

State of California
AIR RESOURCES BOARD

**STAFF REPORT: INITIAL STATEMENT OF REASONS FOR
RULEMAKING**

**PROPOSAL TO CONSIDER THE ADOPTION OF AMENDMENTS TO
THE LOW-EMISSION VEHICLE REGULATIONS, INCLUDING
PARTICULATE STANDARDS FOR GASOLINE VEHICLES, MORE
STRINGENT EMISSION STANDARDS FOR FUEL-FIRED HEATERS,
AND ADMINISTRATIVE REVISIONS**

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AVAILABILITY OF INCORPORATED DOCUMENTS ON THE INTERNET – REQUEST FOR DOCUMENTS FORM

EXECUTIVE SUMMARY

Following a November 1998 hearing, the California Air Resources Board (ARB) adopted the second generation Low-Emission Vehicle program (LEV II) for light- and medium-duty vehicles. These regulations were revised in December 2000 to take advantage of some elements of the Federal Tier 2 emission standards to ensure that California has the benefit of the cleanest vehicles available.

The ARB continuously seeks to improve California's regulations and test procedures with the goals of improving clarity, increasing uniformity with the U.S. Environmental Protection Agency where 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 proposing 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 proposed standards include the application of the current diesel particulate matter standards to gasoline vehicles to ensure that any new direct injection gasoline engines exhibit low particulate emissions; strengthening the emission standards for fuel-fired heaters in zero-emission vehicles and requiring testing at 40°F, a temperature better reflecting their conditions of use; and requiring bi-, flexible- and dual-fuel partial zero-emission vehicles (PZEVs) to meet the same super-ultra-low-emission standards while operating on either an alternative fuel or gasoline. Staff is also proposing some administrative amendments to ease the certification process for manufacturers. Other proposed revisions include incorporation of certain federal requirements to more closely align with the federal program; revision of the guidelines for selling federal vehicles in California; and updating the Non-Methane Organic Gas test procedures.

Staff does not anticipate any significant emission benefits from this proposal. Although some new emission standards are being proposed, they are generally designed to provide an additional measure of protection for public health. Furthermore, compliance with these new standards is not expected to require the implementation of new technology, as most vehicles are already capable of meeting them.

I. INTRODUCTION AND BACKGROUND

The Air Resources Board (ARB or Board) adopted California's second generation Low-Emission Vehicle regulations (LEV II) following a November 1998 hearing. These regulations are a continuation of the Low-Emission Vehicle (LEV I) regulations originally adopted in 1990 which were effective through the 2003 model year. The LEV II regulations increase the scope of the LEV I regulations by lowering the emission standards for all light- and medium-duty vehicles (including sport utility vehicles) beginning with the 2004 model year. 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 addition to very stringent emission standards, the LEV II regulations provide flexibility to manufacturers by allowing them to choose the standards to which each vehicle is certified provided the overall fleet meets the specified phase-in requirements according to a fleet average hydrocarbon requirement that is progressively lower with each model year. The LEV II fleet average requirements commence in 2004 and apply through 2010 and beyond. In addition to the LEV II requirements, starting in 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 U.S. EPA adopted its own version of California emission standards 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.

This staff report contains a proposal to further modify the LEV II regulations to promulgate certain new emission standards as well as propose some minor administrative modifications to ease the certification effort for manufacturers. The new emission standards being proposed are:

- (1) a particulate matter standard for gasoline vehicles;
- (2) requiring fuel-fired heaters used in ZEVs to meet SULEV rather than ULEV tailpipe emission standards; and
- (3) requiring bi-, flexible- and dual-fuel vehicles to certify to the same emission standard on both fuels.

The proposed administrative amendments include:

- (1) incorporating recent Tier 2 amendments into the LEV II regulations including the provision that manufacturers may measure non-methane hydrocarbons (NMHC) in place of non-methane organic gas (NMOG) with the use of a factor for gasoline vehicles;
- (2) updating the California NMOG test procedures including the maximum incremental reactivity (MIR) values; and

- (3) updating the guidelines for certification of a limited number of federal vehicles in California (vehicles certified under the Assembly Bill (AB) 965 statute).

The proposed administrative amendments are designed to ensure that the LEV II regulations continue to result in only the cleanest vehicles available being marketed in California, while relieving any unnecessary regulatory requirements on manufacturers by further aligning with the federal Tier 2 regulations.

The following is a discussion of the proposed amendments.

II. DISCUSSION OF PROPOSED REGULATORY CHANGES

A. Proposed New Emission Standards.

1. Establishing a particulate matter 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. Although data indicate that PM emissions from well-maintained gasoline vehicles are well below the proposed PM standard, concerns have been raised about the possible health effects of PM emissions from gasoline vehicles that utilize direct injection gasoline technology. While these health effects have not been defined at this time, staff is proposing alignment with the federal standard to provide an additional measure of protection of public health. Therefore, staff is proposing that light- and medium-duty Otto-cycle vehicles be required to meet the same PM standard that now applies to diesel-cycle vehicles. The proposed amendment is not expected to require the use of additional emission control technology on conventional gasoline vehicles to meet the proposed standard. However, it is unclear at this time whether direct injection gasoline technology will require additional technology to meet the proposed standard. Furthermore, because conventional gasoline vehicles emit well below the proposed PM standard, staff is also proposing that in lieu of testing for certification, a manufacturer would be allowed to use representative test data from similar technology vehicles, as permitted under the federal regulations (40 CFR section 86.1829-01(b)(1)(iii)(B)).

2. ZEV fuel-fired heater requirements. The emission requirements for fuel-fired heaters used in ZEVs were first adopted in the original LEV I program. At that time, they were required to certify to the most stringent emission standard available, the ULEV standard. With the adoption of the LEV II regulations, the most stringent exhaust emission standard became the SULEV standard, which is 75 percent cleaner than the ULEV standard. Since allowing fuel-fired heaters used by ZEVs to emit at a level greater than a PZEV is inconsistent with the purpose of the ZEV program, staff is proposing that fuel-fired heaters certify to the SULEV standard. Furthermore, since fuel-fired heaters are not permitted to operate above 40°F ambient temperature, manufacturers will be required to meet the emission standard at 40°F – rather than at 68°F - 86°F as is now the case. The new standards would be effective beginning in model year 2005 to provide manufacturers with sufficient lead time to develop product plans.

3. 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). In the original LEV regulations, special consideration was given to alternative fuel vehicles because their emissions are likely to exhibit a lower ozone-forming potential than emissions from gasoline-fueled vehicles. Because of their lower ozone forming potential, alternative fuel vehicles may need less extensive emission control systems to meet a reactivity adjusted NMOG standard than would be required on gasoline. At least initially, it was expected that many alternative fuel vehicles would be designed to also run on gasoline, given the limited number of retail facilities dispensing the alternative fuel. Requiring a bi-fuel, flexible fuel or dual-fuel vehicle to meet the same NMOG standard when operating on gasoline and on the alternative fuel could prevent the manufacturer from taking full advantage of the lower ozone-forming potential of the alternative fuel. Since the same advanced emission technologies used on gasoline-only vehicles would be needed to meet the NMOG standard when the bi-fuel, flexible fuel or dual-fuel vehicle operates on gasoline, there would be little incentive for the manufacturer to develop vehicles that use an alternative fuel. Thus the multiple level standard criterion was adopted.

As part of the LEV II rulemaking, the ZEV requirement was modified to allow a manufacturer to meet a portion of its ZEV obligation using extremely clean vehicles. The new emission category of partial zero-emission vehicle, or PZEV, basically reflects the SULEV emission standards with additional strict requirements (such as having to meet these standards at 150,000 miles instead of 120,000). A manufacturer that meets these strict requirements may qualify for partial ZEV credits that can be used to offset the ZEV requirement. 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. Within this context, staff is proposing 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 would still be allowed to certify to the ULEV standard when operating on gasoline.

B. Proposed Administrative Amendments.

In addition to the emission standards being proposed in this rulemaking, staff is also proposing minor modifications to facilitate implementation of the LEV II program.

1. Establishment of an NMOG certification factor. Prior to the adoption of the LEV I regulations in 1990, exhaust emission standards were based on NMHC emissions, which provided an adequate representation of exhaust emissions from conventional gasoline and diesel fueled vehicles. With the inception of reformulated gasoline (which contains oxygen) and standards for alternative fueled vehicles, the NMHC standard was not adequate because it did not include

oxygenated compounds (such as formaldehyde) that contribute to exhaust reactivity and which may be present in significant amounts in reformulated gasoline as well as alternative-fueled vehicles such as methanol and ethanol. To provide a more accurate comparison of the reactivity of exhaust emissions of the various vehicle/fuel systems, the individual reactivity of all measurable hydrocarbon species in an exhaust sample needed to be considered. The LEV regulations accordingly established emission standards for NMOG, which includes not only NMHC but also any carbonyls and alcohols present in the exhaust.

When the U.S. EPA adopted its Tier 2 regulations, it also required compliance with NMOG emission standards. However, the Tier 2 program allows a manufacturer certifying gasoline or diesel vehicles to demonstrate compliance with the applicable NMOG standard by measuring NMHC emissions and multiplying the measured emission level by a factor of 1.04 in lieu of measuring carbonyls (65 F.R. 6854 (February 10, 2000).) Manufacturers have requested ARB to align its test requirements with the federal Tier 2 test requirements for gasoline vehicles (California does not require carbonyl measurements for diesel vehicles). Certification data for new vehicles certified in California suggest that applying a factor of 1.04 to NMHC emissions adequately accounts for carbonyl emissions from gasoline vehicles. Therefore, staff is proposing that California's test requirements for gasoline vehicles be aligned with federal Tier 2 requirements in this respect.

In addition, the U.S. EPA allows a manufacturer of a gasoline vehicle to submit a statement of compliance with the formaldehyde standards in lieu of full testing of formaldehyde emissions from the vehicle. Staff believes that there would be no impact on air quality from this approach because (1) the manufacturer would still be liable to meet the standard in-use and (2) with today's level of technology, the formaldehyde levels from gasoline vehicle are well below the applicable standards. Therefore, staff is proposing that a manufacturer using the carbonyl factor for gasoline vehicles be allowed to demonstrate compliance with the formaldehyde emission standard by including a statement of compliance in the application for certification. Similar to the federal requirements, the manufacturer must demonstrate that the statement of compliance is supported by previous emission tests, development tests, or other appropriate data.

2. Extending the applicability of generic reactivity adjustment factors (RAFTs). Provisions on the development and use of RAFTs were first included in California's regulations as part of the LEV I program to provide a mechanism for equalizing the air quality impact of all vehicle/fuel systems. Because the composition of NMOG exhaust determines its ozone-forming potential, RAFTs were calculated for various alternative fuels by comparing the ozone-forming potential of each of these fuels meeting a specific NMOG standard with the ozone-forming potential of a conventional gasoline vehicle meeting the same NMOG standard.¹ Compliance with the NMOG standard is determined by multiplying the measured NMOG emission level by the applicable RAFT. Thus, if the NMOG emissions from a vehicle powered by an alternative fuel are less ozone reactive than emissions from a gasoline vehicle, the alternative fuel vehicle is allowed to emit a

¹ The term "conventional gasoline" means the gasoline available in 1990, when the LEV I regulations were adopted.

higher mass of NMOG than the gasoline vehicle. The availability of RAFs, therefore, provides manufacturers with an incentive to produce clean alternative fuel vehicles. Manufacturers can use either the generic RAFs provided in the California light- and medium-duty vehicle test procedures, or generate their own test group specific RAFs.

Currently, the RAFs contained in the California test procedures are effective only through the 2003 model year. Accordingly, staff is proposing that the current generic RAFs be extended indefinitely for all fuels except gasoline. Beginning in 2004 the generic RAF for gasoline vehicles would be eliminated (the current value is 0.94). Accordingly, the NMOG emissions from these gasoline vehicles would not be adjusted, except by the NMOG factor described above, when determining compliance with the applicable emission standard. This amendment is being proposed for several reasons.

First, while emission testing has been conducted using a certification gasoline containing the oxygenate methyl tertiary butyl ether (MTBE), the ARB has banned the use of MTBE in the state's gasoline starting December 31, 2002 to protect against contamination of ground and surface waters. The ARB accordingly plans to adopt new specifications for the gasoline used in certification testing which will substitute ethanol as the oxygenate in place of MTBE. If this occurs, emission testing would be required on a large number of vehicles meeting California's emission categories in order to determine an appropriate RAF for the new gasoline fuel. Yet since the oxygenate is a small fraction of gasoline, only a small change in vehicle exhaust reactivity is expected. Second, as emissions from new vehicles decrease (by 2010 the fleet average NMOG requirement for new passenger cars and light-duty trucks is 0.035 g/mi) the ozone impact from eliminating the RAF would be minimal. Third, eliminating the RAF for gasoline effectively increases the ozone stringency of current light- and medium-duty vehicle NMOG emission standards by 6 percent. Accordingly, staff believes that this proposal is as protective of ozone as the current program. The RAFs for alternative fuels are being retained because of the significant ozone benefit those fuels can provide. The provision allowing manufacturers to generate their own test group-specific RAF for gasoline vehicles would also be retained.

3. Revisions to the emission offset requirements for AB 965 vehicles.

Under the provisions of the federal Clean Air Act, California is allowed to set its own emission standards provided they are at least as protective of the public health as the federal standards. Recognizing that manufacturers may be required to limit product selection because of the stricter California 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 (Stats. 1981, Ch. 1185 (AB 965).) Section 43102(b) of the California Health and Safety Code requires that the ARB establish guidelines "not later than for the 1983 and subsequent model years, which will allow a manufacturer to certify in California federally certified light-duty motor vehicles with any engine family or families when their emissions are offset by the manufacturer's California certified motor vehicles whose emissions are below the applicable California standards." 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.

At the time the AB 965 Guidelines were adopted there was only one applicable exhaust emission standard for light-duty vehicles. The existing guidelines were developed whereby a manufacturer could earn emission credits based on the certification levels² of its new light-duty vehicle fleet compared to the emission standard for those vehicles. The emission credits required to offset a federal vehicle were the difference between the federal certification level and the sales-weighted mean certification level of all California engine families (Calmean). Estimated credits available to offset federal vehicle emissions were updated at the end of the model year using vehicle production data and assembly-line emissions data. Subsequent revisions to the AB 965 Guidelines retained this methodology for allowing new federal vehicles that do not meet California emission standards to be sold in California.

The problem with the methodology currently used in the AB 965 Guidelines is that as vehicles age, their emissions increase. Hence, it is erroneous to assume that the difference between the certification emission level of a vehicle and the applicable emission standard for that vehicle represents actual “extra” emission benefits that could be used to offset higher-emitting vehicles. Furthermore, the “Compliance Assurance Program,” or “CAP 2000,” developed through a cooperative effort between ARB, USEPA, and manufacturers to streamline the in-use compliance program, and adopted by the Board as part of the LEV II program, eliminates assembly-line quality audit testing, which provided the basis for determining the actual emission credits.

The LEV program presents a unique opportunity to revise the AB 965 Guidelines to more accurately reflect actual vehicle emissions. This opportunity presents itself because of the fleet average requirements in the LEV II regulations that reduce emissions from the new vehicle fleet by requiring each manufacturer to phase-in a progressively cleaner mix of vehicles from year to year. For each model year, a manufacturer may choose the standards to which each light-duty vehicle model is certified, provided that the manufacturer’s entire fleet of these vehicles meets a specified NMOG emission level. The current proposal revises the AB 965 Guidelines to calculate available emission credits based on each manufacturer’s fleet average NMOG level compared to the required fleet average NMOG level.

In addition to generating credits for hydrocarbon emissions, manufacturers must also generate credits to offset any emissions of carbon monoxide (CO) and oxides of nitrogen (NOx) from their AB 965 vehicles that exceed the fleet average emissions. The fleet average mix of vehicles used to calculate the required NMOG emission level in the EMFAC emission inventory was also used to estimate the fleet average oxides of nitrogen (NOx) and carbon monoxide (CO) emission levels for the purpose of calculating available emission credits for AB 965 vehicles.

² The term certification level refers to the actual emission value of the tested vehicle. Manufacturers often provide a significant amount of compliance margin by targeting an emission level well below the emission standard to allow for some deterioration during the vehicle’s useful life.

4. Implement additional intermediate in-use compliance

standards. Even though a manufacturer must certify a vehicle to a set of 50,000 mile 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, staff is proposing that intermediate in-use standards be added for these emission categories, equal in stringency to the existing intermediate in-use standards for other emission categories.

5. Proposed 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. Most of the amendments to the NMOG Test Procedures being proposed in this rulemaking are highly technical and reflect advances in technology. Staff has worked to develop consensus with industry on the proposed amendments. The most notable amendments are to the MIR values³ published in the Appendix to the test procedures. The amended values reflect the new MIR values which were recently adopted in a rulemaking for consumer products and are set forth in section 94700, title 17, California Code of Regulations. To provide consistency in the use of MIR values in reactivity-based regulations, staff is proposing that the same MIR values be used in the motor vehicle and consumer product emission control programs.

III. AIR QUALITY, ENVIRONMENTAL AND ECONOMIC IMPACTS

A. Air Quality and Environmental Impacts

Staff anticipates that there will be no significant emissions impact from this proposal because it consists primarily of administrative changes. Furthermore, the proposal that Otto-cycle vehicles meet particulate emission standards is intended to be a safeguard to ensure that emissions from these vehicles do not increase to unhealthful levels, rather than to reduce current emission levels. The requirements for fuel-fired heaters used in zero-emission vehicles apply to emissions at 40°F, well below temperatures where ozone formation is a concern. And the impact of the requirement that bi-fuel, flexible fuel, and dual-fuel vehicles meet PZEV standards on both fuels in order to be eligible to receive partial zero-emission vehicle credit will be small because of the limited number of such vehicles likely to certify to this standard.

³ Maximum incremental reactivity (MIR) is defined as the propensity of an organic compounds to form ozone.

B. Economic Impact

The staff expects that the proposed amendments will not have a significant cost impact on directly affected persons or businesses. The proposed regulatory and test procedure modifications are primarily administrative changes that do not require any California vehicle model to be certified to new standards. The proposed particulate standards for Otto-cycle vehicles have already been adopted for federal Tier 2 vehicles and will not require the development and use of new emission control technology. Furthermore, a manufacturer will be allowed to demonstrate compliance with these standards by providing a statement in its application for certification that its Otto-cycle vehicles will comply with the applicable particulate standards in lieu of testing the vehicles (this requirement is consistent with the federal Tier 2 certification requirement). The requirement that fuel-fired heaters used in ZEVs meet SULEV, rather than ULEV standards could result in negligible cost increases. Fuel-fired heaters meeting ULEV standards must already incorporate fuel control strategies to reduce cold-start emissions (i.e., emissions created when the heater first starts up). While compliance with SULEV standards may require an additional level of emission control, emissions from fuel-fired heaters are much easier to reduce than vehicle emissions because heaters operate at steady-state modes.

The cost associated with requiring bi-fuel, flexible fuel or dual-fuel PZEVs to certify to the 150,000 mile SULEV standards on both fuels should be minor. Meeting the SULEV standards is a challenge not only for gasoline, but alternative fuels as well. Since these vehicles must already meet SULEV standards using the alternative fuel, they are already equipped with a high degree of emission control that could be used to lower gasoline emissions to SULEV emission levels. Finally, the establishment of an NMOG factor for gasoline vehicles, extending the applicability generic alternative fuel vehicle RAFs, and providing intermediate in-use compliance standards will result in cost savings for manufacturers. There will be no noticeable impact in California employment, business status, and/or competitiveness.

1. Legal requirement. Section 11346.3 of the Government Code requires State agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment includes a consideration of the impact of the proposed regulation on California jobs, business expansion, elimination, or creation, and the ability of California business to compete.

State agencies are required to estimate the cost or savings to any state or local agency, and school districts. The estimate is to include any nondiscretionary cost or savings to local agencies and the cost or savings in federal funding to the state.

2. Affected businesses. Any business involved in manufacturing or purchasing passenger cars, light-duty trucks or medium-duty vehicles could be affected by the proposed amendments. There are approximately 30 companies worldwide that manufacture California-certified light- and medium-duty vehicles.

Only one motor vehicle manufacturing plant is located in California, the NUMMI facility, which is a joint venture between General Motors and Toyota.

3. Potential impact on manufacturers and consumers. The proposed California requirements are not expected to impact automobile manufacturers significantly, since the proposed regulatory and test procedure changes are primarily administrative. The most significant economic impact to manufacturers will be a cost savings due to a reduction in testing required for gasoline vehicles to demonstrate compliance with applicable NMOG emission standards. The impact on consumers is also expected to be minimal.

4. Potential impact on business competitiveness. The proposed amendments would have no adverse impact on the ability of California businesses to compete with businesses in other states because we are not proposing any changes that are expected to increase vehicle cost or limit vehicle availability.

5. Potential impact on employment. The proposed amendments are not expected to cause a noticeable change in California employment because all but a very small portion of automobile manufacturing is conducted in other states.

6. Potential impact on business creation, elimination or expansion. The proposed amendments are not expected to affect business creation, elimination or expansion.

7. Potential costs to local and state agencies. The proposed amendments are not expected to have a fiscal impact on state and local agencies or on funding to state agencies.

IV. REGULATORY ALTERNATIVES

Staff considered the following regulatory alternative to the proposed amendments.

Do not amend current California LEV program. The majority of the proposed changes to the LEV regulations (establishment of an NMOG factor for gasoline vehicles, extending the applicability of generic RAFs for alternative fuel vehicles, addition of intermediate in-use compliance standards for certain vehicles, revisions to the AB 965 guidelines, and updates to the NMOG test procedures) are needed to simplify the testing process for vehicle manufacturers and/or revise outdated or soon-to-be-expired portions of the regulations. These changes provide cost benefits for manufacturers while maintaining the emission benefits of the current regulations. The remaining proposed regulatory changes (establishment of particulate matter standards for Otto-cycle vehicles to align then with federal requirements, requirement that fuel-fired heaters used in ZEVs meet SULEV emission levels, and requirement that bi-fuel, flexible fuel, and dual-fuel vehicles meet SULEV standards on both fuels in order to qualify as PZEVs) are needed to ensure that California continues to receive the cleanest vehicles available.

No alternative considered by the agency would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective or less burdensome to affected private persons than the proposed regulation.

V. STAFF RECOMMENDATION

For the reasons stated above, staff recommends that the Board adopt the proposal set forth in this staff report.

Attachments

REFERENCES

1. Staff Report: Initial Statement of Reasons, "Proposed Amendments to California Exhaust and Evaporative Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles "LEV II" and Proposed Amendments to California Motor Vehicle Certification, Assembly Line and In-Use Test Requirements "CAP 2000"," California Air Resources Board, September 18, 1998.
2. Final Statement of Reasons, ""LEV II" and "CAP 2000" Amendments to the California Exhaust and Evaporative Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and to the Evaporative Emission Requirements for Heavy-Duty Vehicles," California Air Resources Board, September, 1999.

APPENDIX A

PROPOSED REGULATION ORDER