

The California Low-Emission Vehicle Regulations

(With Amendments Effective April 1, 2022)

The California low-emission vehicle (LEV) regulations are administered by the California Air Resources Board (CARB) and apply to passenger cars, light-duty trucks, and medium-duty vehicles. They are contained in various sections of chapter 1 (Motor Vehicle Pollution Control Devices), division 3 (Air Resources Board), title 13, California Code of Regulations (CCR), which commences with section 1900. The LEV exhaust emission standards were originally adopted in a 1990-1991 rulemaking, and generally became applicable in the 1994 model year. The LEV program also includes requirements for the introduction of zero-emission vehicles (ZEVs).

The LEV I (Criteria Pollutant) Regulations

The LEV I standards are contained primarily in section 1960.1, which includes all of the California exhaust emission standards for 1981 through 2003 model-year passenger cars, light-duty trucks and medium-duty vehicles.

[§ 1960.1. Exhaust Emission Standards and Test Procedures - 1981 through 2006 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.](#)

The key portions of section 1960.1 pertaining to the LEV I program are:

- § 1960.1(e)(2) Formaldehyde exhaust emission standards for 1993-2003 model methanol-fueled passenger cars, light-duty trucks and medium-duty vehicles.
- § 1960.1(e)(3) Formaldehyde exhaust emission standards for 1992-2006 model LEV I TLEVs, LEVs, ULEVs and SULEVs in the passenger car, light-duty truck, and medium-duty vehicle classes.
- § 1960.1(f)(2) The non-LEV so-called “Tier 1” standards for 1995 through 2003 model passenger cars and light-duty trucks.
- § 1960.1(g)(1) The “LEV I” TLEV, LEV and ULEV standards for passenger cars and light-duty trucks.
- § 1960.1(g)(2) The fleet average non-methane organic gas (NMOG) requirements for passenger cars and light-duty trucks for the 1994 through 2000 model years (the fleet average NMOG requirements for the 2001-2003 model years are now in section 1961(b)(1)(A)). The fleet average NMOG mechanism requires manufacturers to introduce an incrementally cleaner mix of Tier 1, TLEV, LEV, ULEV and ZEV vehicles each year, with the fleet average NMOG value for passenger cars and lighter light-duty trucks decreasing from 0.25 gram/mile in the 1994 model year to 0.062 gram/mile in the 2003 model year.
- § 1960.1(h)(1) The non-LEV so-called “Tier 1” standards for 1995-2003 medium-duty vehicles.

- § 1960.1(h)(2) The “LEV I” LEV, ULEV and SULEV standards for medium-duty vehicles (the phase-in requirements are in note (10) to the table in section 1960.1(h)(2)).
- § 1960.1(p) The cold temperature carbon monoxide standards for 1996-2000 model vehicles.

In addition, section 1960.1(q) and (r) contain the following Supplemental Federal Test Procedure (SFTP) standards which apply to both LEV I and LEV II vehicles:

- §1960.1(q) The SFTP standards for 2001 and subsequent model passenger cars and light-duty trucks other than LEVs, ULEVs, and ZEVs (the phase-in requirements are in note (9) to the table in §1960.1(q)).
- §1960.1(r) The SFTP exhaust emission standards for 2001 and subsequent model LEVs and ULEVs in the passenger cars and light-duty truck classes, and 2003 and subsequent LEVs, ULEVs, and SULEVs in the medium-duty classes (the phase-in requirements are in note (10) to the table in §1960.1(r)).

Section 1956.8, which establishes exhaust emission standards for heavy-duty vehicles, contains two subsections containing optional standards for engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles. Engines subject to this option are tested in accordance with the heavy-duty test procedures incorporated by reference in section 1956.8(b) and (d).

- §1956.8(g) Tier 1 exhaust emission standards for 1995 through 2003 model engines used in incomplete medium-duty vehicles.
- §1956.8(h) LEV, ULEV, SULEV standards for engines used in incomplete medium-duty vehicles, and for diesel engines used in medium-duty LEVs, ULEVs and SULEVs.

The LEV I standards in the subsections of section 1960.1 listed above are also contained in a comprehensive document incorporated by reference in section 1960.1(k) – the “California Exhaust Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.” This document is available here on [CARB’s Internet site for Low-Emission Vehicle Regulations & Test Procedures](#). To reduce testing burdens, CARB has to the extent feasible based the California test procedures on the corresponding federal test procedures administered by U.S. EPA. The Standards and Test Procedures document accordingly incorporates the federal test procedures contained in subparts A, B, and C, Part 86, Title 40, Code of Federal Regulations with modifications for the California program.

The LEV II (Criteria Pollutant) Regulations

Following a November 5, 1998 hearing, CARB adopted the California “LEV II” regulations, which generally become applicable with the 2004 model year (although earlier certification to the LEV II standards is permitted). The LEV II rulemaking also included the adoption of Compliance Assurance Program “CAP 2000” amendments which establish new motor vehicle certification and in-use test requirements – developed jointly with the U.S. Environmental Protection Agency – applicable to 2001 and subsequent model motor vehicles. The original LEV standards are now referred to as the “LEV I”

standards. Amendments adopted December 7, 2000 require manufacturers to market in California any vehicle models that are certified to federal “Tier 2” exhaust emissions standards for sale outside California that are more stringent than the California LEV exhaust emission standards to which the manufacturer would otherwise certify the equivalent California model, which could occur through compliance with federal Tier 2 exhaust emission standards that authorized offsetting emission rates between certification categories for vehicle emission rates.

The LEV II exhaust emission standards and requirements are contained in section 1961 and were phased in over the 2004 through 2007 model years. One of the major changes made by the LEV II standards is that all light-duty trucks will be subject to the same emission standards as passenger cars, and vehicles under 8500 lbs. gross vehicle weight (including sport utility vehicles) that had previously been treated as medium-duty vehicles will start to be treated as light-duty trucks.

§ 1961. Exhaust Emission Standards and Test Procedures - 2004 through 2019 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Section 1961 includes the following subsections:

- § 1961(a) The LEV II exhaust emission standards.
- § 1961(b) The LEV II emissions standards phase-in requirements (including: fleet average NMOG requirements for passenger cars and light-duty trucks in section 1961(b)(1); a schedule containing the minimum percentages of 2004-2007 passenger cars and light-duty trucks that must be certified to the LEV II rather than LEV I standards in section 1961(b)(2); and medium-duty vehicle phase-in requirements in section 1961(b)(3)). The amendments adopted in December 2000 regarding the instances in which federally-certified Tier 2 vehicles are required in California are contained largely in section 1961(a)(14).
- § 1961(c) Calculation of NMOG credits and debits.
- § 1961(d) Test Procedures, incorporating the “California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” and, with respect to hybrid-electric vehicles, reference the “California Exhaust Emission Standards and Test Procedures for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962 and the “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962.1, all of which are available here on [CARB’s Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).
- § 1961(e) Abbreviations.

Another element of the LEV II regulations is the LEV II evaporative emission standards, which are contained in section 1976(b)(1)(F) and are phased in during the 2004 - 2006 model years. The preexisting evaporative emission standards are in section 1976(b)(1)(B) and (C).

The (“Pavley”) Greenhouse Gas Regulation

In September 2004, CARB approved the “Pavley” regulation to control greenhouse gas emissions from new LEV II vehicles beginning with the 2009 model year. This emission regulation adds to the vehicular criteria and toxic air contaminant emissions that California was already regulating four greenhouse gas air contaminants – carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and hydrofluorocarbons (air conditioner refrigerants). This rulemaking established a declining fleet average standard for these gases, with separate standards for the lighter and heavier portions of the passenger vehicle fleet. The greenhouse gas regulation delayed compliance for small, independent low volume, and intermediate size manufacturers. The regulation also provided alternative compliance methods including credit generation from alternatively-fueled vehicles, and averaging, banking, and trading of credits within and among manufacturers. To ensure compliance with the adopted standards, the rulemaking also required additional certification emissions testing for the covered greenhouse gases.

The greenhouse gas emission regulation was approved by OAL on September 15, 2005 and includes standards for 2009 through 2016 model-year passenger cars, light-duty trucks, and medium-duty vehicles, which are contained in section 1961.1.

[§ 1961.1. Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2009 through 2016 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.](#)

Section 1961.1 includes the following subsections:

- § 1961.1(a) The Greenhouse Gas Emission Requirements (including fleet average greenhouse gas requirements for passenger cars, light-duty trucks, and medium-duty passenger vehicles in section 1961.1(a)(1)(A), procedures for calculating fleet average greenhouse gas values in section 1961.1(a)(1)(B), requirements specific to intermediate volume manufacturers in section 1961.1(a)(1)(C), and requirements specific to small volume manufacturers and independent low volume manufacturers in section 1961.1(a)(1)(D)).
- § 1961.1(b) Calculation of Greenhouse Gas credits and debits.
- § 1961.1(c) Test Procedures, referencing the incorporated “California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles” and, with respect to hybrid-electric vehicles and on-board fuel-fired heaters, referencing the incorporated “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” both of which are available here on [CARB’s Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).
- § 1961.1(d) Abbreviations.
- § 1961.1(e) Definitions specific to section 1961.1
- § 1961.1(f) Severability.

§ 1961.1(g) Effective date of section 1961.1

The LEV III Regulations

The LEV III exhaust emission standards and requirements are contained in sections 1961.2 and 1961.3 and will be phased in over the 2015 through 2025 model years. The LEV III regulations include criteria pollutant emission standards (§1961.2) and greenhouse gas emission standards (§1961.3). The LEV III regulations were adopted as part of California's Advanced Clean Cars program, which also included new requirements for zero-emission vehicles (ZEVs). The Advanced Clean Cars program combined the control of smog-causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2015 through 2025 and assures the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect.

§ 1961.2. Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Section 1961.2 includes the following subsections:

- § 1961.2(a) The LEV III criteria pollutant exhaust emission standards.
- § 1961.2(b) The LEV III criteria pollutant emissions standards phase-in requirements (including: fleet average NMOG+NO_x requirements for passenger cars, light-duty trucks, and medium-duty passenger vehicles in section 1961.2(b)(1); the LEV III criteria pollutant phase-in requirement for passenger cars, light-duty trucks, and medium-duty passenger vehicles in section 1961.2(b)(2); the LEV III criteria pollutant phase-in requirement for medium-duty vehicles, other than medium-duty passenger in section 1961.2(b)(3); and LEV III SFTP phase-in requirements in section 1961.2(b)(4)).
- § 1961.2(c) Calculation of NMOG+NO_x credits and debits.
- § 1961.2(d) Test Procedures, incorporating the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as amended December 6, 2012, the "California Non-Methane Organic Gas Test Procedures," as amended December 6, 2012, which are incorporated herein by reference. In the case of hybrid electric vehicles and onboard fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2, all of which are

available here on [CARB's Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).

§ 1961.2(e) Abbreviations.

§ 1961.2(f) Severability.

§ 1961.3. Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2017 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

Section 1961.3 includes the following subsections:

§ 1961.3(a) The LEV III greenhouse gas emission requirements.

§ 1961.3(b) Calculation of LEV III greenhouse gas credits and debits.

§ 1961.3(c) Optional Compliance with the 2017 through 2025 MY National Greenhouse Gas Program.

§ 1961.3(d) Test Procedures, incorporating in the “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” incorporated by reference in section 1961.2. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962.1, or the “California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962.2, as applicable, all of which are available on [CARB's Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).

§ 1961.3(e) Abbreviations.

§ 1961.3(f) Definitions specific to section 1961.3

§ 1961.3(g) Severability.

Another element of the LEV III regulations is the LEV III evaporative emission standards, which are contained in section 1976(b)(1)(G) and are phased in beginning with the 2015 model year. The preexisting evaporative emission standards are in section 1976(b)(1)(B), (C), (E), and (F).

The ZEV Regulation

California's ZEV program began as part of the LEV I regulations, which included standards for ZEVs, and requirements that specified percentages of 1998 and subsequent model passenger cars and light-duty trucks with a loaded vehicle weight of 0-3750 lbs. be certified as ZEVs. As originally adopted in the 1990-1991 LEV I rulemaking, the percentages were 2% for 1998-2000 model vehicles, 5% for 2001-2002 model vehicles, and 10% for 2003 and subsequent model vehicles. The ZEV program has been modified a number of times since its inception including in 2012, as part of the Advanced Clean Cars program. The 2012 amendments to the ZEV program, which were adopted as part of the Advanced Clean Cars program, were designed to incentivize advanced technology by requiring manufacturers to produce increasing percentages of pure ZEVs and plug-in hybrid electric vehicles in the 2018 through 2025 model years. For more information about the ACC program, see [CARB's Internet site for the Advanced Clean Cars Program](#). The ZEV regulations are contained in four sections:

§ 1962. Zero-Emission Vehicle Standards for 2005 through 2008 Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Section 1962 incorporates by reference the "California Exhaust Emission Standards and Test Procedures for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck, and Medium-Duty Vehicle Classes," and is available on [CARB's Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).

§ 1962.1. Zero-Emission Vehicle Standards for 2009 through 2017 Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Section 1962.1 incorporates by reference the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," available on [CARB's Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).

§ 1962.2. Zero-Emission Vehicle Standards for 2018 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Section 1962.2 incorporates by reference the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," available on [CARB's Internet site for Low-Emission Vehicle Regulations & Test Procedures](#).

§ 1962.3. Electric Vehicle Charging Requirements.

Related Requirements

In addition to the LEV exhaust emission standards in sections 1960.1, 1961, and 1961.2, and the greenhouse gas emission standards in sections 1961.1 and 1961.3, several other CARB requirements apply to LEVs. These include the following sections in title 13, California Code of Regulations. In addition, the provisions regarding recalls (sections 2111 and following), definitions (section 2122), testing (section 2139), and related provisions (sections 2145, 2147, 2235) apply to LEVs.

§ 1900. Definitions.

§ 1956.8. Exhaust Emissions Standards and Test Procedures -1985 and Subsequent Model Heavy-Duty Engines and Vehicles, 2021 and Subsequent Zero-Emission Powertrains, and 2022 and Subsequent Model Heavy-Duty Hybrid Powertrains.

§ 1960.5. Certification of 1983 and Subsequent Model-Year Federally Certified Light-Duty Motor Vehicles for Sale in California.

§ 1965. Emission Control, Smog Index, and Environmental Performance Labels - 1979 and Subsequent Model-Year Motor Vehicles.

§ 1968.1. Malfunction and Diagnostic System Requirements -1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

§ 1968.2. Malfunction and Diagnostic System Requirements - 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

§ 1968.5. Enforcement of Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

§ 1976. Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions.

§ 1978. Standards and Test Procedures for Vehicle Refueling Emissions.

§ 2037. Defects Warranty Requirements for 1990 and Subsequent Model Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Motor Vehicle Engines Used in Such Vehicles.

§ 2038. Performance Warranty Requirements for 1990 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, and Motor Vehicle Engines Used in Such Vehicles.

§ 2062. Assembly-Line Test Procedures - 1998 and Subsequent Model Years.

§ 2101. Compliance Testing and Inspection - New Vehicle Selection Evaluation, and Enforcement Action.

§ 2235. Requirements. (fill pipes)