

Updated Informative Digest
AMENDMENTS TO THE PUBLIC TRANSIT BUS FLEET RULE AND EMISSION
STANDARDS FOR NEW URBAN BUSES

Sections Affected

This action amends sections 1956.1, 1956.2, 1956.4, 1956.8, and 2112, title 13, California Code of Regulations (CCR), and adopts the incorporated document titled "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-duty Vehicle Classes."

Background

In February 2000 the Air Resources Board (ARB or Board) approved the Public Transit Fleet Rule and Emission Standards For New Urban Buses. The multifaceted transit bus regulations set fleet requirements, applicable to transit agencies, and set more stringent mid- and long-term oxides of nitrogen (NOx) and particulate matter (PM) emission standards for new urban bus engines, applicable to engine manufacturers. Transit agencies were required to choose either a diesel or alternative fuel compliance path. The fuel path selected determines the compliance schedule and reporting requirements. The fleet rule was designed to provide transit agencies with flexibility in meeting the NOx standard while achieving near-term PM reductions and promoting advancement of PM control technology. The adopted PM fleet rule requirements required transit agencies to retrofit progressively newer model-year (MY) buses with devices capable of reducing PM emissions by 85 percent. In addition to the fleet rule requirements, the Board adopted engine NOx emission standards designed to achieve long-term emission benefits from new bus engines.

Recognizing the progressive nature of the fleet rule and emission standards, the Board directed staff to report back on the progress of implementing the regulatory requirements. Staff worked closely with transit agencies, urban transit bus manufacturers, and engine and drive system manufacturers to gather information. Staff reported back to the Board in September 2001 and March 2002. Based on the evaluation of available information, staff determined that most transit agencies would be able to meet the fleet rule requirements pertaining to NOx emissions. However, PM retrofit technology capable of reducing PM emissions by 85 percent or more was not available for 1993 model year and older engines.

The Board also directed staff in February 2000 to develop a test procedure for the evaluation of hybrid-electric bus emissions. Staff participated with members from industry, academia, and government in the Northeast Advanced Vehicle Consortium Heavy-Duty Hybrid Certification Work Group to establish draft heavy-duty hybrid-electric vehicle test procedures. Staff also worked closely with manufacturers in developing interim certification procedures for heavy-duty hybrid-electric vehicles, providing a method for determining the emission benefits of this technology.

Description of Regulatory Action

At a public hearing held on October 24, 2002, the Board approved the proposed amendments and certification procedures with minor modifications as offered in the staff presentation and in response to written and oral comments. The modifications were made available to the public in the Notice of Public Availability of Modified Text on March 28, 2003. The modifications and the rationale behind them are documented in that notice.

These regulatory amendments and new certification procedures are designed to provide transit agencies with greater flexibility in complying with the required emission standards.

PM Emission Reduction Requirement

The amendments require a transit agency to reduce its overall diesel fleet PM emissions by a specified percentage. Total certified diesel fleet PM emissions as of January 1, 2002, serve as the baseline value for calculating the required reduced emission level. The implementation schedule and the percent reduction of PM from the baseline PM emission levels are provided in Table 1, below.

The total diesel PM emission reductions apply only to diesel-fueled, dual-fueled, bi-fueled, and diesel hybrid-electric buses (HEBs); in other words, any engine that uses diesel fuel and has diesel PM emissions. A transit agency with alternative-fueled buses and diesel-fueled buses is required to reduce PM emissions from its diesel buses only. In this case, a PM emissions baseline is based on the transit agency's diesel bus population. This approach is designed to ensure that every diesel fleet will have its in-use PM emissions significantly reduced by 2007 or 2009, depending on fuel path.

Transit agencies may use a variety of methods to reduce their diesel PM emissions to comply with the diesel PM emission reduction requirement, including bus retirement, engine repower, purchase of new low-emission buses, and installation of a verified diesel emission control strategy. Transit agencies may retire older buses or repower engines certified to higher emissions levels and replace them with newer diesel, dual fuel, bi-fuel, or diesel HEBs certified to 0.01 g/bhp-hr, or with alternative fuel buses. Replacement of a diesel bus with an alternative-fuel bus also reduces the total diesel PM emissions.

Table 1

Proposed Compliance Schedule for Total Diesel PM Emissions		
Compliance Year (as of January 1st)	Diesel Fuel Path Percent Reduction	Alternative Fuel Path Percent Reduction
2004	40	20
2005	60	40
2007	85	60
2009	85	85

Fuel Path Change

The approved amendments include a one-time opportunity for a transit agency in the South Coast Air Quality Management District (SCAQMD) to change its fuel path selection from diesel to alternative fuel. Because transit agencies in the SCAQMD have already been purchasing alternative-fuel buses in accordance with District rules, allowing these agencies to change to the alternative fuel path has little or no impact on the benefits expected from the regulation. Any transit agency in the SCAQMD that wishes to change its fuel path must declare its intention by January 31, 2004. This date allows transit agencies sufficient time to bring the question before

their management or Board, and allows them to combine required reports on compliance with the annual report due each January 31st.

Alternative Fuel Bus Purchase Provision for Diesel Path Transit Agencies

To encourage and facilitate transit agencies on the diesel path to purchase alternative-fueled engines, the restriction that prohibits transit agencies on the diesel path from purchasing model year 2004 to 2006 alternative-fueled urban bus engines with NOx emissions in excess of 0.5 g/bhp-hr has been removed. Both diesel path and alternative fuel path transit agencies are still prohibited from purchasing diesel-fueled, dual-fueled, or bi-fueled engines with certified NOx emissions greater than 0.5 g/bhp-hr.

Transit Agency Request for Delay

A general provision has been added to the regulation allowing a transit agency, with fewer than 20 buses, to request an implementation delay based on a convincing demonstration of financial hardship. This amendment includes a mechanism to allow the Executive Officer to hear and decide on the merits of exceptional requests for an implementation delay.

Definitions

New definitions for “emergency contingency vehicle,” “heavy-duty pilot ignition engine,” and “spare bus” have been added. In addition, the definitions of “active fleet” and “alternative fuel” have been modified for clarity.

Repeal Certification Procedures for PM Retrofit Devices

The regulation requires that any device installed on urban buses to meet the diesel PM reduction requirement be verified under the procedures adopted therein. To ensure that all manufacturers follow the same procedures, have the same warranty and in-use compliance requirements, the “California Certification Procedures for PM Retrofit Devices for On-Road Heavy-Duty Diesel Vehicles,” adopted November 22, 2000, and incorporated by reference in CCR title 13, section 1956.2 (f)(7) have been repealed. These procedures have been replaced with those adopted by the Board in May 2002: “Diesel Emission Control Strategy Verification Procedure, Warranty and In-Use Compliance Requirements for On-Road, Off-Road, and Stationary Diesel-Fueled Vehicles and Equipment.”

Heavy-duty Hybrid Electric Vehicle Interim Certification Procedures

The approved hybrid-electric certification procedures provide manufacturers and transit agencies with representative emission values that facilitate the comparison of hybrid-electric bus emissions with other technologies. The NOx certification value of a HEB is determined through calculations using chassis dynamometer results and engine certification values for both the HEB and a conventional urban transit bus.

To provide flexibility and facilitate sales of HEBs, up to two parties (i.e. the engine/turbine/fuel cell manufacturer and the electric drive component manufacturer) may apply for an Executive Order identifying the certified emission standard, for model years 2004 through 2006. During this interim period, HEBs may also be certified using current engine-based certification procedures on a case-by-case basis, if approved by ARB’s Executive Officer. Starting with

model year 2007, only one party may apply for an Executive Order identifying the emission standard achieved by the HEB.