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Section 1956.1	Exhaust Emission Standards and Test Procedures – 1985 and Subsequent Model Heavy Duty Urban Bus Engines and Vehicles
Section 1956.2	Fleet Rule for Transit Agencies
Section 1956.3	Zero-emission Bus Requirements
Section 1956.4	Reporting Requirements for all Urban Bus Transit Agencies

Only amended text included for the following sections of Title 13, California Code of Regulations:

Section 1956.8	Exhaust Emission Standards and Test Procedures – 1985 and Subsequent Model Heavy-Duty Engines and Vehicles
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SECTION 1956.1, TITLE 13, CCR

1956.1 Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy Duty Urban Bus Engines and Vehicles

- (a) The exhaust emissions from new 1985 and subsequent model heavy-duty diesel cycle urban bus engines and vehicles fueled by methanol, natural gas, liquefied petroleum gas, and petroleum shall not exceed the following, by model year:
- (1) 1985-1986 - 1.3 grams per brake horsepower-hour (g/bhp-hr) total hydrocarbons (or Organic Material Hydrocarbon Equivalent [OMHCE] for methanol-fueled buses), 15.5 g/bhp-hr carbon monoxide (CO), and 5.1 g/bhp-hr oxides of nitrogen (NO_x).
 - (2) 1987- (a manufacturer may certify to the 1988 emission standards one year early as an option) - 1.3 g/bhp-hr total hydrocarbons (or OMHCE for methanol-fueled buses), 15.5 g/bhp-hr CO, and 5.1 g/bhp-hr NO_x.
 - (3) 1988-1990 - 1.3 g/bhp-hr HC (or OMHCE for methanol-fueled buses), 15.5 g/bhp-hr CO, 6.0 g/bhp-hr NO_x, 0.60 g/bhp-hr particulate matter (PM), and for 1990 only, 1.2 g/bhp-hr optional non-methane hydrocarbons (NMHC).
 - (4) 1991-1993 - 1.3 g/bhp-hr HC (or OMHCE for methanol-fueled buses), 1.2 g/bhp-hr optional NMHC, 15.5 g/bhp-hr CO, 5.0 g/bhp-hr NO_x, and 0.10 g/bhp-hr PM. Emissions from methanol-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled urban bus engines may be included in the averaging program for petroleum-fueled engines other than urban bus engines.
 - (5) 1994-1995 - 1.3 g/bhp-hr HC (or OMHCE for methanol-fueled buses), 1.2 g/bhp-hr optional NMHC, 15.5 g/bhp-hr CO, 5.0 g/bhp-hr NO_x (or optional 3.5 g/bhp-hr to 0.5 g/bhp-hr NO_x), and 0.07 g/bhp-hr PM. Emissions from methanol-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled urban bus engines, may be included in the averaging program for petroleum-fueled engines other than urban bus engines.
 - (6) 1996-2003 - 1.3 g/bhp-hr HC or OMHCE, 1.2 g/bhp-hr optional NMHC, 15.5 g/bhp-hr CO, 4.0 g/bhp-hr NO_x, and 0.05 g/bhp-hr PM (0.07 PM g/bhp-hr in-use), except as provided in paragraph (7) below.
 - (A) For 1996 and 1997 only, a manufacturer may apply to the Executive Officer for an exemption from the 4.0 g/bhp-hr

NOx standard, not to exceed 10% of the average of the manufacturer's total urban bus sales in California for the three preceding model years, upon providing technical justification and sales data for each exemption applied for.

- (B) 1998 through 2003 model year engines may generate averaging, banking, and trading credits in accordance with the requirements for averaging, banking and trading programs set forth in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy Duty Diesel Engines and Vehicles" incorporated by reference in subdivision (c) of this section.
 - (C) Manufacturers may choose to certify 1998 through 2002 model year bus engines produced before October 1, 2002, to an optional NOx emissions standard between 0.5 g/bhp-hr and 2.5 g/bhp-hr. A manufacturer may certify to any standard between the values of 2.5 g/bhp-hr and 0.5 g/bhp-hr, by 0.5 g/bhp-hr increments. Manufacturers may not use engines certified to this optional NOx standard for any averaging, banking, or trading program set forth in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy Duty Diesel Engines and Vehicles" incorporated by reference in subdivision (c) of this section.
- (7) October 1, 2002, PM standard - For diesel-fueled, dual-fuel, and bi-fuel bus engines except for heavy-duty pilot ignition engines, the PM standard shall be 0.01 g/bhp-hr (0.01 PM g/bhp-hr in-use) for 2002 and subsequent model year engines produced beginning October 1, 2002. Manufacturers may choose to meet this standard with an aftertreatment system that reduces PM to 0.01 g/bhp-hr.==
 - (8) October 2002-2006 optional standards – Except for diesel-fueled, dual-fuel, and bi-fuel engines but including heavy-duty pilot ignition engines, manufacturers may choose to certify 2002 – 2006 model year bus engines produced beginning October 1, 2002, to an optional 1.8 g/bhp-hr to 0.3 g/bhp-hr NOx plus NMHC standard, measured as the arithmetic sum of the NOx and NMHC exhaust component certification values, without restriction on individual component certification values; provided that engines certified to this optional reduced-emission NOx plus NMHC standard may not participate in any averaging, banking, or trading program set forth in the test procedures document incorporated by reference in subdivision (c) of this section. A manufacturer may certify to any standard between the values of

1.8 g/bhp-hr to 0.3 g/bhp-hr, by 0.3 g/bhp-hr NO_x + NMHC increments. Manufacturers certifying to this optional standard must also certify to a PM standard of 0.03, 0.02, or 0.01 g/bhp-hr.

- (9) October 2002-2003 optional standards for diesel-fueled, dual-fuel, and bi-fuel engines except for heavy-duty pilot ignition engines -- Manufacturers may choose to certify 2002 – 2003 model year diesel-fueled, dual-fuel, and bi-fuel bus engines produced beginning October 1, 2002, to an optional 1.8 g/bhp-hr to 0.3 g/bhp-hr NO_x plus NMHC standard, measured as the arithmetic sum of the NO_x and NMHC exhaust component certification values, without restriction on individual component certification values; provided that engines certified to this optional reduced-emission NO_x plus NMHC standard may not participate in any averaging, banking, or trading program set forth in the test procedures document incorporated by reference in subdivision (c) of this section. A manufacturer may certify to any standard between the values of 1.8 g/bhp-hr to 0.3 g/bhp-hr, by 0.3 g/bhp-hr NO_x + NMHC increments. Manufacturers certifying to this optional standard must also certify to a PM standard of 0.01 g/bhp-hr.
- (10) 2004 – 2006: Except as provided in paragraph (11), below, the required standard shall be 2.4 g/bhp-hr NO_x + NMHC measured as the arithmetic sum of exhaust component certification values for these pollutants, without restriction on individual component values, 15.5 g/bhp-hr CO, and 0.05 g/bhp-hr PM (0.07 g/bhp-hr PM in-use).
- (A) Manufacturers may choose to certify to a 2.5 g/bhp-hr optional combined NO_x + NMHC standard, provided that the NMHC exhaust component certification value shall not exceed 0.5 g/bhp-hr.
- (B) Emissions averaging may be used to meet the combined NO_x + NMHC standard, the optional combined NO_x + NMHC standard set forth in paragraph (A), and the PM standard.
- (C) The combined NO_x + NMHC standard and the optional combined NO_x + NMHC standard described in paragraph (A) may serve as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process set forth in section 1956.8(a)(4), Title 13, CCR.
- (11) 2004-2006 – For diesel-fueled, or dual-fuel, and bi-fuel urban bus engines except for heavy-duty pilot ignition engines, the standards are 0.5 g/bhp-hr NO_x, 0.01 g/bhp-hr PM, 0.05 g/bhp-hr NMHC, 5.0

g/bhp-hr CO, and 0.01 g/bhp-hr formaldehyde. As an option, manufacturers may choose to meet the NO_x and PM standards with a base engine that is certified to the standards in paragraph (10) above, equipped with an aftertreatment system that reduces NO_x to 0.5 g/bhp-hr and PM to 0.01 g/bhp-hr standards. The NMHC, CO, and formaldehyde standards in this paragraph (11) shall still apply. Manufacturers shall be responsible for full certification, durability, testing, and warranty and other requirements for the base engine. For the aftertreatment system, manufacturers shall not be subject to the certification durability requirements, or in-use recall and enforcement provisions, but are subject to warranty provisions for functionality.

In addition, engine manufacturers may sell diesel-fueled, dual-fuel, or bi-fuel engines to any transit fleet exempted by the Executive Officer under paragraphs (c)(8) and (d)(7) of section 1956.2, Title 13, CCR, from the requirements of paragraphs (c)(5) and (d)(4) of section 1956.2, certified to the standards in either paragraphs (9) or (10) above, provided that engines certified to the standards in paragraph (10) must be certified to a 0.01 g/bhp-hr PM standard.

- (12) 2007 and subsequent – 0.2 g/bhp-hr NO_x, 0.01 g/bhp-hr PM, 0.05 g/bhp-hr NMHC, 5.0 g/bhp-hr CO, and 0.01 g/bhp-hr formaldehyde.
- (b) 2003-2006 – A bi-fuel engine meeting the definition of a heavy-duty pilot ignition engine set forth in section 1956.2 (b)(4) may be certified to the standards in section 1956.1 (a)(8) and (a)(10), provided that the engine is certified to an optional PM standard of 0.03, 0.02, or 0.01 g/bhp-hr.
- (c) The test procedures for determining compliance with standards applicable to 1985 and subsequent heavy-duty diesel cycle urban bus engines and vehicles and the requirements for participation in the averaging, banking and trading programs, are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," adopted April 8, 1985, as last amended November 22, 2000, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes", adopted October 24, 2002, which are incorporated by reference herein.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43100, 43101, 43104, and 43806 Health and Safety Code and section 28114 Vehicle Code
Reference: Sections 39002, 39003, 39017, 39033, 39500, 39650, 39657, 39667, 39701, 40000, 43000, 43000.5, 43009, 43013, 43018, 43102, 43806, Health and Safety Code, and section 28114 Vehicle Code.

SECTION 1956.2, TITLE 13, CCR

1956.2 Fleet Rule for Transit Agencies

- (a) To encourage transit agencies that operate urban bus fleets to purchase or lease lower emission alternative-fuel buses, while also providing flexibility to such fleet operators to determine their optimal fleet mix in consideration of such factors as air quality benefits, service availability, cost, efficiency, safety, and convenience, two paths to compliance with this fleet rule are available: the alternative-fuel path and the diesel path.
 - (1) Transit agencies must choose their compliance path, and shall notify ARB of their intent to follow either the diesel or the alternative-fuel path, by January 31, 2001. Reporting requirements for that notification are set forth in subdivisions (a) and (b) of section 1956.4, title 13, CCR.
 - (2) A transit agency within the jurisdiction of the South Coast Air Quality Management District may elect to change its compliance path from the diesel path to the alternative-fuel path, provided that the transit agency notifies the Executive Officer of the change by January 31, 2004, and provided that the transit agency is in compliance with all requirements of section 1956.2, including specific requirements of the diesel path, on or before January 1, 2004. Reporting requirements for this notification are set forth in paragraph (b)(3) of section 1956.4, title 13, CCR.
- (b) For purposes of the fleet rule specified in this section, the following definitions apply:
 - (1) "Alternative fuel" means natural gas, propane, ethanol, methanol, gasoline (when used in hybrid electric buses only), hydrogen, electricity, fuel cells, or advanced technologies that do not rely on diesel fuel. Alternative fuel also means any of these fuels used in combination with each other or in combination with other non-diesel fuels.
 - (2) "Active fleet" means the total number of urban buses, including spare buses operated by a transit agency or under contract to a transit agency, but not emergency contingency vehicles or non-revenue producing vehicles.
 - (3) "Emergency contingency vehicle" means an urban bus placed in an inactive contingency fleet for energy or other local emergencies, after the urban bus has reached the end of its normal minimum useful life.

- (4) “Heavy-duty pilot ignition engine” means an engine designed to operate using an alternative fuel, except that diesel fuel is used for pilot ignition at an average ratio of no more than 1 part diesel fuel to 10 parts total fuel on an energy equivalent basis. An engine that can operate or idle solely on diesel fuel at any time does not meet this definition.
 - (5) “Spare bus” means an urban bus that is used to accommodate routine maintenance and repair operations, and to replace a bus in scheduled service that breaks down or is involved in an accident.
 - (6) “Transit agency” means a public entity responsible for administering and managing transit services. Public transit agencies can directly operate transit service or contract out for all or part of the total transit service provided.
 - (7) “Urban bus” means a passenger-carrying vehicle powered by a heavy heavy-duty diesel engine, or of a type normally powered by a heavy heavy-duty diesel engine, with a load capacity of fifteen (15) or more passengers and intended primarily for intra-city operation, i.e., within the confines of a city or greater metropolitan area. Urban bus operation is characterized by short rides and frequent stops. To facilitate this type of operation, more than one set of quick-operating entrance and exit doors would normally be installed. Since fares are usually paid in cash or token, rather than purchased in advance in the form of tickets, urban buses would normally have equipment installed for the collection of fares. Urban buses are also typically characterized by the absence of equipment and facilities for long distance travel, e.g., restrooms, large luggage compartments, and facilities for stowing carry-on luggage.
- (c) Transit agencies on the alternative-fuel path shall meet the following requirements:
- (1) Upon approval of the regulation, and through Model Year 2015, at least 85 percent of all urban buses purchased or leased each year must be alternative-fuel buses or buses with engines purchased under paragraph (c)(9).
 - (2) NOx fleet average requirements as set forth in subdivision (e), below.
 - (3) Beginning October 1, 2002, only engines certified to an optional PM standard of 0.03 g/bhp-hr or lower shall be purchased when making new bus purchases.
 - (4) Total diesel PM emission reduction requirements and use of low-sulfur or other allowed fuel as set forth in subdivision (f), below.
 - (5) Transit agencies on the alternative-fuel path shall not purchase any diesel-fueled, dual-fuel, or bi-fuel buses with 2004 – 2006 model year engines certified to emissions levels in excess of those

- specified in paragraph (a)(11) of section 1956.1, title 13, CCR, except as provided in paragraph (c)(8) or (c)(9) of this section.
- (6) Zero-emission bus purchase requirements beginning in model year 2010, in accordance with the requirements set forth in subdivision (c) of section 1956.3, title 13, CCR.
 - (7) Reporting requirements as set forth in section 1956.4, title 13, CCR.
 - (8) The Executive Officer may exempt transit agencies on the alternative-fuel path from the requirements of paragraph (c)(5) of section 1956.2, title 13, CCR, provided that:
 - (A) A transit agency applies to the Executive Officer for such exemption by June 30, 2001;
 - (B) A transit agency demonstrates to the Executive Officer that it will achieve NOx emissions benefits through 2015 greater than what would have been achieved through compliance with paragraph (c)(5); and
 - (C) The Executive Officer finds that transit agencies, after consulting with the Engine Manufacturers Association, have demonstrated, or are contractually committed to demonstrate, advanced NOx aftertreatment technology.
 - (9) A transit agency on the alternative-fuel path may purchase a bus operated with a heavy-duty pilot ignition engine provided the engine meets the standards set forth in subdivision (b) of section 1956.1.
- (d) Transit agencies on the diesel path shall meet the following requirements:
- (1) NOx fleet average requirements as set forth in subdivision (e), below.
 - (2) Total diesel PM emission reduction requirements and use of low-sulfur or other allowed fuel as set forth in subdivision (f), below.
 - (3) Zero-emission bus demonstration in 2003-2004, as required in subdivision (b) of section 1956.3, title 13, CCR.
 - (4) Transit agencies on the diesel path shall not purchase any diesel-fueled, dual-fuel, or bi-fuel buses with 2004 – 2006 model year engines certified to emissions levels in excess of those specified in paragraph (a)(11) of section 1956.1, title 13, CCR, except as provided in paragraph (d)(7) or (d)(8) of this section. Beginning July 1, 2003, a transit agency may not purchase alternative fuel buses certified to a PM emission level in excess of the optional standard of 0.03 g/bhp-hr when making new bus purchases.
 - (5) Zero-emission bus purchase requirements beginning in model year 2008, in accordance with the requirements set forth in subdivision (c) of section 1956.3, title 13, CCR.

- (6) Reporting requirements as set forth in section 1956.4, title 13, CCR.
- (7) The Executive Officer may exempt transit agencies on the diesel path from the requirements of paragraph (d)(4) of section 1956.2, title 13, CCR, provided that:
 - (A) A transit agency applies to the Executive Officer for such exemption by June 30, 2001;
 - (B) A transit agency demonstrates to the Executive Officer that it will achieve NOx emissions benefits through 2015 greater than what would have been achieved through compliance with paragraph (d)(4); and
 - (C) The Executive Officer finds that transit agencies, after consulting with the Engine Manufacturers Association, have demonstrated, or are contractually committed to demonstrate, advanced NOx aftertreatment technology.
- (8) A transit agency on the diesel-fuel path may purchase a bus operated with a heavy-duty pilot ignition engine provided the engine meets the standards set forth in subdivision (b) of section 1956.1.
- (e) Beginning October 1, 2002, no transit agency shall own, operate, or lease an active fleet of urban buses with average NOx emissions in excess of 4.8 g/bhp-hr, based on the engine certification standards of the engines in the active fleet.
 - (1) This active fleet average requirement shall be based on urban buses owned, operated, or leased by the transit agency, including diesel buses, alternative-fuel buses, all heavy-duty zero-emission buses, electric trolley buses, and articulated buses, in each transit agency's active fleet. The Executive Officer may allow zero-emission buses that do not meet the definition of an urban bus to be included in the calculation of the fleet average standard upon written request to the ARB by January 31, 2002, and upon approval by the Executive Officer. The request shall include a description of the zero-emission buses, the zero-emission technology utilized, and the number of zero-emission buses to be used in calculating the NOx fleet average standard. Zero-emission buses not meeting the definition of an urban bus may not be used to satisfy the requirements of the Zero-emission Bus Demonstration Project set forth in subdivision (b) of section 1956.3, title 13, CCR.
 - (2) Transit agencies may use ARB-certified NOx retrofit systems to comply with the fleet average requirement (in addition to bus purchases, repowerings, and retirements).

- (3) Transit agencies have the option of retiring all 1987 and earlier model year diesel urban buses by October 1, 2002, to comply with the fleet average standard requirement.
- (f) To reduce public exposure to diesel particulate matter, each transit agency shall reduce the total diesel PM emissions of the diesel buses in its active fleet relative to its total diesel PM emissions as of January 1, 2002, according to the schedule below, and shall operate its diesel buses on diesel fuel with a maximum sulfur content of 15 parts per million by weight. A transit agency shall calculate its diesel PM emission total by summing the PM exhaust emission values specified in section 1956.1(a) for each diesel-fueled, dual-fuel, bi-fuel (except for heavy-duty pilot ignition engines), and diesel hybrid-electric engine in its active fleet in grams per brake horsepower-hour (g/bhp-hr). For 1987 and earlier engines, the PM exhaust emission value shall be presumed to be 1.0 g/bhp-hr. Documentation of compliance with these requirements must be provided in accordance with the provisions of subdivision (d) of section 1956.4, title 13, CCR.
- (1) No later than January 1, 2004:
 - (A) The diesel PM emission total for a transit agency on the diesel path shall be no more than 60 percent of its diesel PM emission total on January 1, 2002.
 - (B) The diesel PM emission total for a transit agency on the alternative fuel path shall be no more than 80 percent of its diesel PM emission total on January 1, 2002.
 - (2) No later than January 1, 2005:
 - (A) The diesel PM emission total for a transit agency on the diesel path shall be no more than 40 percent of its diesel PM emission total on January 1, 2002.
 - (B) The diesel PM emission total for a transit agency on the alternative fuel path shall be no more than 60 percent of its diesel PM emission total on January 1, 2002.
 - (3) No later than January 1, 2007:
 - (A) The diesel PM emission total for a transit agency on the diesel path shall be no more than 15 percent of its diesel PM emission total on January 1, 2002.
 - (B) The diesel PM emission total for a transit agency on the alternative fuel path shall be no more than 40 percent of its diesel PM fleet average on January 1, 2002.

- (4) No later than January 1, 2009, the diesel PM emission total for a transit agency on the alternative fuel path shall be no more than 15 percent of its diesel PM emission total on January 1, 2002.
- (5) A transit agency that is unable to comply with an implementation deadline specified in paragraph (f)(1), (2), (3), or (4) because of the unavailability of technology may apply in writing to the Executive Officer for an extension to comply no later than ninety days prior to the applicable implementation deadline, for a time of up to, but not to exceed, one year. The applicant must demonstrate that the technology is unavailable; shall explain why the transit agency cannot comply by retiring older buses; and shall provide a schedule for compliance.
- (6) Beginning July 1, 2002, a transit agency shall not operate its diesel buses on diesel fuel with a sulfur content in excess of 15 parts per million by weight, except that a transit agency may operate its diesel buses on a fuel that is verified by the Executive Officer as a diesel emission control strategy that reduces PM in accordance with section 2700 et seq., title 13, CCR. A transit agency with fewer than 20 buses in its active fleet, and that operates in a federal one-hour ozone attainment area, is not subject to this low-sulfur fuel requirement until July 1, 2006. In areas redesignated as one-hour ozone non-attainment areas prior to July 1, 2006, a transit agency initially exempt from the low-sulfur fuel requirement shall submit a plan to the Executive Officer within 30 days of redesignation for achieving compliance with this requirement.
- (7) A transit agency that owns, operates, or leases fewer than 20 diesel-fueled, dual-fuel, bi-fuel, or diesel hybrid-electric buses in its active fleet and that operates in a federal one-hour ozone attainment area may delay implementation of the intermediate total diesel PM emission reduction requirements provided the transit agency complies with the implementation deadlines set forth in paragraphs (f)(3)(A) or (f)(4).
- (8) A transit agency that installs a diesel emission control strategy to reduce diesel PM shall use a diesel emission control strategy that is verified by the Executive Officer in accordance with section 2700 et seq., title 13, CCR, or an urban bus retrofit device that has been exempted under Vehicle Code section 27156 as an engine rebuild kit and that reduces PM to 0.10 g/bhp-hr when used on an engine model 6V92TA DDEC for the model years specified for that engine.
- (9) A transit agency that installs a diesel emission control strategy on an urban bus engine shall use the following percentage reductions from the engine certification standard value when calculating its total diesel PM emissions: 25 percent for a Level 1, 50 percent for

a Level 2, and 85 percent for a Level 3 diesel emission control strategy.

- (g) A transit agency with fewer than 20 buses in its active fleet may apply for an extension to comply with the provisions of section 1956.2 by submitting documentation of financial hardship to the Executive Officer, in writing, at least 30 days before the requirement becomes applicable for approval by the Executive Officer. Documentation of financial hardship shall include, but is not limited to, an analysis of the cost of compliance, the sources of available funds, and the shortfall between funds available and the cost of compliance. The transit agency must also specify the date and means by which compliance will be achieved in the request for a delay.

NOTE: Authority cited: Sections 39600, 39601, 39667, 43013, 43018, 43701(b) Health and Safety Code. Reference: Sections 39002, 39003, 39017, 39500, 39650, 39667, 40000, 43000, 43000.5, 43013, 43018, 43701(b), 43801, 43806 Health and Safety Code, and sections 233, 28114, Vehicle Code.

SECTION 1956.3, TITLE 13, CCR

1956.3 Zero-emission Bus Requirements

- (a) "Zero-emission bus" means an Executive Officer certified urban bus that produces zero exhaust emissions of any criteria pollutant (or precursor pollutant) under any and all possible operational modes and conditions.
- (1) A hydrogen-fuel cell bus shall qualify as a zero-emission bus.
 - (2) An electric trolley bus with overhead twin-wire power supply shall qualify as a zero-emission bus.
 - (3) A battery electric bus shall qualify as a zero-emission bus.
 - (4) Incorporation of a fuel-fired heater shall not preclude an urban bus from being certified as a zero-emission bus, provided the fuel-fired heater cannot be operated at ambient temperatures above 40^BF and the heater is demonstrated to have zero evaporative emissions under any and all possible operational modes and conditions.
- (b) Zero-emission Bus Demonstration Project – except as provided in (3) below, the owner or operator of an urban bus fleet on the diesel path in accordance with the provisions of section 1956.2, with more than 200 urban transit buses in its active fleet on January 31, 2001, shall implement a demonstration project. The owner or operator shall evaluate the operation of zero-emission buses in revenue service, and prepare and submit a report on the demonstration project to the Executive Officer for inclusion in a future review of zero-emission technology.
- (1) This demonstration project shall meet all of the following specifications and requirements:
 - (A) utilize a minimum of three zero-emission buses,
 - (B) include any necessary site improvements,
 - (C) locate fueling infrastructure onsite,
 - (D) provide appropriate maintenance and storage facilities,
 - (E) train bus operators and maintenance personnel,
 - (F) place the buses in revenue service for a minimum duration of 12 calendar months,
 - (G) retain operation and maintenance records, and
 - (H) report on the demonstration program as set forth in subdivision (e) of section 1956.4, Title 13, CCR.
 - (2) When planning and implementing the demonstration project, the operator or owner shall meet the following milestones:

- (A) no later than January 1, 2002, prepare and solicit bid proposals for materials and services necessary to implement the demonstration project, including but not limited to the zero-emission buses and the associated infrastructure
 - (B) no later than July 1, 2003, place at least three zero-emission buses in revenue service, and
 - (C) no later than January 31, 2005, submit a report on the demonstration project to the Executive Officer, in accordance with paragraph (e)(3) of section 1956.4, Title 13, CCR.
- (3) Multiple transit agencies within the same air basin may, on a case-by-case basis, petition the Executive Officer to implement a joint zero-emission bus demonstration project. Electric trolley buses shall not qualify as zero-emission buses for purposes of this joint demonstration project. No more than three transit agencies can participate in any one joint project. Transit agencies that are participating in a joint demonstration project shall:
- (A) designate the agency hosting the onsite demonstration,
 - (B) jointly fund the demonstration project, and
 - (C) place a minimum of three zero-emission buses per participating transit agency in revenue service.
- (c) Purchase Requirement for Zero-emission Buses - The owner or operator of a transit agency with more than 200 urban buses in active service on January 1, 2007, for transit agencies on the diesel path, and January 1, 2009, for transit agencies on the alternative-fuel path, shall purchase and/or lease zero-emission buses, in accordance with the following:
- (1) For transit agencies on the diesel path, in accordance with the requirements in section 1956.2, a minimum 15 percent of purchase and lease agreements, when aggregated annually, for model year 2008 through model year 2015 urban buses shall be zero-emission buses.
 - (2) For transit agencies on the alternative-fuel path, in accordance with the requirements in section 1956.2, a minimum 15 percent of purchase and lease agreements, when aggregated annually, for model year 2010 through model year 2015 urban buses shall be zero-emission buses.
 - (3) The provisions of paragraphs (1) and (2) shall not apply if the operator's urban bus fleet is composed of 15 percent or more zero-emission buses on January 1, 2008, for transit agencies on the diesel path, and on January 1, 2010, for transit agencies on the alternative-fuel path, or at any time thereafter.

(4)(A) Transit agencies on either the diesel path or alternative-fuel path may earn credits for use in meeting the purchase requirements for zero-emission buses specified in paragraphs (c)(1) and (c)(2) by placing zero-emission buses in service prior to the dates specified in paragraphs (c)(1) and (c)(2). For each zero-emission bus placed into early service, credits shall be accrued according to the following table. Each earned credit is equivalent to one zero-emission bus.

Path	Credits per Year Placed					
	2000-2003	2004-2005	2006	2007	2008	2009
Diesel	3	2.5	2	1.5	-	-
Alternative-fuel	3	2.5	2	1.5	1.5	1

(B) Zero-emission buses placed in service to meet the zero-emission bus demonstration projects as specified in subdivision (b) are not permitted to accrue credits towards the zero-emission bus purchase requirements.

(d) The Air Resources Board shall review zero-emission bus technology and the feasibility of implementing the requirements of subdivision (c) above no later than January 2006. Based on that assessment, the Board shall decide whether to proceed with the implementation of subdivision (c) requirements.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43100, 43101, 43104, 43806 Health and Safety Code. Reference: Sections 39002, 39003, 39017, 39018, 39500, 39701, 40000, 43000, 43000.5, 43009, 43013, 43018, 43102, 43801, 43806 Health and Safety Code, and section 28114 Vehicle Code.

SECTION 1956.4, TITLE 13, CCR

1956.4 Reporting Requirements for all Urban Bus Transit Agencies

- (a) The following reports on new bus purchases and/or leases by transit operators on the alternative-fuel path shall be submitted as described below:
 - (1) The initial report shall be submitted by January 31, 2001, and shall state the transit agency's intent to follow the alternative-fuel path.
 - (2) Any requests for deviation from the requirement that 85 percent of buses purchased per year must be alternative-fuel buses must be submitted in writing and approved by the Executive Officer of the Air Resources Board 90 days prior to purchase. The written request must include the reason for requesting the deviation from the 85 percent annual purchase requirement and the transit agency's future planned alternative-fuel bus purchases.
 - (3) Each transit agency shall submit an annual report containing: the number, manufacturer, make, and model year of engines, and fuel used for each transit bus it currently owns or operates, bus purchases and/or leases beginning January 1, 2000, and annual average percentage of total bus purchases and/or leases that were alternative-fuel buses. The first report shall be submitted by January 31, 2001. Subsequent reports shall be submitted annually by January 31 through the year 2016.

- (b) The following reports on new bus purchases and/or leases by transit operators on the diesel path shall be submitted as described below:
 - (1) The initial report shall be submitted by January 31, 2001, and shall state the transit agency's intent to follow the diesel path.
 - (2) Each transit agency shall submit an annual report containing the number, manufacturer, make, and model year of engines, and fuel used for each transit bus it currently owns or operates, and bus purchases and/or leases beginning January 1, 2000. The first report shall be submitted by January 31, 2001. Subsequent reports shall be submitted annually by January 31 through the year 2016.
 - (3) A transit agency within the jurisdiction the South Coast Air Quality Management District that chooses to change from the diesel path to the alternative fuel path in accordance with paragraph (a) (2) of section 1956.2, title 13, CCR, must submit to the Executive Officer a letter of intent to follow the alternative fuel path no later than January 31, 2004. The letter of intent shall contain a statement

certifying that the transit agency is in compliance with all provisions of the fleet rule for transit agencies on or before January 1, 2004.

- (c) Each transit agency shall submit the following reports on the NO_x fleet average requirement:
 - (1) Initial documentation shall be submitted by January 31, 2001, and contain, at a minimum, the active urban bus fleet NO_x emission average, and if that number exceeds the average required in subdivision (e), section 1956.2, Title 13, CCR, a schedule of actions planned to achieve that average by October 1, 2002, including numbers and model years of bus purchases, retirements, retrofits, and/or repowerings, or shall indicate the intent of the transit agency to retire all model year 1987 and earlier buses in its active fleet by October 1, 2002.
 - (2) A final report shall be submitted by January 31, 2003, detailing the active urban bus fleet NO_x emission average as of October 1, 2002, and actions, if any were needed, taken to achieve that standard, including numbers and model years of bus purchases, retirements, retrofits, and/or repowerings, or documenting the retirement of all model year 1987 and earlier buses.

- (d) Each transit agency shall submit the following reports on the total diesel PM emission reduction requirements:
 - (1) An initial annual report shall be submitted by January 31, 2003 and shall contain, at a minimum, the following information:
 - (A) number, manufacturer, make, and model year of diesel-fueled, dual-fuel, bi-fuel (except for heavy-duty pilot ignition engines), and diesel hybrid-electric engines in urban buses in the active fleet; the PM engine certification value of each of those bus engines; the diesel PM emission total for the diesel buses in the active fleet; and the diesel PM emission total for the baseline date of January 1, 2002.
 - (B) For each urban bus for which a diesel emission control strategy has been applied, the device's product serial number; its Diesel Emission Control Strategy Family Name in accordance with the requirements of section 2705 (g)(2), title 13, CCR; and the date of installation.
 - (2) Annual reports shall be submitted each year beginning January 31, 2004 and each January 31 thereafter, through 2009, and shall contain the information required in paragraphs (d)(1)(A) and (B) above plus the total percentage reduction of PM achieved from the

baseline diesel PM emission total as of January 1 of each applicable year.

- (e) The following reports on the zero-emission bus demonstration program shall be submitted by those transit agencies required to conduct such demonstrations, as described below:
 - (1) Initial documentation shall be submitted by January 31, 2003, and contain, at a minimum, the bus order and delivery schedule, fuel type, type of refueling station, any planned facility modifications, and a revenue service demonstration plan;
 - (2) A financial plan shall be submitted by January 31, 2003, and contain, at a minimum, projected expenditures for capital costs for purchasing and/or leasing buses, refueling stations, any facility modifications, and projected annual operating costs;
 - (3) A final report shall be submitted by January 31, 2005, and contain, at a minimum, the following information:
 - (A) a brief description of the zero-emission technology utilized, identification of bus manufacturer and product specifications,
 - (B) miles driven per bus in revenue service, safety incidents, driver and mechanic training conducted, and maintenance (both scheduled and unscheduled),
 - (C) qualitative transit personnel and passenger experience, and
 - (D) a financial summary of capital costs of demonstration program, including bus purchases and/or leases, fueling infrastructure, any new facilities or modifications, and annual operating costs.

- (f) The following reports on new zero-emission bus purchases and/or leases shall be submitted by transit agencies required to purchase zero-emission buses as described below:
 - (1) Initial report shall be submitted by January 1, 2007 for transit agencies on the diesel path, and by January 1, 2009, for transit agencies on the alternative-fuel path. The initial report shall contain, at a minimum, the following information:
 - (A) a brief description of the zero-emission technology to be utilized and a plan for the implementation of the requirement,

- (B) for an exemption from the purchase requirement, documentation that 15 percent or more of the transit agency's active urban bus fleet is composed of zero-emission buses.
- (2) Any requests for deviation from the requirement that 15 percent of buses purchased per year must be zero-emission buses must be submitted in writing and approved by the Executive Officer of the Air Resources Board 90 days prior to a transit agency submitting a purchase order(s) reflecting the purchase deviation. The written request shall include the reason for requesting the deviation and the transit agency's future planned zero-emission bus purchases.
- (3) Transit agencies on the diesel path shall include in the annual reports required in paragraph (b)(2): zero-emission bus purchases and/or leases beginning with model year 2008 and through model year 2015, and the annual average percentage of total bus purchases and/or leases that were zero-emission buses.
- (4) Transit agencies on the alternative-fuel path shall include in the annual reports required in paragraph (a)(3): zero-emission bus purchases and/or leases beginning with model year 2010 and through model year 2015, and the annual average percentage of total bus purchases and/or leases that were zero-emission buses.
- (g) Transit agencies exempted from the requirements of paragraphs (c)(5) and (d)(4), section 1956.2, title 13, CCR, shall submit annual reports demonstrating that they are achieving NOx emission benefits required in paragraphs (c)(8)(B) and (d)(7)(B), section 1956.2, title 13, CCR. The first report shall be submitted by January 31, 2005. Subsequent reports shall be submitted annually by January 31 through the year 2016.

NOTE: Authority cited: Sections 39600, 39601, 39659, 39667, 39701, 43018, 41511 Health and Safety Code. Reference: Sections 39667, 39700, 39701, 41510, 41511, 43000, 43000.5, 43013, 43018, 43801, 43806 Health and Safety Code.

SECTION 1956.8, TITLE 13, CCR

1956.8 Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles

(a)(1) The exhaust emissions (i) from new 1985 through 2003 model heavy-duty diesel engines (except methanol-fueled engines), and heavy-duty natural-gas-fueled and liquefied-petroleum-gas-fueled engines derived from diesel-cycle engines, and (ii) from all new 1993 through 2003 model heavy-duty methanol-fueled, diesel engines, except in all cases engines used in medium-duty vehicles, shall not exceed:

Exhaust Emission Standards
For 1985 – 2003 Model Heavy-Duty Engines Other than Urban Bus Engines
(grams per brake horsepower-hour [g/bhp-hr])

Model Year	Total Hydrocarbons or OMHCE ^A	Optional Non-methane Hydrocarbons ^A	Carbon Monoxide	Oxides of Nitrogen	Particulates
1985-1986	1.3		15.5	5.1	---
1987 ^B	1.3		15.5	5.1	---
1988-1989	1.3		15.5	6.0	0.60
1990	1.3	1.2	15.5	6.0	0.60
1991-1993 ^C	1.3	1.2	15.5	5.0	0.25 ^D
1994 -1997	1.3	1.2	15.5	5.0	0.10 ^{D-}
1995-1997 ^E	1.3	1.2	15.5	3.5 to 0.5	0.10
1998-2003 ^F	1.3	1.2	15.5	4.0 ^{G,H}	0.10 ^G
1998-2003 ^E	1.3	1.2	15.5	2.5 to 0.5 ^I	0.10

^A The total or optional non-methane hydrocarbon standards apply to petroleum-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled engines. The Organic Material Hydrocarbon Equivalent, or OMHCE, standards apply to methanol-fueled engines.

^B As an option a manufacturer may elect to certify to the 1988 model-year emission standards one year early, for the 1987 model year.

- C For methanol-fueled engines, these standards shall be applicable beginning with the 1993 model year.
 - D Emissions averaging may be used to meet this standard. Averaging is restricted to within each useful life subclass and is applicable only through the 1995 model year. Emissions from engines used in urban buses shall not be included in the averaging program.
 - E These are optional standards. A manufacturer may elect to certify to an optional NOx standard between the values, inclusive, by 0.5 grams per brake horsepower-hour increments. Engines certified to any of these optional NOx standards are not eligible for participation in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.
 - F These are mandatory standards.
 - G Engines of 1998 through 2003 model years may be eligible to generate banking credits based on these standards according to the requirements of the averaging, banking and trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.
 - H May be used as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(4), below.
 - I May be used as the certification standard for the lower emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(4), below.
- (2) The exhaust emissions from new 2004 and subsequent model heavy-duty diesel engines, heavy-duty natural gas-fueled and liquefied-petroleum-gas-fueled engines derived from diesel-cycle engines, and heavy-duty methanol-fueled diesel engines, and the optional, reduced-emission standards for 2002 and subsequent model engines produced beginning October 1, 2002, except in all cases engines used in medium-duty vehicles, shall not exceed:

**Exhaust Emission Standards for 2004 and Subsequent Model Heavy-Duty Engines, and Optional, Reduced Emission Standards for 2002 and Subsequent Model Heavy-Duty Engines Produced Beginning October 1, 2002, Other than Urban Bus Engines
(grams per brake horsepower-hour [g/bhp-hr])**

Model Year	Oxides of Nitrogen Plus Non-methane Hydrocarbon S	Optional Oxides of Nitrogen Plus Non-methane Hydrocarbons	Carbon Monoxide	Particulate Matter
2004 and subsequent ^H	2.4 ^{A,C,E}	2.5 ^{B,C,E}	15.5	0.10 ^C
October 1, 2002 and subsequent ^H	n/a	1.8 to 0.3 ^{A,D,F}	15.5	0.03 to 0.01 ^G

^A This is the standard for the arithmetic sum of the oxides of nitrogen exhaust component certification value and the non-methane hydrocarbon exhaust component certification value, without individual restriction on the individual component values.

^B This is the standard for the arithmetic sum of the oxides of nitrogen exhaust component certification value and the non-methane hydrocarbon exhaust component certification value, with the non-methane hydrocarbon individual component value not to exceed 0.5 g/bhp-hr.

^C Emissions averaging may be used to meet this standard. Averaging must be based on the requirements of the averaging, banking and trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.

^D A manufacturer may elect to certify to an optional reduced-emission NOx+NMHC standard between the values, inclusive, by 0.3 grams per brake horsepower-hour increments. Engines certified to any of these optional reduced-emission NOx standards are not eligible for participation in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in (b), below.

^E May be used as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(4), below.

^F May be used as the certification standard for the lower emitting fueling mode of an engine certified under the dual fueling mode certification process of (a)(4), below.

^G A manufacturer may elect to certify to an optional reduced-emission PM standard between the specified values, inclusive, by 0.01 grams per brake horsepower-hour

increments. Engines certified to any of these optional reduced-emission PM standards are not eligible for participation in any averaging, banking or trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" incorporated by reference in section 1956.8(b), below.

^H Engine manufacturers subject to the Heavy-Duty Diesel Engine Settlement Agreements (Settlement Agreements)¹ must produce engines in compliance with the requirements contained in their respective Settlement Agreement. Most engine manufacturers subject to the Settlement Agreements are required to manufacture engines meeting the exhaust emission standards for 2004 and subsequent model years engines beginning October 1, 2002.

(3) Formaldehyde exhaust emissions from new 1993 and subsequent model methanol-fueled diesel engines, shall not exceed:

Model Year	Formaldehyde (g/bhp-hr)
1993-1995	0.10
1996 and subsequent	0.05

(4) An engine family whose design allows engine operation in either of two distinct alternative fueling modes, where each fueling mode is characterized by use of one fuel or a combination of two fuels and by significantly different emission levels under each mode, may certify to a different NOx or NOx plus NMHC (as applicable depending on model year) standard for each fueling mode, provided it meets the following requirements:

- (A) The NOx or NOx plus NMHC certification standard used for operation under the higher emitting fueling mode must be one of the standards denoted by footnote H in paragraph (a)(1) and footnote E in paragraph (a)(2).
- (B) The NOx or NOx plus NMHC certification standard used for operation under the lower emitting fueling mode must be one of the reduced-emission standards denoted by footnote I in paragraph (a)(1) and footnote F in paragraph (a)(2).

¹ Seven of the largest heavy-duty diesel engine manufacturers will be implementing measures to reduce emissions beginning October 1, 2002, to meet the requirements of the Heavy-Duty Diesel Engine Settlement Agreements reached with the ARB. The Heavy-Duty Diesel Engine Settlements were agreements reached in response to lawsuits brought by the United States Environmental Protection Agency and violations alleged by the ARB pertaining to excess in-use emissions caused by the use of defeat devices and unacceptable algorithms. Navistar signed its Settlement Agreement on October 22, 1998. Cummins, Detroit Diesel Corporation, Caterpillar, Volvo, Mack and Renault signed their Settlement Agreements on December 15, 1998.

- (C) The engine family is not used to participate in any manufacturer's averaging, banking or trading program.
 - (D) The engine family meets all other emission requirements contained in this section.
 - (E) The higher emitting fueling mode must be intended only for fail-safe vehicle operation when a malfunction or inadvertent fuel depletion precludes operation in the lower emitting fueling mode, as evidenced by a significantly reduced horsepower versus engine speed curve when operating in the higher emitting fueling mode when compared to the similar curve for the lower emitting fueling mode.
- (b) The test procedures for determining compliance with standards applicable to 1985 and subsequent heavy-duty diesel engines and vehicles and the requirements for participation in the averaging, banking and trading programs, are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles", adopted April 8, 1985, as last amended October 25, 2001, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes", adopted October 24, 2002, which are incorporated by reference herein.
 - (c) [No Change]
 - (d) The test procedures for determining compliance with standards applicable to 1987 and subsequent heavy-duty Otto-cycle engines and vehicles are set forth in the "California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Diesel Engines and Vehicles" adopted April 25, 1986, as last amended December 27, 2000, and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy Duty Otto-Cycle Engines," adopted December 27, 2000, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes" adopted October 24, 2002, which are incorporated by reference herein.
 - (e) [No Change]
 - (f) [No Change]
 - (g) [No Change]
 - (h) [No Change]

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43100, 43101, 43103, 43104, and 43806, Health and Safety Code, and section 28114, Vehicle Code. Reference: Sections 39002, 39003, 39500, 43000, 43013, 43018, 43100, 43101, 43102, 43103, 43104, 43106, 43202, 43204, 43206, 43210-43213, and 43806, Health and Safety Code; 43105 and Section 28114, Vehicle Code.