

State of California
AIR RESOURCES BOARD

Updated Informative Digest

PUBLIC HEARING TO CONSIDER THE ADOPTION OF AMENDMENTS TO THE LOW-EMISSION VEHICLE REGULATIONS, INCLUDING PARTICULATE STANDARDS FOR GASOLINE VEHICLES, AND ADMINISTRATIVE REVISIONS

Sections Affected: Amendments to title 13, California Code of Regulations (CCR), sections 1960.1 and 1961, and the incorporated “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles” as last amended December 27, 2000, and “California Non-Methane Organic Gas Test Procedures” as last amended August 5, 1999; section 1960.5 and the incorporated “Guidelines for Certification of 1983 and Subsequent Model-Year Federally Certified Light-Duty Motor Vehicles for Sale in California” as last amended July 12, 1991; and section 1962 and the incorporated “California Exhaust Emission Standards and Test Procedures for 2003 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes” as last amended August 5, 1999. Adoption of the new “Guidelines for Certification of 2003 and Subsequent Model-Year Federally Certified Light-Duty Motor Vehicles for Sale in California,” to be incorporated in section 1960.5.

Background: Following a hearing in November 1998, the ARB adopted the second generation LEV II program. These regulations are a continuation of the Low-Emission Vehicle (LEV I) regulations originally adopted in 1990 and phased in through the 2003 model year. The LEV II regulations expand the scope of the LEV I regulations by increasing the stringency of the emission standards for all light- and medium-duty vehicles beginning with the 2004 model year, and making the expanded category of light-duty trucks (including almost all sport utility vehicles) subject to the same standards as passenger cars. There are several tiers of increasingly stringent LEV II emission standards to which a manufacturer may certify: low-emission vehicle (LEV); ultra-low-emission vehicle (ULEV); super-ultra low-emission vehicle (SULEV); partial zero-emission vehicle (PZEV); and zero-emission vehicle (ZEV). In conjunction with the tiers of emission standards, the LEV II regulations provide flexibility for phasing in vehicles meeting the standards. Manufacturers are allowed to choose the standards to which each vehicle is certified provided its overall fleet meets a fleet average hydrocarbon requirement that is progressively lower with each model year. The LEV II fleet average requirements commence in the 2004 model year and apply through 2010 and beyond. In addition to the LEV II requirements, starting with the 2003 model year minimum percentages of passenger cars and the lightest light-duty trucks marketed in California by a large or intermediate volume manufacturer must be ZEVs.

Subsequent to the adoption of the LEV II program, the United States Environmental Protection Agency (U.S. EPA) adopted its own version of stringent emission standards for light-duty vehicles, known as the Tier 2 regulations. In December 2000, the Board modified the LEV II program to take advantage of some elements of the recently adopted federal Tier 2 program to ensure that only the cleanest vehicle models will continue to be sold in California.

The ARB continuously seeks to improve California's regulations and test procedures with the goals of improving clarity, increasing uniformity with the U.S. EPA (where it is appropriate), minimizing cost (wherever possible), and anticipating and resolving regulatory issues before they pose serious problems for manufacturers. This rulemaking supports the aforementioned goals by making a number of changes to the LEV II regulations. These include a number of minor modifications, including some new emission standards that will facilitate the certification of clean vehicles in California while continuing to ensure that the California emission standards are the most stringent in the world.

The amendments to the LEV II regulations adopted in this rulemaking establish certain new emission standards as well as make some minor administrative revisions to ease the certification effort for manufacturers.

New emission standards. The newly adopted emission standards consist of:

1. **A particulate matter (PM) standard for Otto-cycle vehicles.** Currently, California requires only diesel vehicles to meet a PM emission standard, while the U.S. EPA requires both diesel-cycle and Otto-cycle (gasoline) vehicles to meet a PM standard. While the health effects of PM emissions from gasoline vehicles have not been defined at this time, the Board has aligned the California requirements with the federal standard to provide an additional measure of protection for public health. Accordingly, light- and medium-duty Otto-cycle vehicles will be required to meet the same PM standard required for diesel-cycle vehicles to ensure that any new direct injection gasoline engines exhibit low PM emissions.

2. **PZEV Alternative Fuel Vehicle Standards.** Currently, a natural gas or alcohol bi-fuel, flexible fuel or dual-fuel vehicle may certify to two emission standards – the lower standard when operating on the alternative fuel and the next higher emission standard when operating on gasoline (e.g., the SULEV standard on compressed natural gas and ULEV on gasoline). As part of the LEV II rulemaking, the ZEV requirement was modified to allow a manufacturer to meet a portion of its ZEV obligation by producing extremely clean partial zero-emission vehicles (PZEVs). The granting of partial ZEV credits for PZEVs is premised on the assumption that PZEVs provide emission benefits beyond those achieved by vehicles certifying to the standard SULEV standard. Therefore, amendments in this rulemaking require that any bi-fuel, flexible fuel and dual-fuel vehicle that certifies to the PZEV standard must certify to the SULEV emission standard regardless of the fuel on which it is operated. If a manufacturer does not wish to earn partial ZEV credit from a bi-fuel, flexible fuel or dual-fuel vehicle certifying to the

SULEV standard, then the manufacturer is still be allowed to certify to the ULEV standard when operating on gasoline.

Administrative and Other Amendments. The administrative and other amendments include:

1. Establishment of a non-methane organic gas (NMOG) certification factor. A manufacturer will be allowed to apply a factor of 1.04 to the measured non-methane hydrocarbons (NMHCs) in lieu of measuring carbonyls when determining compliance with the NMOG standards for gasoline and diesel vehicles. A manufacturer using the factor will also be allowed to demonstrate compliance with the formaldehyde emission standard by including a statement of compliance in their application for certification. Similar to the federal requirements, the statement must be based on previous emission tests, development tests, or other appropriate data.

2. Extending the applicability of generic reactivity adjustment factors (RAFTs). Compliance with the NMOG standard is determined by multiplying the measured NMOG emission level by the applicable RAF. The availability of RAFTs, therefore, provides manufacturers with an incentive to produce clean alternative fuel vehicles. Manufacturers can use either the generic RAFTs provided in the California light- and medium-duty vehicle test procedures, or generate their own test group specific RAFTs. Currently, the RAFTs contained in the California test procedures are effective only through the 2003 model year. Accordingly, The Board has extended the generic RAFTs indefinitely for alternative fuels. Beginning in the 2004 model year the generic RAF for gasoline – now 0.94 – has been eliminated.

3. Revisions to the emission offset requirements for AB 965 vehicles. Recognizing that manufacturers may be required to limit product selection because of the stricter California emission standards, in 1981 the California legislature enacted a statute that allows manufacturers to introduce dirtier federal vehicles in California as long as their emissions are offset by cleaner California vehicles. In response to this directive, the Board adopted “Guidelines for Certification of 1983 and Subsequent Model-Year Federally Certified Light-Duty Motor Vehicles for Sale in California” (AB 965 Guidelines) in June 1982. The Board has amended these guidelines to provide that available emission credits are to be calculated based on each manufacturer’s fleet average NMOG level compared to the required fleet average NMOG level.

4. Implement additional intermediate in-use compliance standards. Even though a manufacturer must certify a vehicle to a set of 50,000 and 120,000 mile standards, the LEV II regulations establish slightly less stringent in-use standards for vehicles certifying to LEV II, ULEV II, and SULEV standards for the first three years that a new model is introduced. This was done to provide manufacturers with a temporary in-use compliance margin when they first introduce vehicles to the new standards. Currently, there are no intermediate in-use standards for light-duty trucks engineered for heavier duty cycles that have a base payload capacity of 2,500 lbs. or higher or for vehicles certified to the optional 150,000 mile standards for LEV, ULEV, or SULEV.

Accordingly, the Board has added intermediate in-use standards for these emission categories, equal in stringency to the preexisting intermediate in-use standards for other emission categories.

5. Revisions to the California NMOG test procedures. Because of innovations and advancements in the measurement of automotive exhaust, the NMOG test procedures have periodically been updated to reflect these improvements. In this rulemaking the Board has made a number of additional technical revisions to this document. The most notable amendments change the maximum incremental reactivity (MIR) values for the various organic compounds found in NMOG. The newly adopted values reflect the new MIR values which the ARB recently adopted in a rulemaking on consumer products.

6. Revisions to the Fleet Average NMOG Requirements for Independent Low Volume Manufacturers. Under the preexisting regulations, independent low volume manufacturers (those that sell between 4,500 and 10,000 vehicles in California each year, including the sales of any other manufacturer having 10 percent or more common ownership) are required to meet the same fleet average NMOG requirements that are applicable to large volume manufacturers. Newly adopted amendments establish a new fleet average NMOG requirement specifically for Independent low volume manufacturers.