

State of California
AIR RESOURCES BOARD

Resolution 05-53

October 20, 2005

Agenda Item No.: 05-10-2

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) to adopt standards, rules, and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, in section 43000 of the Health and Safety Code, the Legislature has declared that the emission of air pollutants from motor vehicles is the primary cause of air pollution in many parts of the state and, in sections 39002 and 39003 of the Health and Safety Code, has charged the Board with the responsibility of systematically addressing the serious air pollution problem caused by motor vehicles;

WHEREAS, sections 43013, 43101, and 43104 of the Health and Safety Code authorize the Board to adopt motor vehicle emission standards, in-use performance standards, and test procedures which it finds to be necessary, cost-effective, and technologically feasible;

WHEREAS, section 43018 of the Health and Safety Code directs the Board to endeavor to achieve the maximum degree of emission reductions possible from motor vehicle sources to accomplish the attainment of state ambient air quality standards by the earliest practicable date;

WHEREAS, section 43806 of the Health and Safety Code directs the Board to adopt emission standards and procedures applicable to new engines used in publicly owned and privately owned public transit buses;

WHEREAS, the United States Environmental Protection Agency (U.S. EPA) has promulgated emission standards and programs to reduce emissions from urban transit buses, and those standards and programs can be found in title 40 of the Code of Federal Regulations, parts 85 and 86;

WHEREAS, section 43102 of the Health and Safety Code provides that the Board shall not certify a new motor vehicle or motor vehicle engine unless the vehicle or engine meets the emission standards adopted by the ARB pursuant to part 5, division 26 of the Health and Safety Code;

WHEREAS, section 43105 of the Health and Safety Code provides that no new motor vehicle or engine required under part 5, division 26 of the Health and Safety Code to meet emission standards shall be sold to the ultimate purchaser, ordered or delivered for sale to the ultimate purchaser, or registered in this state if the manufacturer has violated emission standards or test procedures and has failed to take corrective action, which may include recall of vehicles or engines, specified by the Board in accordance with its regulations;

WHEREAS, section 43700 of the Health and Safety Code declares that reductions of emissions from diesel powered vehicles, to the maximum extent feasible, are in the best interests of air quality and public health;

WHEREAS, section 43701(b) of the Health and Safety Code requires the Board to adopt regulations that require heavy-duty diesel vehicles to utilize emission control equipment and alternative fuels to reduce emissions to the greatest extent feasible;

WHEREAS, section 39667 of the Health and Safety Code directs the Board to achieve the maximum possible reduction in public exposure to toxic air contaminants by establishing emission standards for vehicular sources, including new and in-use motor vehicles and fuels;

WHEREAS, on August 27, 1998, following extensive scientific review and public hearings, and consistent with the conclusions of the Scientific Review Panel and the Office of Environmental Health Hazard Assessment, the Board formally identified particulate matter (PM) emissions from diesel-fueled engines as a toxic air contaminant and on September 28, 2000, approved a plan to reduce risk from diesel pollution by reducing harmful PM emissions from diesel engines;

WHEREAS, the Board, through the adoption of Resolution 98-49 on September 24, 1998, called on state, local, and federal agencies to join together to "clean the fleet," supported immediate and continuing efforts to replace diesel-fueled school and public urban transit buses with low-emission alternative-fuel buses, including the provision of necessary infrastructure and technical training, and directed the staff to distribute this resolution to multiple affected parties;

WHEREAS, Health and Safety Code section 43004 provides that unless expressly exempted, the exhaust emission standards for gasoline powered motor vehicles shall apply to motor vehicles that have been modified or altered to use a fuel other than gasoline or diesel;

WHEREAS, at a public hearing on February 24, 2000, the Board adopted Resolution 00-2 to achieve near-term and long-term emission reductions from urban transit buses through a multifaceted fleet rule designed to reduce emissions of oxides of nitrogen (NOx) and diesel PM by mandating a lower fleet average of NOx emissions; by requiring engines to be retrofitted with devices to reduce diesel PM emissions by at least 85 percent; by requiring engine manufacturers to significantly reduce the allowable

emissions from certified bus engines; by requiring that transit agencies switch to low sulfur (less than 15 parts per million) diesel fuel; and by requiring transit agencies to purchase specified percentages of zero emission buses;

WHEREAS, the Board, through Resolution 00-2, directed the Executive Officer to work with transit agencies during implementation of the regulations, including provisions of the fleet rule, and to report to the Board regularly on transit agencies' progress in implementing the regulations;

WHEREAS, at a public hearing on October 24, 2002, the Board adopted Resolution 02-30 revising the diesel PM reduction program to ensure that every transit agency fleet will have significantly lower in-use diesel PM emissions by 2007 or 2009, depending on fuel path; removing the prohibition for transit agencies on the diesel path from purchasing alternative-fueled engines with NO_x emissions in excess of 0.5 grams per brake-horsepower hour (g/bhp-hr) to encourage the use of alternative fuel; adopting new interim certification procedures for hybrid-electric vehicles in the urban bus and heavy-duty vehicle classes to account for the emission benefits of the hybrid-electric bus technology; and making other changes as necessary to ensure emission reductions from urban buses operated by transit agencies;

WHEREAS, at a public hearing on June 24, 2004, the Board adopted Resolution 04-19 revising the zero emission bus demonstration project requirements and timetable, and adding provisions that would allow manufacturers to sell diesel hybrid-electric buses certified to a 2004-2006 model year exhaust emission standard of 1.8 g/bhp-hr NO_x and 0.01 g/bhp-hr PM and that would allow transit agencies on the diesel path to purchase diesel hybrid electric buses so long as they satisfy requirements to reduce NO_x emissions from their other buses;

WHEREAS, in June 2004, staff, with concurrence of the Board, postponed a decision on a staff proposal to align the urban bus engine standards with the California 2007 heavy-duty standard because of the ongoing evaluation of available urban bus technology; whether natural gas engines would be certified to the 2007 urban bus NO_x emission standard was an issue of particular interest;

WHEREAS, at a public hearing on February 24, 2005, the Board adopted Resolution 05-15 to achieve emission reductions from transit fleet vehicles by mandating a lower fleet average of NO_x emissions and establishing the diesel PM reduction program to ensure that every transit agency fleet will have significantly lower in-use diesel PM emissions and NO_x emissions by 2010;

WHEREAS, ARB's Fleet Rule for Transit Agencies has been contained in section 1956.2, title 13, California Code of Regulations, but the amendments approved at the February 24, 2005, public hearing will move the fleet rule provisions to sections 2023 and 2023.1, title 13, California Code of Regulations when ultimately approved by the Office of Administrative Law;

WHEREAS, the staff has identified a potential regulatory action under which the NOx emission standard for 2007 through 2009 model year urban buses would be changed from 0.2 g/bhp-hr NOx for which averaging is not available to 0.2 g/bhp-hr NOx for which averaging is available, which would align it with the equivalent model-year heavy-duty truck NOx emission standard; this change would be accomplished by the amendments to sections 1956.1 and 1956.8(a)(2)(A), title 13, California Code of Regulations, as set forth in Attachment A hereto, and a Staff Report: Initial Statement of Reasons (Staff Report) with the draft regulatory language were published and made available to the public for at least 45 days prior to this Board hearing;

WHEREAS, the potential regulatory action identified by staff also included amendments to section 2023.1(a) (Fleet Rule for Transit Agencies), title 13, CCR, as shown in Appendix A to the Staff Report; at a September 15, 2005, hearing, the Board adopted Resolution 05-47 adopting the fleet rule amendments to section 2023.1(a), and the Board continued consideration of the exhaust emission standards for 2007 through 2009 model-year heavy-duty urban bus engines to a public hearing on October 20, 2005;

WHEREAS, the California Environmental Quality Act and ARB regulations require that no project which may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, the Board has considered the environmental impacts of the potential regulatory action;

WHEREAS, the Board has considered the impact of this potential regulatory action on the economy of the state;

WHEREAS, the Board finds that no alternative considered would be more effective, or equally effective and less costly, in achieving the regulatory objectives sought than the amendments in this regulatory action;

WHEREAS, ARB staff conducted public workshops on December 2 and 3, 2003, March 29 and 30, 2004, and April 7 and 27, 2005, on this regulatory action, as well as public outreach meetings and several focused stakeholder meetings throughout the rulemaking process, in order to include the public and affected stakeholders in the process for regulatory development;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of Chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code;

WHEREAS, at the start of the October 20, 2005, hearing, the staff presented suggested modifications, set forth in Attachment B hereto, to the originally identified potential amendments;

WHEREAS, in consideration of the public comments and testimony received during the public comment period and at the Board hearing, the Board has determined it is necessary and appropriate to make revised modifications, set forth in Attachment C hereto, to the originally identified amendments; these modifications would maintain the 0.2 g/bhp-hr NOx emission standard for 2007 through 2009 model-year urban buses, but allow transit agencies to purchase urban buses containing model year 2007-2009 diesel engines not certified to the 0.2 g/bhp-hr NOx urban bus standard, but meeting the California heavy-duty truck engine emission standards for model years 2007-2009, as long as they meet specified conditions as applicable in order to maximize NOx emission benefits;

WHEREAS, based on the information in the public record, including the Staff Report and testimony provided at the hearing, the Board finds that:

1. Diesel heavy-duty vehicles operated by transit agencies, on a per vehicle basis, contribute relatively high emissions of NOx and PM and operate in the more heavily congested areas where air quality is critical and direct exposure to diesel particulates occurs for large numbers of people;
2. Excessive diesel PM emissions are a significant source of toxic air contaminants, comprising approximately 70 percent of all toxic air contaminant emissions in California;
3. U.S. EPA adopted new heavy-duty engine standards for trucks and urban buses that were less stringent than the urban bus engine emission standards previously adopted by the Board, resulting in diesel engine manufacturers deciding not to provide a diesel engine that meets California's new urban bus engine standards for model-years 2004 through 2009;
4. Two engine manufacturers have stated that they will be producing an alternative-fuel engine that will meet current 2007 California urban bus engine emission standard at 0.2 g/bhp-hr NOx;
5. Approximately 60 percent of California's urban buses are operated by transit agencies that are on the diesel path and will not purchase alternative fuel engines for their fleet under the model year 2007-2009 standards now in place; instead, these agencies would delay purchasing new buses until 2010, repower their existing fleets with engines at existing emission levels, and keep the older dirtier buses longer;
6. Because there are no diesel engines available for purchasing new buses between 2004 and 2009, staff estimates a shortfall from the projected original 2000 rulemaking of 2.06 tpd of NOx and 80 pounds per day of PM in 2010;

7. Beginning in 2007, California's NOx emissions standards for heavy-duty truck engines align with the federal heavy-duty truck engine emission standards and specifically align with the 0.2 g/bhp-hr NOx standard for 2007 and subsequent model years;
8. Through averaging provisions allowed in 2007 and later model years, heavy-duty truck engines certified to NOx levels greater than 0.2 g/bhp-hr during model years 2007 through 2009 may meet the NOx emission standards that apply during those years;
9. U.S. EPA has concluded that through the use of averaging provisions engine manufacturers will meet the heavy-duty truck engine emission standards for model years 2007 through 2009 and for model-year 2010 and later;
10. Under the amendments approved herein, beginning with the 2007 model year, transit agencies whose fleets are on the diesel path will be permitted to purchase urban bus engines that meet California's heavy-duty truck engine standards in 2007 through 2009 model years subject to specified conditions;
11. The emissions impact of allowing transit agencies to purchase urban bus engines that meet California's heavy-duty truck engine standards in model years 2007 through 2009 will be mitigated by the approved requirement that diesel path transit agencies operating 30 or more urban buses retrofit on a one-to-one basis older diesel urban bus engines and older diesel transit fleet vehicles with Level III diesel emission control systems (DECS) that reduce NOx emission by at least 40 percent or by a minimum 25 percent if a 40 percent reduction DECS is not available;
12. No additional costs will be incurred by transit agencies from these potential regulatory amendments;
13. No alternative considered by the Board would be more effective in carrying out the purpose for which the amendments to the regulations are proposed or would be as effective and less burdensome to affected private persons; and

WHEREAS, pursuant to the requirements of the California Environmental Quality Act and the Board's regulations, the Board further finds that the amendments approved herein may achieve reductions of approximately 1.6 tons per day of oxides of nitrogen and 80 pounds per day of diesel PM in 2009, thereby providing an air quality benefit.

NOW, THEREFORE, BE IT RESOLVED, that the Board hereby approves the amendments to sections 1956.1 and/or 1956.8, title 13, California Code of Regulations, to retain the urban bus engine standards, but allow transit districts to purchase diesel engines that meet the ARB's heavy-duty truck engine standards when the diesel path transit agencies with fleet of 30 or more urban buses mitigate the emissions from non-

compliant with the more stringent urban bus engine standards as described in Attachment C hereto.

BE IT FURTHER RESOLVED that the Executive Officer is directed to incorporate the modifications into the approved regulatory text, with such other conforming modifications as may be appropriate, and then to make the modified regulatory language available for supplemental public comment for a period of 15 days or more; after considering any written comments regarding the modified text that are submitted during this period, the Executive Officer shall adopt the modified regulatory text after making further modifications as may be appropriate in light of the comments received, or present the regulations to the Board for further consideration if she determines that this is warranted.

BE IT FURTHER RESOLVED that the Board directs staff to report to the Board at its public meeting on October 27, 2005, the effect of the retention of the 0.2 g/bhp-hr NO_x standard on transit agencies' access to external funding sources, and most specifically to report on the effect of the anticipated loss of funding under the Carl Moyer Program.

BE IT FURTHER RESOLVED that the Board finds that the amendments approved herein to the California emission standards and test procedures will not cause the California requirements to be inconsistent with section 202(a) of the Clean Air Act and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209(b) of the Clean Air Act.

BE IT FURTHER RESOLVED that if necessary the Executive Officer shall, upon adoption, forward the amended regulations to the U.S. EPA with a request either for a waiver of federal preemption or a determination that the amendments are within the scope of previously granted waivers pursuant to section 209(b) of the Clean Air Act, as appropriate.

I hereby certify that the above is a true and correct copy of Resolution 05-53, as adopted by the Air Resources Board.

Lori Andreoni, Clerk of the Board

Resolution 05-53

October 20, 2005

Identification of Attachments to the Resolution

- Attachment A: Proposed Amendments to sections 1956.1 and 1956.8(a)(2)(A), title 13, California Code of Regulations, as set forth in Appendix A to the Staff Report: Initial Statement of Reasons released July 29, 2005.
- Attachment B: Staff's Suggested Modifications to the Original Proposal, as made available at the start of the October 20, 2005, public hearing (not approved).
- Attachment C: Board's Modifications to the Original Proposal, as approved at the October 20, 2005, public hearing.

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Attachment B

Staff's Suggested 15-day Modifications
(concepts)

(NOT APPROVED AT OCTOBER 20, 2005 HEARING)

1. Adopt Option 2 that allows for the elimination of the 2007 new urban bus engine emission standard, and aligns it with the California 2007 and subsequent model year heavy-duty truck engine emission standard.
2. To maximize NOx emission benefits require the retrofit of a transit agency's urban bus in its fleet with a verified diesel emission control strategy with a minimum NOx emission reduction of 25 percent or more (NOx DECS) for each new urban bus purchased that does not meet the 0.2 gram NOx per brake horsepower-hour standard (in model years 2007 through 2009).
3. Transit agencies choosing to purchase buses in model years 2007 through 2009 and have greater than 30 urban buses in their fleet are required to retrofit an urban bus within their fleet with a NOx DECS on a one-to-one basis for every new purchase until all urban buses within their fleets are retrofitted or any remaining urban buses are unable to be retrofitted.

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Attachment C

Board's Approved 15-Day Modifications
(concepts)

1. Retain the 0.2 gram per brake horsepower-hour (g/bhp-hr) oxides of nitrogen (NOx) emission standard for 2007 through 2009 model year urban bus engines.
2. Allow transit agencies to purchase urban buses containing model-year 2007 through 2009 diesel engines not certified to the 0.2 g/bhp-hr NOx urban bus standard, but meeting the California heavy-duty truck engine emission standards for model years 2007 through 2009, as long as they meet the following conditions, as applicable, in order to maximize NOx emission reductions:
 - Any diesel path transit agency with 30 or more urban buses must retrofit an existing urban bus or transit fleet vehicle in its fleet with a level 3 particulate matter (PM) verified diesel emission control strategy that achieves a minimum NOx emission reduction of 40 percent or more, if available, for each new model year 2007 through 2009 diesel urban bus purchased that does not meet the 0.2 g/bhp-hr urban bus engine NOx standard.
 - If a level 3 PM diesel emission control strategy with a minimum of 40 percent NOx reduction is not available then an existing engine must be retrofitted with a level 3 PM diesel emission control strategy that achieves a minimum of 25 percent NOx reduction, if available.
 - The retrofit requirement applies on a one-to-one basis for each new model-year 2007 through 2009 diesel urban bus or diesel urban bus engine purchased that does not meet the 0.2 g/bhp-hr NOx standard until all diesel urban buses and transit fleet vehicles within the transit agency's fleet are either retrofitted or are unable to be retrofitted, subject to Executive Officer verification that all available retrofitting has been accomplished.