the LEV IV regulations establish distinct emission standards for NMOG+NOx and carbon monoxide (CO), as measured under the US06 aggressive driving test cycle, and under the SC03 test cycle intended to replicate motor vehicle air conditioning system operations, rather than the composite standards as currently allowed by the federal Supplemental Federal Test Procedures.[118] The disaggregated standards are equivalent to the Supplemental FTP emission standards, but are effectively more stringent because they more precisely account for higher levels of emissions that are typically generated under the more aggressive or demanding conditions represented by the US06 and SC03 test cycles by preventing those levels of emissions from being otherwise masked by the lower levels of emissions typically generated under the highway driving test cycle under a composite standard.

The LEV IV regulations establish an emissions standard for particulate matter generated under the US06 test cycle of 3 mg/mile, which is more stringent than the federal PM standards of 6 mg/mi that apply under the US06 cycle.

The LEV IV regulations establish new FTP emission standards for both conventional vehicles and PHEVs, as measured during "cold start" conditions, i.e., conditions under which vehicles are operated after they are started and before their emissions control systems reach the temperatures needed for their catalytic converters to control exhaust emissions. These standards are important to reducing emissions in the real world because conventional vehicles and PHEVs are often driven under such "cold start" conditions.[119]

As explained above, the LEV IV Regulations establish more stringent emissions standards and other requirements for light-duty motor vehicles than the corresponding federal Tier 3 requirements.

b. The MDV Standards and Accompanying Enforcement Procedures are at Least as Stringent as Corresponding Federal Standards and Associated Accompanying Enforcement Procedures.

As explained in greater detail below, the ACC II Regulations establish emissions standards and other requirements for 2026 and subsequent model year MDVs that are more stringent than the corresponding federal standards and associated requirements.

[118] *See* Cal. Code Regs., tit. 13, § 1961.4(d)(4).

[119] *See* ISOR, p. 113.

The LEV IV regulations establish an exhaust emissions fleet average standard for NMOG + NOx as measured over the FTP test cycle of 0.150 g/mile for class 2b vehicles and 0.175 g/mile for class 3 vehicles. This standard phases in between the 2026 and the 2030 model years. The corresponding federal Tier 3 fleet average standards are 0.178 g/mile for class 2b vehicles and 0.247 g/mile for class 3 vehicles.[120]

The LEV IV regulations also eliminate FTP emission certification bins associated with less stringent standards for class 2b and class 3b MDVs (ULEV250, ULEV200 and ULEV400, ULEV270, respectively). This will require MDVs to meet more stringent emission standards. The LEV IV regulations additionally establish new emission certification bins associated with more stringent emissions standards for class 2b and class 3 vehicles (SULEV150, SULEV100, SULEV85, SULEV75 and SULEV175, SULEV150, SULEV125, SULEV100, respectively), to provide manufacturers more options to certify their vehicles, since compliance with the standards is determined on a fleetwide basis. The LEV IV regulations also exclude ZEVs from the determination of manufacturers' vehicle fleet averages, which ensures that manufacturers' conventional vehicles demonstrate compliance with more stringent emissions standards while increasing proportions of manufacturers' fleets convert to ZEV platforms.

In contrast, the federal Tier 3 FTP bin standards for chassis-certified MDVs do not have any emission bins corresponding to emissions standards that are more stringent than the SULEV150 and SULEV200 standards and still utilize emissions bins corresponding to the less stringent ULEV250, ULEV200, ULEV400, and ULEV270 standards. The Tier 3 standards also allow manufacturers to include ZEVs in their fleet-average emission calculations for all model years. The Tier 3 regulations enable vehicles to be certified to emit at higher rates, lack a mechanism to incentivize cleaner conventional vehicles, and allow dirtier vehicles to be offset by ZEVs. Collectively, this results in a less stringent standard than the LEV IV requirements, even though the LEV IV emission standards, as measured on the Highway Fuel Economy Test, are unchanged from the LEV III standards that were harmonized with the corresponding federal Tier 3 standards.[121]

The LEV IV MDV 50º F emission standards for NMOG+NOx, formaldehyde, and CO were updated by establishing emission bins associated with more stringent emissions standards, to provide manufacturers greater flexibility in certifying vehicles to the more stringent fleet-average standards, and by expanding the applicability of those standards to now include fuel-flexible, bi-fuel, and dual-fuel vehicles. The federal Tier 3 federal chassis MDV standards do not incorporate any comparable 50º F standards or test requirements.

The LEV IV MDV standards are more stringent than the corresponding federal Tier 3 alternative phase-in schedules for small-volume manufacturers for the chassis FTP standards. The LEV IV regulations provide small-volume manufacturers an alternate

[120] 40 C.F.R. § 86.1816-18(b)(2).

[121] *See* ISOR, pp. 124-126.

phase-in for the SFTP standards for NMOG+NOx, CO, and PM in lieu of the phase-in schedule applicable to larger-volume manufacturers. This alternate schedule allows small volume manufacturers to fully phase in their fleets in model year 2030, rather than incrementally if they certify 100% of their fleets in model years 2026 through 2029 to the LEV III SFTP standards for MDVs. The federal SFTP small volume phase-in only applies Tier 3 standards until model year 2022. CARB's small volume phase-in will apply the LEV IV standards to all MDVs by model year 2030.

The LEV IV MDV SFTP standards are also more stringent than corresponding federal standards. The federal Tier 3 MDV SFTP standards are calculated based on a composite equation that calculates a weighted average of the emissions from three different test cycles (the FTP cycle, the aggressive driving US06 cycle for Class 2b MDVs or the Unified Cycle for Class 3 MDVs, and the hot ambient temperature SC03 cycle). In contrast, the LEV IV regulation establishes new disaggregated SFTP standards to ensure that manufacturers are effectively controlling vehicle emissions generated during aggressive driving conditions through more stringent emission standards for NMOG+NOx, CO, and PM than the comparable federal Tier 3 Composite SFTP standards. LEV IV discontinues use of a composite SFTP standard that was part of the LEV III MDV standards.

The LEV IV MDV regulations eliminate the preexisting LEV III phase-in requirement to earn vehicle equivalent credits (VEC). Manufacturers who are using the VEC phase-in method or LEV III must certify their vehicles to the LEV IV MDV fleet average standards when they start phasing in their fleet to the LEV IV MDV standards. These manufacturers are required to convert their non-expired VECs and debits earned using the LEV III standards to equivalent NMOG+NOx fleet average credits to be used in the LEV IV program. Federal Tier 3 standards do not have a VEC standard, and all MDVs under the federal Tier 3 standards are required to meet an FTP fleet average standard.

The LEV IV MDV regulations accordingly now harmonize with the corresponding federal provisions and require MDVs to comply with a single FTP fleet average standard rather than two FTP certification options, which ensures that LEV IV MDVs are certified to more stringent standards under the LEV IV FTP fleet average requirements.

The LEV IV MDV regulations establish new PEMS-based, in-use emissions standards and testing requirements for NOx that are designed to ensure that in-use MDVs comply with emissions standards across all real-life operating conditions. PEMS are portable emissions monitoring devices that can be easily mounted to vehicles and can detect and measure emissions levels as vehicles operate in real-time. There are no comparable federal in-use standards or PEMS-based test requirements. Instead, the federal Tier 3 regulations only require manufacturers to test vehicles on a chassis dynamometer, using the FTP and SFTP test cycles at half of the vehicle's payload test weight, and chassis dynamometers are limited to testing at a maximum test weight of 14,000 lbs. In contrast, the new PEMS-based in-use standard requires manufacturers

to test vehicles as they operate in varying real-world road conditions and at higher test weights when towing.

There are no federal standards for chassis-certified vehicles equivalent to the MDV MAW standards, so these standards are, by definition, more stringent than comparable federal standards.

c. The Evaporative Emission Standards are at Least as Stringent as Corresponding Federal Emission Standards.

The ACC II Regulations increase the stringency of the preexisting running loss evaporative emissions standard from 0.05 to 0.01 g/mile of hydrocarbons. They also add new requirements to ensure that fuel system carbon canisters are capable of controlling "puff" emissions of hydrocarbons when fuel tanks are opened on a hot day and the carbon canisters are fully saturated and unable to capture additional evaporative emissions. These new requirements are more stringent than corresponding federal evaporative emissions standards that only specify a running loss emissions standard of 0.05 grams per mile of hydrocarbons.

d. The OBD Amendments are at Least as Stringent as Corresponding Federal Requirements.

The amendments to the OBD system requirements effected by the ACC II Regulations ensure that OBD systems will be capable of accurately and timely detecting malfunctions in vehicles certified to the more stringent LEV IV emission standards. There are no comparable federal OBD requirements since there are no federal emission standards comparable to the LEV IV emissions standards.

e. The Auxiliary Fuel System Evaporative Emission Standards are at Least as Stringent as Corresponding Federal Standards.

The ACC II Regulations expand the existing auxiliary fuel system test requirement to include any type of auxiliary fuel system other than the fuel system used to propel the vehicle. This requirement was clarified to ensure that the existing federal requirements[122] apply to auxiliary fuel systems for fuel-fired heaters. Thus, the auxiliary fuel system evaporative emission standards are at least as stringent as the federal standards.

2. The ZEV Standards and Accompanying Enforcement Procedures are at Least as Stringent.

The ZEV standards and ZEV assurance measures are clearly more stringent than any corresponding federal requirements since there are no federal requirements for zero-emission vehicles. Where the ZEV assurance measure requirements ensure that ZEVs will permanently displace emissions that would otherwise be generated from fueling

[122] 40 C.F.R. § 86.1813-17(e), § 1037.103(g).

and operating conventional vehicles, they, too, are more stringent than federal requirements.

The foregoing reasons demonstrate that the emission standards, associated test procedures, and accompanying enforcement procedures established by the ACC II Regulations are at least as stringent as corresponding federal requirements, under Section 209(b)(2), and, further, that the ACC II Regulations will not cause California's motor vehicle emissions standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards. Accordingly, the Board's determination of protectiveness is well-founded.

B. California Needs Its Own Motor Vehicle and Motor Vehicle Engine Emissions Control Program, and the ACC II Regulations, to Meet Compelling and Extraordinary Conditions.

The Administrator has consistently recognized that California satisfies the second criterion for waivers—that the State has "compelling and extraordinary conditions" for which it continues to need its own motor vehicle and engine emissions control programs. This remains true.[123] As demonstrated below, under either EPA's traditional interpretation of this criterion, or under an alternative interpretation that considers California's need for particular standards, EPA has no basis to deny this authorization request under this criterion.

1. California Needs its Standards Under the Traditional Interpretation of the "Compelling and Extraordinary" Criterion.

EPA has traditionally interpreted CAA section 209(b)(1)(B) as requiring an inquiry regarding California's need for a separate motor vehicle emissions control program to meet compelling and extraordinary conditions, and not whether any given standard is needed to meet particular conditions. EPA has expressed this as an inquiry into "the existence of 'compelling and extraordinary' conditions" of the kind for which a separate state program of controls remains warranted.[124] In other words, "review … under section 209(b)(1)(B) is not based on whether California has demonstrated a need for the particular regulations, but upon whether California needs standards to meet compelling and extraordinary conditions."[125]

In enacting the California Clean Air Act of 1988, the California Legislature found that:

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[123] 42 U.S.C. § 7543(b)(1)(B) (permitting EPA to deny California a waiver if the State does not "need such State standards to meet compelling and extraordinary conditions").

[124] 40 Fed. Reg. 23,102, 23,103 (May 28, 1975); see also *id.* at 23,104 (concluding "[c]ompelling and extraordinary conditions continue to exist in the State of California"). See also 41 Fed. Reg. 44,209 44,210 (Oct. 7, 1976) ("[T]he question of whether *these particular standards* are actually required by California all fall within the broad area of public policy [left to] California's judgment … consistent with the Congressional intent behind the California waiver provision.").

[125] 44 Fed. Reg. at 38,660, 38,661 (July 2, 1979).

> [D]espite the significant reductions in vehicle emissions which have been achieved in recent years, continued growth in population and vehicle miles traveled throughout California have the potential not only to prevent attainment of the state standards, but in some cases, to result in worsening of air quality.[126]

The very conditions in California that moved Congress to authorize the State to establish separate on-road motor vehicle standards in 1967 remain today, despite decades of stringent regulation and substantial progress to reduce pollution levels.[127] (And, as shown below, California's climate change conditions also preclude denial of this request under the second criterion.)

California, particularly in the South Coast and San Joaquin Valley Air Basins, continues to experience some of the worst air quality in the nation. The South Coast and San Joaquin Valley Air Basins, in particular, continue to be in extreme non-attainment with the NAAQS for ozone and in serious non-attainment with the standards for particulate matter.[128] California has six of the ten cities that suffer the worst ozone pollution in the nation and seven with the worst particulate pollution.[129] California is especially prone to harmful ozone because it has so much of the three ingredients: stagnant air caused by topography, sunshine, and significant populations of people burning fuel.[130] This pollution will be exacerbated by rising temperatures caused by climate change, exacerbating California's need to reduce ozone-forming and particulate matter emissions.[131] Ozone and particulate matter are serious health concerns. They cause illness, heart disease, strokes, decreased lung function, cancers, and decreased lifespans.[132] Passenger cars and light trucks operating on roads are significant sources of organic gases, oxides of nitrogen, toxic compounds, and fine particulate matter.

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[126] Cal. Health & Saf. Code, § 43000.5.

[127] *See* 40 Fed. Reg. at 23,104; 74 Fed. Reg. 32,744, 32,762-32,763 (July 8, 2009); 79 Fed. Reg. 6,584, 6,588-590 (Feb. 4, 2014); 82 Fed. Reg. 6,540, 6,543 (Jan. 19, 2017). In 2007, 19 of California's air quality districts were in nonattainment with the eight-hour ozone 0.08 ppm NAAQS. Currently, 38 California counties are in nonattainment with the 2015 eight-hour ozone 0.070 ppm NAAQS, and 14 of California's counties are in nonattainment with the 2012 $PM_{2.5}$ NAAQS. https://www3.epa.gov/airquality/greenbook/ancl.html#CA (last accessed March 15, 2023).

[128] Reso. 22-12, p. 4; 78 Fed. Reg. 2,112, 2,130 (Jan. 9, 2013); 82 Fed. Reg. 4,867, 4,871 (Jan. 17, 2017).

[129] Most Polluted Cities, Am. Lung Ass'n, Most Polluted Cities | State of the Air | American Lung Association, last visited March 23, 2023.

[130] *See* U.S. Envtl. Prot. Agency, Ground-Level Ozone Basics, https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozonebasics#formation (last updated June 14, 2022); see also Emily Guerin, LA Explained: Smog, LAist (Oct. 3, 2018), https://laist.com/news/climate-environment/la-explained-smog.

[131] *See* ISOR, pp. 4, 7-9.

[132] *See, e.g.,* U.S. EPA, Integrated Science Assessment for Ozone and Related Photochemical Oxidants, EPA-600-R-20-012,April 2020; U.S. EPA, Supplement to the 2019 Integrated Science Assessment for Particulate Matter, EPA-600-R-22-028, May 2022.

CARB expects that reducing pollution from vehicles will reduce the disproportionate impact of emissions on low-income and sensitive populations who tend to reside, work, or spend significant time near busy roadways throughout the state.[133]

In adopting Resolution 22-12, CARB recognized it must take all feasible actions as soon as possible to improve air quality.[134] EPA has long confirmed that California needs its vehicle pollution control program to address compelling and extraordinary air pollution conditions and affirmed CARB's judgments, on behalf of the State of California, on this matter.[135]

Nothing in these conditions has changed to warrant a change in EPA's confirmation, and therefore there can be no doubt of the continuing existence of compelling and extraordinary conditions justifying California's need for its own motor vehicle emissions control program.

2. California Needs its Standards Under the Alternative Interpretation of the "Compelling and Extraordinary" Criterion.

Even if EPA applies a narrower, standard-specific inquiry, the record demonstrates that California "needs" the ACC II Regulations to address compelling and extraordinary conditions in California.

On September 27, 2019, EPA, in conjunction with NHTSA, published ''The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program'' (SAFE 1).[136] In that action, EPA withdrew a portion of the waiver it had previously granted for the ACC I program–specifically, for California's ZEV mandate and the GHG emission standards within California's ACC program. EPA justified its action, in part, on a determination that California did not need its GHG emission standards to meet compelling and extraordinary conditions, within the meaning of section 209(b)(1)(B) of the CAA.[137] That determination was in turn based on EPA adopting new, GHG pollutant-specific and standard-specific interpretations of section 209(b)(1)(B).

In April 2022, EPA reconsidered its SAFE 1 action and restored California's waiver by rescinding its 2019 withdrawal.[138] In doing so, EPA determined that its standard-specific interpretation of section 209(b)(1)(B) was inconsistent with the statute's text

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[133] *See* ISOR, pp, 137, 152-153; CARB, States and Cities in Support of EPA Reversing Its SAFE 1 Actions, Appendix B, Benefits of California's Zero-Emission Vehicle Standards on Community-Scale Emission Impacts, July 6, 2021, Docket No. EPA-HQ-OAR-2021-0257-0132, https://www.regulations.gov/comment/EPA-HQ-OAR-2021-0257-0132.

[134] Reso. 22-12, p. 6.

[135] 87 Fed. Reg. 14,332, 14,353 (March 14, 2022); *see also* 70 Fed. Reg. 50,322, 50,323 (Aug. 26, 2005); 74 Fed. Reg. 32,744, 32,762-763 (July 9, 2009); 79 Fed. Reg. 46,256, 46,262 (Aug. 7, 2014); 82 Fed. Reg. 4,867, 4,871 (Jan. 17, 2017).

[136] 84 Fed. Reg. 51,310 (Sept. 27, 2019).

[137] *Id*. at 51,328.

[138] 87 Fed. Reg. 14,332 (Mar. 14, 2022).

and with congressional intent,[139] and accordingly rescinded that interpretation.[140] EPA returned to its traditional interpretation of section 209(b)(1)(B),[141] which it stated "was appropriate and continues to be, at least, a better interpretation regardless of the recission of the SAFE 1 interpretation of this criterion."[142]

CARB agrees that EPA properly withdrew its erroneous SAFE 1 interpretation. Section 209(b)(1)(B) does not authorize EPA to consider whether California needs the particular standards for which a waiver is requested to meet its compelling and extraordinary conditions; rather, the CAA requires EPA to consider whether California needs its vehicle pollution control program in the aggregate.[143]

Nevertheless, even if EPA applies a narrower, standards-specific inquiry, the record demonstrates that California "needs" the ACC II Regulations to address compelling and extraordinary conditions in California. As discussed above in the ISOR and related rulemaking documents, and in Resolution 22-12, light- and medium-duty vehicles are significant sources of NOx, $PM_{2.5}$, and GHGs. The ACC II Regulations will significantly reduce these health- and climate-harming emissions, as shown in the table below of the regulations' total emission benefits from 2026 through 2040, by calendar year:[144]

[139] 87 Fed. Reg. at 14,352, 14,361.

[140] *Id*. at 14,362, n. 288.

[141] *Id*. at 14,378.

[142] *Id*. at 14,367.

[143] *See, e.g.,* 88 Fed. Reg. 20,688, 20,695, 20,701-20,704 (April 6, 2023).

[144] FSOR, App. F, Table III-1, Updated Costs and Benefits Analysis of the Final Statement of Reasons, pp. 8-9, Attachment 11.

Total Emission Benefits of the ACC II Regulations

	Emission Benefits		
CY	NOx (tons/day)	$PM_{2.5}$ (tons/day)	CO2e (MMT/yr)
2026	0.6	0.0	0.9
2027	1.5	0.1	2.6
2028	2.7	0.1	4.8
2029	4.1	0.2	7.6
2030	5.7	0.3	10.9
2031	7.7	0.4	14.8
2032	9.8	0.6	19.2
2033	12.1	0.7	23.9
2034	14.6	0.9	29.1
2035	17.3	1.1	34.5
2036	20.0	1.3	39.8
2037	22.6	1.5	44.9
2038	25.3	1.7	49.6
2039	27.8	1.9	54.1
2040	30.4	2.0	58.4

Although the ZEV and LEV IV components of the ACC II regulations are complementary to each other and will be implemented in tandem, each delivers

important emission reductions to Californians.[145] For example, in calendar year 2035, when the ZEV component of the ACC II Regulations will require all new passenger cars and light-duty trucks delivered for sale in California to be zero-emission, with a limited allowance for plug-in hybrid electric vehicles (PHEVs), the ZEV Regulation will displace the emissions from conventional vehicles with internal combustion engines and their associated upstream fuel production by:

- 4,848 tons of oxides of nitrogen (NOx) exhaust emissions, including 1,080 tons of upstream and 3,767 tons from downstream emissions,
- 3,629 tons of reactive organic gases (ROG) total emissions, including exhaust and evaporative emissions that contribute to smog-forming ozone and cancer, and
- 389 tons of fine particulate matter (PM2.5) emissions, including 119 tons of upstream and 271 tons from downstream emissions that contribute to asthma and premature deaths.

In 2035, the LEV IV Regulations that apply to vehicles with internal combustion engines will also avoid an additional:

- 869 tons of NOx exhaust emissions, and
- 526 tons of ROG total emissions, including exhaust and evaporative emissions that contribute to smog-forming ozone and cancer.

These emissions reductions are needed for California to attain the NAAQS and its own state ambient air quality standards for ozone and particulate matter. These reductions will reduce the serious associated risks to the health and welfare of Californians.[146] The ACC II Regulations will reduce emissions of these harmful air pollutants on a statewide basis, and will therefore provide health benefits on a statewide basis, but are projected to provide the greatest health benefits in the South Coast, San Francisco Bay, San Diego, San Joaquin Valley, and South Central Coast air basins.[147] The greatest benefits will be in the regions around Los Angeles and San Francisco: South Coast will suffer between 761 and 1,190 fewer cardiopulmonary deaths. The San Francisco Bay Area will suffer between 144 and 226 fewer such deaths.[148]

Reducing emissions will greatly benefit public health and welfare. The total statewide health benefits derived from criteria emissions reductions is estimated to be $12.94

[145] CARB, Advanced Clean Cars II: Criteria Pollutant Emission Estimates for ZEV and LEV IV Elements, May 11, 2023, Attachment 12.

[146] NOx and PM emissions pose serious risks to the health and welfare of Californians. NOx is a lung irritant and can aggravate lung diseases and contributes to formation of the lung irritant ozone. PM also causes respiratory ailments that can increase premature mortality, hospital admissions for cardiopulmonary causes, acute and chronic bronchitis and asthma. Reducing these and other pollutant from motor vehicles will also reduce risks of cancers from toxic air contaminants. (*See* ISOR, pp. 135, 137).

[147] ISOR, p. 137.

[148] FSOR, App. F, Table IV-1, p. 12.

billion, with $12.91 billion resulting from reduced premature cardiopulmonary mortality and $30 million resulting from reduced hospitalizations and emergency room (ER) visits.[149]

3. California Also Needs its Program, and these Standards, to Address Compelling and Extraordinary Climate Change Conditions.

The determination that the ACC II Regulations satisfy the second criterion is additionally supported by considerations of the climate-change-induced impacts affecting California, the contributions of motor vehicles to the GHG emissions resulting in such impacts, and the reductions in those emissions that will result from the ACC II Regulations discussed above.[150] The State's climate change conditions further support this request under the traditional interpretation or under EPA's improper SAFE 1 interpretation.

EPA has previously found that California's climate change conditions are compelling and extraordinary, and there is no reason to conclude otherwise here. California's legislature has long recognized the severe threats the State faces from climate change. In enacting the California Global Warming Solutions Act of 2006, California's legislature found and declared that:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems.[151]

Those climate-change-induced harms are also discussed in the ACC II ISOR,[152] CARB's comments to the Proposed SAFE 1 Action,[153] CARB's comments in response to EPA's Notice of Reconsideration of its SAFE 1 Action,[154] and elsewhere.

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[149] FSOR, App. F, p. 11.

[150] *See also* FSOR, App. F, pp. 10-11, 13, ISOR, p. 147, and ISOR, App. D., pp. 9, et seq., 13, et seq., and 17.

[151] AB 32, Nuñez, ch. 488, stats. 2006, Cal. Health & Saf. Code § 38501(a).

[152] ISOR, pp. 6-9.

[153] Analysis in Support of Comments of the California Air Resources Board on the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (October 26, 2018), EPA-HQ-OAR-2018-0283-5054, available at https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0283-5054 (last accessed July 20, 2022).

[154] EPA-HQ-OAR-2021-0257-0132.

The ISOR for the ACC II Regulations, consistent with CARB's comments to the Proposed SAFE 1 Action and to the Notice of Reconsideration of that Action, discusses some of the findings of California's Fourth Climate Change Assessment.[155] California is experiencing increases in ground-level ozone,[156] sea-level rise and coastal erosion,[157] damaging variability in precipitation and reductions in water supply from reduced snowpack,[158] increased frequency of droughts and land subsidence,[159] lower agricultural crop yields,[160] increased susceptibility of forests to wildfires,[161] increased mortality risks to people due to extreme heat events,[162] and flooding of California's coastal transportation infrastructure.[163] These impacts constitute "compelling and extraordinary conditions" under any reasonable interpretation of Section 209(b)(1)(B), which was designed to provide California with the broadest possible discretion in reducing air pollution and its impacts. Indeed, climate change conditions in California—from wildfires to droughts—are already "compelling and extraordinary," and they are only going to get worse absent emission reductions of the kind enabled by these standards.

In the time since these comments were filed, the evidence has only mounted of how climate change affects California. The Sixth Assessment of the Intergovernmental Panel on Climate Change again concluded that "human-induced climate change is already affecting many weather and climate extremes" around the world.[164]

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[155] California's Fourth Climate Change Assessment, California's Changing Climate 2018: A Summary of Key Findings (Aug. 2018) (last accessed Nov. 2, 2021), and California's Fourth Climate Change Assessment Statewide Summary Report (last accessed Nov. 2, 2021).

[156] California's Fourth Climate Change Assessment, California's Changing Climate 2018: Statewide Summary Report at 40. Ozone conditions will worsen as temperatures rise and air is increasingly stagnant. California Scientists, pp. 25-26, *citing* Clara Nussbaumer & Ronald Cohen, The Role of Temperature and NOx in Ozone Trends in the Los Angeles Basin, 54 Envtl. Sci. & Tech. 15652, 15652 (2020), Daniel Horton et al., Occurrence and Persistence of Future Atmospheric Stagnation Events, 4 Nature Climate Change, 698, 698 (2014).

[157] California's Fourth Climate Change Assessment, California's Changing Climate 2018: A Summary of Key Findings 6,18 (Aug. 2018).

[158] California's Fourth Climate Change Assessment, California's Changing Climate 2018: Statewide Summary Report at 24.

[159] California's Fourth Climate Change Assessment, California's Changing Climate 2018: A Summary of Key Findings 5,14 (Aug. 2018).

[160] *Id*. at 14.

[161] *Id*. at 6.

[162] *Id*. at 7.

[163] California's Changing Climate 2018: Statewide Summary Report at 54-55.

[164] Intergovernmental Panel on Climate Change ("IPCC"), Climate Change 2021: The Physical Science Basis—Summary for Policymakers 4 (2021).

California is on the front line of these changes. Temperatures in some parts of the state have already risen by 2º F.[165] California is the only U.S. state with a Mediterranean climate, which features a short rainy season yielding significant plant growth in the winter followed by dry periods that turn the plant growth into potential fuel sources.[166] It experiences hot, dry, high winds that exacerbate fire risk.[167] And it has more homes in the wildland-urban interface than any other state.[168] California consistently loses more acres to wildfires than any other state, and it has the most people living in high-risk wildfire zones.[169]

California's Mediterranean climate also suffers from drought, and its mountain ranges make it prone to flooding from extreme precipitation events.[170] The state's water supply relies heavily on highly vulnerable snowpack for seasonal water storage.[171] Climate change will worsen these whipsaw effects and reduce the snowpack that provides the State's water.[172]

The ACC II Regulations are expected to reduce GHG emissions by 395.1 million metric tons between 2026 and 2040.[173] The benefits from the resulting avoided climate impacts are estimated to be between $9.8 and $40.1 billion, depending on the discount rate applied.[174]

In sum, EPA has consistently found that California "needs" emissions standards to address the compelling and extraordinary conditions resulting from criteria pollutants,[175] as well as standards that reduce GHGs to address the compelling and

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[165] Leah Fisher and Sonya Ziaja, California's Fourth Climate Change Assessment: Statewide Summary Report 22 (2019).

[166] Eric Kaufman, Climate and Topography, in ATLAS OF THE BIODIVERSITY OF CALIFORNIA 12 (2003).

[167] Max Moritz et al., Spatial Variation in Extreme Winds Predicts Large Wildfire Locations in Chaparral Ecosystems, 37 Geophysical Res. Letters L04801, 1 (2010).

[168] U.S. Fed. Emergency Mgmt. Admin., Wildland-Urban Interface: A Look at Issues and Resolutions 7 (2022), p. 7.

[169] See, e.g., Nat'l Interagency Fire Center, National Report of Wildland Fires and Acres Burned by State (2021), predictiveservices.nifc.gov/intelligence/2021_statssumm/fires_acres21.pdf.

[170] U.S. Nat'l Weather Serv., Orographic Lifting, https://forecast.weather.gov/glossary.php?letter=o (last visited Oct. 31, 2022).

[171] U.S. Fed. Emergency Mgmt. Admin., Wildland-Urban Interface: A Look at Issues and Resolutions 7 (2022).

[172] Leah Fisher and Sonya Ziaja, California's Fourth Climate Change Assessment: Statewide Summary Report 22 (2019), p. 56.

[173] FSOR, App. F, p. 13; see also ISOR, pp. 135-137

[174] *Id*.

[175] *See* 87 Fed. Reg. 14,332, 14,363 (March 14, 2022), citing consistent recognition of California's need to reduce criteria pollutants.

extraordinary conditions that cause climate change.[176] EPA has never disputed California's need to reduce emissions of criteria pollutants, even when withdrawing its waiver for the ACC Regulations in the SAFE 1 rules and actions. Moreover, EPA has never imposed a *de minimus* requirement for how much California's standards would meet its conditions, and California agrees with EPA there is no basis for such a requirement.[177] Therefore, EPA has no basis to find that the regulations do not satisfy the "compelling and extraordinary" criteria because the ACC II Regulations reduce emissions of criteria pollutants and GHGs, California therefore meets the compelling and extraordinary criterion under either of EPA's traditional interpretation of this criterion or under its impermissibly constrained (and now rescinded) SAFE 1 interpretation that 209((b)(1)(B) requires an inquiry regarding California's need for individual emissions standards to meet compelling and extraordinary conditions.

C. California's Standards are Consistent with Clean Air Act Section 202(a).

The third criterion "relates in relevant part to technological feasibility and to federal certification requirements."[178] "The 'technological feasibility' component of section 202(a) obligates California to allow sufficient lead time to permit manufacturers to develop and apply the necessary technology."[179] "The federal certification component ensures that the Federal and California test procedures do not 'impose inconsistent certification requirements.'"[180] "Neither the court nor the agency has ever interpreted compliance with section 202(a) to require more."[181]

As EPA has recognized, this inquiry, like the other two, concerns California's whole program. As demonstrated below, the ACC II Regulations' requirements for engines and vehicles themselves satisfy the third criterion's requirements and therefore their addition to California's program will not alter that program's already-determined consistency with section 202(a) of the CAA.

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[176] *See* 87 Fed. Reg. 14,332, 14,365-366 (March 14, 2022), citing demonstration of climate change impacts since the ACC I waiver request and localized impacts of GHG pollution, such as ocean acidification; 14,367, restoring waiver for ZEV standards that address criteria pollutants and GHGs.

[177] *See* 87 Fed. Reg. 14,332, 14,366 (March 14, 2022), citing *Massachusetts v. EPA*, 549 U.S. 497, 524 (2007).

[178] *Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 463 (D.C. Cir. 1998) (quoting *Ford Motor Co. v. EPA,* 606 F.2d 1293, 1296 n. 17 (D.C.Cir.1979)).

[179] *Id.*

[180] *Id.* (quoting 46 Fed. Reg. 26,371, 26,372 (1981)).

[181] *Id. See also* Decision Document accompanying 61 Fed. Reg. 53,371, Oct. 11, 1996, at p.2; even where there is incompatibility between the California and federal test procedures, EPA has granted a waiver under circumstances where EPA accepts a demonstration of federal compliance based on California test results, thus obviating the need for two separate tests. 43 Fed. Reg. 1,829, 1,830, Jan. 12, 1978; 40 Fed. Reg. 30,311, 30,314, July 18, 1975.

1. California's Standards are Technically Feasible in the Given Lead Time.

CARB evaluated the technological feasibility of the emission standards and accompanying enforcement procedures and concluded, as stated in Resolution 22-12 at pages 7-10 that the ACC II standards and accompanying enforcement procedures are presently attainable with existing technologies that manufacturers will likely use to comply with the ACC II Regulations beginning with the 2026 model year. Such technologies are already in use by many manufacturers, are presently commercially available at reasonable costs (and those costs are projected to continue to decline), and many manufacturers have made public commitments to develop and deploy further technologies that may be necessary to meet the ACCII standards.

This section briefly outlines the technologies that manufacturers will likely utilize to comply with the ACC II Regulations' emission standards and accompanying enforcement procedures. More detailed descriptions of these provisions are provided in the ISOR and the FSOR.

a. The LDV Exhaust Standards are Technically Feasible in the Lead Time Provided.

Many vehicles in production already meet the LEV IV regulations' LDV standards. Manufacturers have adequate time, within customary design and production cycles, to adjust the vehicles that do not – often with no more than changes to software and engine calibrations, and consequently will not need to adjust existing hardware.

i. FTP Emission Standards

Many vehicles are already able to meet the FTP NMOG+NOx emission standards. Some vehicles may require minor modifications to their emission controls, primarily through software changes and engine calibrations to adjust combustion airflow, fuel injection, and spark plug timing to accelerate the warming of catalysts to reduce emissions when engines are cold. If hardware improvements are necessary, existing technologies may be deployed to a greater extent to further reduce emissions. These include larger volume catalysts, greater catalyst precious metal loading, more optimized close-coupled catalysts, optimized thermal management, low thermal mass turbochargers, double-layer catalyst wash coats, and improved fuel injection control.[182] Further, the standards are phased over the 2026 through 2028 model years to allow manufacturers to incorporate changes into expected vehicle redesign and production schedules. The additional certification bins that were added also facilitate compliance by offering more options for fleets to meet the overall average standards.

ii. ZEV and PHEV Exclusion from the Fleet Average

The LEV IV emission standards phase out consideration of ZEV and zero-emission PHEV performance when determining compliance with the emission standards. As

[182] *See* ISOR, Section IV.C.1, page 105.

explained above, the emission standards are technically feasible, and nothing about this exclusion of ZEV and PHEV vehicles undermines that conclusion.

iii. The Partial Soak Standards

The new standards for emissions after partial (shorter) soak times can be achieved using the same emission control strategies that are currently used for the 12- to 36-hour soak emission standards. For the emission standards at shorter soak times (10 minutes to 3 hours), the combustion engine and catalyst are substantially warmer for a vehicle restart meaning that the initial start conditions are more favorable for controlling emissions. Tests of current vehicles have demonstrated that these emission standards can be achieved. Some control strategies that may need to be re-optimized include engine idle speed, spark ignition timing, fuel injection control, and variable valve timing. In addition, the emission control software may need to be redesigned to properly recognize partial soak start conditions and trigger appropriate controls. To facilitate integrating the necessary calibration and development work with regularly scheduled redesign or refresh cycles of typical vehicles, the regulations allow for a 3-year phase-in whereby only 30% of a manufacturer's vehicles must certify to the new soak standards in the 2026 model year, 60% by the 2027 model year, and then 100% in 2028 and subsequent model years, or an alternative schedule.[183]

iv. Standalone US06 Emission Standards for NMOG+NOx and CO

Many vehicles already comply with the US06 standards for NMOG+NOx and CO under aggressive driving conditions. Nothing suggests the remaining vehicles that do not yet meet these standards are unable to meet them, which can often be done with only catalyst upgrades.[184] Phasing in the requirements and creating additional certification bins provides additional time and certification options to meet these standards and requires fewer changes to vehicles.[185]

v. Standalone SC03 Emission Standards for NMOG+NOx and CO

Analysis of certification data shows that nearly all vehicles already comply with the standalone standards when operating their air conditioning systems under the SC03 test for NMOG+NOx and carbon monoxide (CO)[186]—over 98% and 97%, respectively.[187] Nothing suggests the remaining vehicles that do not yet meet these standards are unable to meet them, as it will likely not even require any hardware or catalyst upgrades to comply.

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[183] *See* ISOR Section IV.C.4, p. 110, et seq.

[184] *See* ISOR Section IV.C.2., p. 105, et seq.

[185] *See* Cal. Code Regs., tit. 13, § 1961.4(d)(3)(A).

[186] Cal. Code Regs., tit. 13, § 1961.4(d)(4). Under the preexisting regulations, Cal. Code Regs., tit. 13, § 1961.2(a)(7)(A), manufacturers had the option to meet this standard on its own or as a composite test with the more demanding US06 aggressive driving standards.

[187] *See* CARB First 15-Day Notice References CARB2022m and CARB 2022n, Attachments 13 and 14.

vi. US06 PM Standards

Many vehicles already meet the revised US06 PM standards —over 85%. The technology to do so is available, including improved fuel injection hardware and controls and improved particulate filters. Moreover, the standards include an interim standard of 4 mg per mile and are phased into effect between 2026 and 2030 to allow time for manufacturers to meet the standards within customary design and production cycles. This schedule also leverages expected improvements in emissions from the 1 mg/mile FTP standard that applies beginning in the 2025 model year under the LEV III standards. Test data shows that vehicles meeting this FTP standard have lower PM emissions under the US06 test.[188]

vii. PHEV Cold-Start US06 Emission Standards

The PHEV cold-start US06 standards for aggressive driving conditions only apply to PHEVs that do not have sufficient zero-emission range to complete the test cycle. CARB's testing showed that the best-performing PHEVs already in production met the standards.[189] Manufacturers are expected to be able to meet the standards by increasing the power available during high-power engine starts or reducing the point at which the engine activates to reduce demand on (and emissions from) the engine or increase the level of emission controls on the engines. To allow time for all PHEVs to meet the standards, they phase in from model years 2026 through 2028.[190]

b. The MDV Standards are Technically Feasible in the Lead Time Provided.

As discussed in the ACC II rulemaking, CARB's recently adopted Heavy-Duty Low-NOx Omnibus regulations established that the MAW in-use standards are feasible in the specified lead time. For ACC II, CARB conducted MAW testing on current diesel and gasoline MDVs to evaluate emissions for the new standards. The test data showed that some gasoline MDVs can already meet the new standards with their current emission control systems.[191] For diesel MDVs, the test data showed many vehicles are closer to meeting the low load standards with their current emission control systems but would require additional changes to meet the high load standards.[192] The standards can be met with a variety of hardware technologies and software in existence now when configured and calibrated to meet these standards, which do not take effect until

[188] *See* ISOR Section IV.C.3., p. 109, et seq.

[189] *See* ISOR, p. 117.

[190] *See* ISOR, Section IV.C.5, p. 116, et seq.

[191] See FSOR, App. B Summary of Comments to the Low-Emission Vehicle Regulation and Agency Response, pp. 35-37, and 2nd 15-day Notice References CARB2022xxx, CARB2022yyy, and CARB2022zzz, Attachments 15, 16, 17.

[192] See ISOR, pp.; App. H, ACC II LEV Technology Appendix, pp. 38-40.

model year 2027. Further, the regulations include adjustment factors to allow a gradual implementation of the requirements in the initial model years.[193]

The reduced fleet-average and standalone aggressive driving emission standards are similarly being met now, several years ahead of their required dates, by several vehicles. Other standards can be met with hardware and software changes using existing technologies and calibrating engine performance and emission controls to reduce emissions under a wider range of operating conditions, such as during cold starts.[194] Available changes are increased catalyst content, changes to wall structure and density to increase catalytic reduction at lower temperatures and higher rates, moving hardware closer to exhaust manifolds or changing engine timing to accelerate warming of catalysts, changes to cylinder and fuel injector design to increase combustion and reduce oil intrusion, and improvements in air-to-fuel ratios.

For MAW in-use testing, manufacturers are provided several different flexibilities in the test procedures. MDVs that are greater than 14,000 lbs. GCWR must meet the MAW requirements but are not required to meet the in-use testing requirements for the chassis dynamometer. The MAW test procedures give manufacturers the option of additional days to conduct testing, different methods for determining a family certification level (FCL), flexibilities with trailer equipment, vehicle screening, vehicle preparation, and allowing manufacturers to request modifications to testing requirements under certain circumstances. Additionally, there are exclusions and a larger conformity factor provided to model years 2027 through 2029 which gives manufacturers additional lead time to meet the final standards in 2030.

c. The OBD Amendments are Technically Feasible in the Lead Time Provided.

The ACC II Regulations amend the OBD regulations to be consistent with the new LEV IV emission standards and additional emission bins and ensure the OBD systems will properly monitor and timely detect malfunctions in emission control systems. These amendments were coordinated with substantive amendments to CARB's OBD system requirements that became effective on November 22, 2022, through a separate rulemaking proceeding. The OBD amendments that are part of the ACC II Regulations can be met in the time provided. They do not require development of new equipment. Aside from the time necessary to make the adjustments, the requirements and revised detection thresholds can be met with existing systems.[195]

[193] *See* ISOR, pp. 122-124.

[194] *See* ISOR, pp. 126-127, 129-130.

[195] *See* ISOR, pp. 131-132. As explained in the ISOR, CARB expects to adopt amended detection thresholds in a future proceeding.

d. The LEV IV Evaporative Standards are Technically Feasible in the Lead Time Provided.

i. The Running Loss Standards

The running loss standards are technically feasible in the time provided because almost all the vehicles already meet them, and the remaining vehicles are capable of meeting them with minimal improvements. For the 2021 model year, 92% of the fleet is certified as meeting the standard.[196] These vehicles span the full range of sizes, classes, and powertrain technologies. The certification data and discussions with manufacturers and suppliers show there were no known technical reasons that the remaining vehicles could not meet the requirements, which will mostly consist of fuel system modifications to reduce heating of the fuel tank, which in turn reduces fuel vapor formation and thus evaporative emissions.

ii. Canister Size

The canister size requirement is estimated to apply to only about 6% of new vehicles, primarily PHEVs, and many of those already have canisters of sufficient capacity.[197] Manufacturers are expected to be able to meet these requirements because all vehicles with combustion engines already have a canister and increasing the size or capacity of this canister requires only minor modifications to existing designs. The requirement does not apply until the 2028 model year, providing sufficient lead time for manufacturers to integrate larger canisters into their vehicles.

e. The Auxiliary Fuel System Evaporative Emission Requirements are Technically Feasible in the Lead Time Provided.

The requirements for auxiliary fuel systems are premised on existing regulations.[198] CARB expects this requirement will only apply to a small portion of future vehicles (if any), and that because the standards are existing, the technologies already in use to control evaporative emissions on fuel systems can be deployed to control emissions from auxiliary fuel systems.

f. The ZEV Standards are Technically Feasible in the Lead Time Provided.

California leads the U.S. ZEV and PHEV market, with 18.8% of sales for the 2022 model year, growing from 7% in the 2018 model year. The growing number of ZEV and PHEV models driven by advancements in technology and increasing manufacturer

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[196] *See* Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, Att. O, Additional Documents or Incorporated Documents Added to the Record, Attachment 18, MY2021 Evaporative Running Loss Emission Certification Data, CARB 2022j, Attachment 19.

[197] *See* Second Notice of Public Availability of Modified Text and Availability of Additional Documents and Information, Additional Documents or Incorporated Documents Added to the Record, estimate of percentage of new vehicles sold in California which have a Non-Integrated Refueling Canister Only System (NIRCOS), CARB 2022www, Attachment 20.

[198] *See* ISOR, App. F-1, pp. F-1-13-14, F-1-89.

commitments, continued expansion of California's charging and hydrogen fueling network, and the state's commitment to strong electric vehicle incentives has helped to maintain and grow that market share in recent years. As manufacturers continue to bring new products to market, ZEV and PHEV market share is expected to continue to increase, with BEVs expanding their portion of that share over time. As discussed in the ISOR beginning at page 13, ZEV technology is steadily improving, costs are declining, manufacturer investments are expanding, and consumer demand is growing.[199] The ZEV standards can be met in the time provided.

i. Expansion Into New Segments

Much of the market growth of ZEVs is attributed to improvements in ZEV technology. The industry has rapidly responded to evolving market pressures, consumer demands, and regulatory requirements in California, across the U.S., and around the globe. Overall, these improvements have reduced costs for batteries, the main driver of BEV and PHEV costs, as well as for non-battery components. This has enabled manufacturers to accelerate plans to bring to market more long-range ZEVs in more market segments and highly capable PHEVs. Looking to the future of electric drive technologies in the 2026 to 2035 model year timeframe, it is anticipated there will be even greater efficiency improvements, longer ranges, and comparable vehicle offerings and capabilities across all passenger car and truck categories and comparable costs to conventional vehicles with internal combustion engines.

Every light-duty vehicle manufacturer has made commitments to electrify their product line. For instance, in January 2021, General Motors (GM) announced plans to become carbon neutral by 2040, including significant investments in battery technology and a goal to shift its light-duty vehicles entirely to zero-emissions by 2035. In March 2021, Volvo announced plans to make only electric cars by 2030, and Volkswagen announced that it expects half of its U.S. vehicle sales will be all-electric by 2030. In April 2021, Honda announced a plan to fully electrify its vehicles by 2040, with 40-percent of its North American vehicle sales expected to be fully electric or fuel cell vehicles by 2030, 80% by 2035, and 100% by 2040. In May 2021, Ford announced that it expects 40% of its global light-duty vehicle sales will be all-electric by 2030. In June 2021, Fiat announced a move to all-electric vehicles by 2030, and in July 2021 its parent corporation, Stellantis announced an intensified focus on electrification across all its brands. Also in July 2021, Mercedes-Benz announced that all its new architectures would be electric-only from 2025, with plans to become ready to go all-electric by 2030 where possible. More recently, Mercedes followed these announcements with a US battery plant to power their transformation. This is in addition to the unprecedented market performance of Tesla, which has significantly grown since its 2008 debut and is projected to continues to expand its vehicle line and sales volumes.

[199] Although not relevant to the evaluation whether to grant a waiver, complimentary policies are being pursued to ensure that the market will be able to accommodate the increasing numbers of ZEVs under the ACC II Regulations. *See* ISOR, p. 26, et seq.

ZEVs and PHEVs are also expanding across more and more market segments, including some of the most difficult segments to electrify, like long-range battery-electric pickup trucks and large SUVs. Ford currently offers the F-150 Lightning pickup, Rivian its R1T pickup and R1S large SUV, and GM its Hummer EV Pickup, all with over 300 miles of range. Rivian, GM, Stellantis, Tesla, and many other manufacturers are bringing other battery electric pickups and large SUVs to the market soon with ranges over 300 miles. PHEV options are also increasing into larger SUV segments, like the Volvo XC90 and BMW X5, and FCEV technology is available in the large sedan and mid-size SUV segments.

Manufacturers are exceeding CARB's current ACC I ZEV requirements and the technology is capable of meeting the requirements of the ACC II ZEV regulations. Manufacturers annually submit alternative fuel vehicle sales projections to CARB, including projections for BEVs, PHEVs, and FCEVs, primarily to help staff with future infrastructure planning. Projections are required for three model years beyond the upcoming model year, meaning the 2021 projections included 2022, 2023, and 2024 model year projections, and some manufacturers provided additional projections beyond the 2024 model year. These projections are analyzed and iterated upon during follow-up meetings with manufacturers and kept strictly confidential; the responses to the surveys indicate that they are planning to meet the requirements of the ACC II Regulations.

ii. Dedicated Platforms

Earlier in the development of plug-in electric vehicles (PEVs, representing both BEVs and PHEVs), manufacturers used shared and dedicated platforms for their PEV offerings; however, most manufacturers have shifted to dedicated platforms as they electrify their fleets. Use of a global shared platform allows commonality across models and international markets for increased volumes and reduced costs, while also allowing for a higher level of optimization specifically for the PEV technology. Dedicated BEV platforms eliminate provisions for internal combustion engine (ICE) powertrains, controls for exhaust and evaporative emissions, and fuel systems that would otherwise need to be accommodated on platforms that are shared between BEVs, PHEVs, HEVs, and conventional models. This dedicated BEV platform approach typically allows integration of the battery pack entirely within the vehicle floor structure, reduces vehicle weight, reduces manufacturing costs, increases available passenger and cargo volume and in some cases has the battery pack integrated as part of the vehicle's crash mitigation structure.

iii. All-Electric Range Increases and Battery Improvements

BEV technology has progressed quickly since the introduction of the Nissan LEAF, the first widely available BEV, in 2010. BEVs are becoming highly functional and marketable vehicles with integrated platform designs, leading to increased range and efficiency. Significant improvements in range can be seen in BEV offerings from many manufacturers, such as Ford, General Motors, Nissan, Tesla, and Volkswagen (VW). Range increases have come from several technology advancements, including

manufacturers moving to dedicated BEV platforms that have further improved total vehicle efficiency, mass, and available space for larger battery packs to respond to consumer demand. The median driving range of BEVs has increased from 68 miles for the 2011 model year to 234 miles in the 2021 model year. There are BEV models certified for the 2022 model year to a maximum range of 520 miles, such as the Lucid Air. While the median range for gasoline vehicles was 403 miles, as more long-range BEVs become available the discrepancy in ranges between gasoline-powered vehicles and BEVs is likely to continue to narrow.

FCEVs currently on the market have more than 300 miles of range, and significant increases have been demonstrated between redesigns and new models by automakers. For example, the 2016 model year Toyota Mirai is certified with 312 miles of range, and the 2022 model year Mirai increased that to 402 miles of range despite the vehicle growing in size and mass. FCEV technology appears to move into larger vehicle segments, like pickup trucks and large SUVs, while remaining above 300 miles of range and retaining the ability to refuel very quickly.[200]

PHEV technology also continues to evolve as manufacturers introduce different architectures and all-electric capabilities in response to consumer demand for a more all-electric driving experience. Toyota increased the equivalent all-electric range of the Prius plug-in hybrid that was introduced for the 2012 model year by 127% in five years with the introduction of the 2017 Prius Prime that is also capable of completing the US06 drive cycle under electric power alone. Four model years later, Toyota introduced the larger 2020 RAV4 Prime with a 68% equivalent all-electric range (EAER) improvement over the Prius Prime and 281% improvement over the original Prius Plug-in Hybrid. The RAV4 Prime also includes all-wheel drive (AWD) and even more all-electric power than the Prius Prime. Ford has also improved their PHEVs with their second-generation products. The C-MAX and Fusion Energi plug-in hybrids both debuted for the 2013 model year with 20 miles of EAER. The larger Ford Escape PHEV debuted for the 2020 model year and the much larger Lincoln Aviator PHEV also debuted for the 2020 model year with three rows of seating and 21 miles of EAER. Other manufacturers have also increased range in their PHEV offerings, like Volvo with their T8 variants (XC60, XC90, V60, S60, and S90 vehicles), Karma with its Revero GT, BMW with its 'e' variants of the X5, 3 series, and 7 series, Hyundai with its Ioniq, Santa Fe, and Tucson, and Kia with their Sorento and Niro. Jaguar Land Rover also recently announced the Range Rover P440e with 48 miles of EAER for the 2023 model year.

iv. Technology to Meet Minimum ZEV Requirements

Staff projects that there will be 179 compliant ZEV and PHEV models available by the 2025 model year. All but one ZEV will meet the minimum range requirements adopted in the ACC II ZEV regulation. Additionally, virtually all BEVs already meet, or can meet, the Combined Charging Standard (CCS) requirements in the ZEV Regulation. Those

[200] *See* ISOR, Appendix G, ZEV Technology Assessment, Table 2, Attachment 21, as amended, First 15-Day Notice, Attachment P – Revised Tables to ISOR Appendix G, ACC II ZEV Technology Assessment, Attachment 22.

that do not, particularly Tesla vehicles, can meet that requirement by supplying an adapter it offers with the vehicle to customers at the time of sale. Most ZEVs and PHEVs currently for sale also already meet the new on-board charging requirements, and while some models, like the RAV4 Prime, debuted with lower power on-board chargers, they have been upgraded on newer model years that meet or exceed the ZEV Regulation requirements.

Improvements in battery technology and electric vehicle components mean most electric vehicles on the road today are already able to maintain 80% of the vehicle's original battery capacity for 10 years or 150,000 miles, which is beyond the ZEV durability requirement. Additionally, manufacturers are typically already offering warranties beyond what is offered for gasoline vehicles with many at 10 years or 100,000 miles, or even more for both powertrain components and batteries. When looking at the United States Advanced Battery Consortium electric vehicle battery goals for a battery life of 15 years, an analysis of Panasonic NCR18650PD lithium-ion cells revealed capacity loss was well within the 80% benchmark even at varying temperatures. Tesla's extensive customer fleet of Model S and X vehicles showed less than 15% battery degradation, on average, for vehicles that drove between 150,000 and 200,000 miles by 2019, and by 2020 these vehicle batteries degraded only approximately 10% on average after 200,000 miles traveled, demonstrating remarkable durability of the lithium-ion batteries.[201]

Hyundai's fuel cells are also reported to have increased their expected durability from 3,000 hours/100,000 km (62,000 miles) in their first-generation system to a target 500,000 km (310,000 miles) in their next-generation fuel cell system for commercial applications. Durability across the FCEV fleet has also improved over the past 15 years. The National Renewable Energy Lab (NREL) assessed data from FCEVs to measure progress and compared it to the durability targets set by the United States Department of Energy (DOE). NREL revealed that 22% of the vehicles had over 2,000 operation hours and a maximum operation time of 5,648 hours. It was also shown that from 2006 through 2016 the average fleet durability went from 1,000 hours to 2,000 hours and the maximum fleet average durability saw an increase from 2,000 hours to 4,000 hours. Using this data, NREL projected 4,130 hours as a maximum fleet average durability with only a 10% voltage degradation. The increase in durability hours is an indicator that technology advancements are enabling higher durability times in FCEVs; however, as indicated by NREL, meeting the targets set by DOE may take a few years. Ultimately, the DOE aims for 8,000 hours with 150,000 driving miles and 10% degradation. The fuel cell systems have also increased total power over time while becoming more compact due to increasing system power density. Toyota has reported similar gains between its first and second-generation Mirai. The second-generation model, released in model year 2021, is 20% smaller, 50% lighter, and 12%

[201] *See* ISOR, App. G, p. 37.

more powerful than the fuel cell in the first-generation Mirai. The second-generation Mirai list price was also approximately $9,000 less than its predecessor.[202]

v. Exemptions and Compliance Provisions Provide Additional Flexibility

While the technology exists to meet the requirements in the time provided, the ACC II Regulations provide several flexibilities to ease compliance.

The primary flexibility is in the transition from the ACC I program to the ACC II program. Credits from the ACC I program are available, subject to limitations, to comply with the ACC II Regulations.[203]

Compliance may also be met with vehicle values that are pooled from other states that adopted California's standards, or from a limited percentage of sales of PHEVs or FCEVs rather than ZEVs. The regulations also provide options for how these values may be applied, either annually or cumulatively, depending on a manufacturer's needs.[204]

Manufacturers may also meet part of their requirements by providing ZEVs at reduced prices to community mobility programs, selling ZEVs or PHEVs that were initially leased in California at the end of a lease to a California dealership participating in a financial assistance program, and offering ZEVs at reduced prices to enhance affordable access to clean transportation.[205]

In addition, manufacturers who deliver for sale more than 20% of new vehicle sales on average in the two model years prior to the new ZEV regulation requirements, if a total sales average above 7% ZEVs and PHEVs in 2020 through 2022, may optionally bank values associated with those vehicles above 20% sales for use in the 2026 through 2028 model year. If 2020 through 2022 ZEV and PHEV sales average below 7%, a manufacturer that delivers for sale more than 7% of new vehicle sales on average in the two model years prior to the new regulation requirements can earn values to use in the first three years after the new ZEV regulation requirements commence. These early compliance values may meet up to 15% of a manufacturer's annual ZEV requirement and are treated as though they were earned in the model year.[206]

g. The Lead Time Was Not Disputed.

No comments were submitted disputing that the ACC II Regulations provide adequate lead time. Some comments raised aspects of the timing of the requirements, such as a

[202] *See* ISOR, App. G, pp. 29-30.

[203] Cal. Code Regs., tit. 13, § 1962.4(g)(2).

[204] Cal. Code Regs., tit. 13, § 1962.4(g).

[205] Cal. Code Regs., tit. 13, § 1962.4(e)(2).

[206] Cal. Code Regs., tit. 13, § 1962.4(e)(3).

request for different timing for harmonization with other requirements[207] or different rates of achieving the benefits of the regulation,[208] but these comments presented a different issue than lead time.

As demonstrated above and the rulemaking record for the ACC II Regulations, the Regulations' requirements for the 2026 and subsequent model years are technologically feasible, within the lead time provided.

2. CARB Considered the Costs, Which are Reasonable.

CARB appropriately considered the cost of compliance with the ACC II Regulations by estimating the costs and savings associated with every element of the Regulations that affects the costs of affected engines and vehicles; i.e., it conducted an "all-in" cost analysis of the elements of the Regulations. These costs are discussed in detail in the Statement of Economic Impacts, Form 399, and related attachments,[209] and the Standardized Regulatory Impact Assessment (SRIA).[210]

The cost of complying with the LEV IV regulations is largely the same as for the existing LEV III requirements. The additional costs, which are minor, are the costs needed to meet the new requirements to reduce emissions under a wider range of operating conditions. These are the stand-alone US06 aggressive driving standards, the particulate matter standards, the cold-start standards, and the running loss and carbon canister standards. These requirements can be met through calibrating engine and emission controls, engine software, and improvements in control technology, particularly catalysts for treating engine exhaust. There will also be costs for additional testing, including the on-road PEMS testing for MDVs.

The compliance costs associated with the ZEV regulation include: (1) costs of complying with the ZEV percentage requirements for the fleet, and (2) costs of complying with the ZEV assurance measures. To calculate costs to manufacturers to comply with the ZEV regulation, it is assumed that manufacturers produce a BEV, FCEV, or PHEV instead of a conventional vehicle to offer customers. Staff estimated manufacturers would comply by applying the lowest-cost technology packages that are available in each model year capable of meeting the expected or desired performance of each vehicle segment to be produced. Staff also compared costs considering the savings from not producing a conventional engine and transmission powertrain and associated assembly costs and savings. Fixed costs of production like capital equipment are inherent and included in the costs of developing each subsystem.

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[207] *Cf., e.g,* FSOR, App. B, Summary of Comments to the LEV Regulation and Agency Response, comment no. 13, T1-19, T1-20, B1-1, p. 8, Attachment 23.

[208] *Cf., e.g.,* FSOR, App. C, Summary of Comments to ZEV Regulation and Agency Response, Opposition – Strengthen ZEV Stringency, p. 3, et seq., Attachment 24.

[209] Attachment 25.

[210] Attachment 26.

The ACC II Regulations will also require BEVs, FCEVs, and PHEVs to meet a suite of ZEV assurance measures, which include requirements related to durability, battery warranty, battery labeling, service information, onboard data standardization, charging standardization, and convenience cords.[211] Manufacturers that only produce ZEVs today are currently not subject to these requirements and thus may incur costs meeting them. Manufacturers of conventional vehicles currently meet similar requirements for the engines and may incur additional or different costs for meeting these requirements with their ZEVs. For ZEV-only manufacturers that currently are not subject to requirements to ensure the integrity and durability of emission control systems on conventional engines, there will be some additional recordkeeping and reporting costs due to these proposals. There will also be costs added for battery labeling. Similarly, manufacturers that have historically produced conventional vehicles would continue to incur these costs for all their vehicles, whether powered by conventional engines or ZEV technology and thus would not incur increased costs for ZEVs.

As a whole, the per-vehicle incremental cost of the ACC II Regulations range from $440 in the 2026 model year to as high as $1,181 in 2031, then decline to an estimated $1,119 in the 2035 model year.[212] These costs are well under 5% of the average price of a new vehicle and provide net savings to consumers. They are reasonable and can be accommodated in the time provided.

The cost-effectiveness of the Regulations is estimated to be 1.43. For the analyzed period of the regulations from 2026 through 2040, the ACC II Regulations are estimated to impose costs of $210.35 billion but deliver total benefits of $301.41 billion.[213]

3. CARB's Test Procedures Present No Issue of Consistency.

Under the ACC II Regulations, new standards have been adopted for conditions that were not subject to direct standards before. Examples include intermediate vehicle soak times before restarting plug-in hybrid electric vehicles that encounter an initial engine start under higher engine power. However, even these new standards rely predominantly on existing test procedures and cycles with slightly different

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[211] *See* SRIA, p. 65.

[212] A detailed description of all factors included in CARB's cost analysis is fully set forth in Section X of the ISOR, pp. 155-168, and the associated SRIA, pp. 49-86. See also ISOR, App. G, ACC II ZEV Technology Assessment, pp. 49-70; App. H, ACC II LEV Technology Appendix, p. H-8 [costs previously considered when emissions standards adopted in ACC Rulemaking for LEV III standards], Attachment 27. Second Notice of Public Availability of Additional Documents, Proposed Advanced Clean Cars II Regulations, CARB 2022aaaa, OEM Cost Calculator for 75% ZEVs by 2030, Attachment 28. This workbook estimates total OEM costs and ZEV technology sales fractions associated with the 75% in 2030 scenario described in the 15-day notice. Updated overall costs are in FSOR, App. F, Updated Costs and Benefits Analysis, pp. 14-16.

[213] FSOR, App. F, Updated Costs and Benefits Analysis, p. 22.

preconditioning requirements that can be accomplished with minimal additional tests beyond those currently required.

The California running loss evaporative emission standard has been set to a more stringent value but the test procedures to show compliance remain the same as they exist under the ACC Regulations. The new ACC II requirements that apply to vehicles with a specific type of pressurized evaporative emission control system do not require any additional testing to demonstrate compliance and solely consist of additional calculations carried out on parameters of the vehicle determined during the existing testing procedures.

CARB is not aware of any instances in which a manufacturer is precluded from conducting one set of tests on a light- or medium-duty vehicle to determine compliance with both California and federal requirements. The ACC II regulations establish emissions standards and associated test procedures that only apply to California-certified light- and medium-duty engines and vehicles, but those California-specific requirements do not preclude a manufacturer from complying with both California and federal test requirements with one test engine or vehicle.[214] Further, in some of these cases, the ACC II Regulations provide for the vehicle manufacturer to attest to compliance with the new standard in lieu of running any additional tests.

4. The ACC II Regulations are Consistent with Section 202(a).

As discussed throughout this request, the Administrator cannot find California's requirements are inconsistent with section 202(a) and must accordingly grant California the requested waiver action. Specifically, the ACC II Regulations will not render California's program –which EPA has previously determined to be consistent with Section 202(a)—infeasible or otherwise inconsistent with Section 202(a).

VII. CONCLUSION

Based on the foregoing, CARB respectfully requests that the Administrator grant California's requests and waive preemption as described in this document pursuant to CAA section 209.

VIII. CARB CONTACTS FOR FURTHER INFORMATION

Technical questions or requests for additional technical information on this item should be directed to Michael McCarthy, Chief Technology Officer, Emissions Certification and Compliance Division, at michael.mccarthy@arb.ca.gov. Legal questions should be directed to Pippin C. Brehler, Senior Attorney, Legal Office, at pippin.brehler@arb.ca.gov.

[214] Even where there is incompatibility between the California and federal test procedures, EPA has granted a waiver under circumstances where EPA accepts a demonstration of federal compliance based on California test results, thus obviating the need for two separate tests. 43 Fed. Reg. 1,829, 1,830 (Jan. 12, 1978); 40 Fed. Reg. 30,311, 30,314 (July 18, 1975).

IX. REFERENCE MATERIALS FROM ACC II RULEMAKING

The following references are attached to this request:

1. CARB, Resolution 22-12, https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2022/res22-12.pdf
2. CARB, Staff Report: Initial Statement of Reasons, April 12, 2022, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf
3. CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and Information (First 15-Day Notice), July 12, 2023, Notice of Public Availibility (sic)
4. CARB, Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsor.pdf
5. CARB, Errata and Comment Period Extension on First 15-Day Notice, July 13, 2023, Errata (ca.gov)
6. CARB, Second Notice of Public Availability of Additional Documents (Second 15-Day Notice), August 8, 2023, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/2nd15daynotice.pdf
7. California Office of Administrative Law Approval with regulatory text, November 30, 2022
8. CARB, Advanced Clean Cars II Adopted and Amended Test Procedures
9. CARB, Notice of Public Hearing to Consider Proposed Advanced Clean Cars II Regulations, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/notice.pdf
10. CARB, Initial Statement of Reasons, App. F-1, Purpose and Rationale for Proposed Changes to Title 13, CCR and Incorporated Test Procedures, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appf1.pdf
11. CARB, Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response, Appendix F, Updated Costs and Benefits Analysis, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappf.pdf
12. CARB, Advanced Clean Cars II: Criteria Pollutant Emission Estimates for ZEV and LEV IV Elements, May 11, 2023
13. CARB, 2020 MY Cert Data for CO, Reference CARB 2022m, in First 15-Day Notice, Attachment O

14. CARB, 2020 MY Data for US06 vs FTP NMOG+NOx, Reference CARB 2022n, in First 15-Day Notice, Attachment O
15. PEMS data of MY2020 Ford F250 class 2b gasoline used for MAW analysis, Reference CARB 2022xxx, in Second 15-Day Notice
16. PEMS data of MY2021 Silverado 2500 Class 3 gasoline used for MAW analysis, Reference CARB 2022yyy, in Second 15-Day Notice
17. Calculations for FCL and MAW data of MY2020 Ford F250 gasoline class 2b, Reference CARB 2022zzz, in Second 15-Day Notice
18. CARB, First 15-Day Notice, Attachment O, Additional Documents or Incorporated Documents Added to the Record
19. MY2021 Evaporative Running Loss Emission Certification Data, Reference CARB 2022j, First 15-Day Notice, Attachment O
20. Estimate of percentage of new vehicles sold in California which have a Non-Integrated Refueling Canister Only System (NIRCOS), Reference CARBwww, in Second 15-Day Notice
21. CARB, Initial Statement of Reasons, App. G, ZEV Technology Assessment, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appg.pdf
22. CARB, First 15-Day Notice, Attachment P – Revised Tables to ISOR Appendix G, ACC II ZEV Technology Assessment, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/attp.pdf
23. CARB, Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response, Appendix B, Summary of Comments to the Low-Emission Vehicle Regulation and Agency Response, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappb.pdf
24. CARB, Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response, Appendix C, Summary of Comments to the ZEV Regulation and Agency Response, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/fsorappc.pdf
25. CARB, Statement of Economic Impacts, Form 399, and related attachments
26. CARB, Standardized Regulatory Impact Assessment
    a. Standardized Regulatory Impact Assessment, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appc1.pdf, and

b. Summary and Response to Department of Finance Comments, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appc2.pdf

27. CARB, Initial Statement of Reasons, App. H, LEV Technology Assessment, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/apph.pdf
28. CARB OEM Cost Calculator, Reference CARB2022aaaa, in Second 15-Day Notice
29. CARB, Hearing Transcript, June 9, 2022
30. CARB, Hearing Transcript, August 25, 2022
31. CARB, Notice of Decision, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/nod.pdf
32. CARB, Request for Early Effective Date