State of California
AIR RESOURCES BOARD

Resolution 09-49

July 23, 2009

Agenda Item No.: 09-7-6

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 reduction 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, part 86;

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, 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 requiring transit agencies to switch to low sulfur (less than 15 parts per million) diesel fuel, and 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 June 24, 2004, the Board adopted Resolution 04-19, which revised the zero emission bus demonstration project requirements and timetable; added 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 oxides of nitrogen (NOx) and 0.01 g/bhp-hr PM; and added provisions that would allow transit agencies on the diesel path to purchase diesel hybrid electric buses, so long as they satisfy requirements to reduce NOx emissions from their other buses;

WHEREAS, at a public hearing on October 19, 2006, the Board adopted Resolution 06-28 postponing the purchase requirement for NOx by three years for transit agencies on the diesel path, and one to two years for those agencies on the alternative path, and requiring an advanced demonstration project to offset some of the emission losses resulting from the postponement;

WHEREAS, the Board, through Resolution 06-28, directed ARB staff to report to the Board no later then July 2009, with its assessment of zero emission bus technology and its readiness for commercialization, and recommending consideration to be given to the

implementation criteria listed below, as well as any other relevant factors, in completing its evaluation and recommendation to the Board.

	Implementation Criteria
Purchase Cost Fuel Cell vs. Electric Trolley Bus	1.25 : 1
Fuel Cell Durability or Warranty	20,000 hours
Reliability (Miles between Propulsion Related Road Calls)	10,000 miles

WHEREAS, ARB staff conducted public workshops on May 20, 2009 and May 21, 2009, as well as public outreach meetings and several focused stakeholder meetings throughout the technology assessment process, in order to include the public and affected stakeholders in the progress assessment for commercial readiness; and

WHEREAS, based on the information in the public record, including the staff technology assessment presentation and testimony provided at the hearing, the Board finds that:

1. A delay in the advanced demonstration of the next generation zero emission bus technologies has not yet allowed for appropriate technology assessment for commercial readiness;

2. Costs of zero emission buses remain significantly higher than the target purchase cost described above;

3. Recent budget cuts have forced transit agencies to reduce service and to delay purchase of replacement buses;

4. A further delay in the purchase requirement is necessary based on the current technology and cost assessment;

5. Zero emission bus technology advancements and cost effectiveness should be measured against commercially known cost, durability, availability, and reliability metrics and used as purchase-implementation criteria to initiate future purchase requirements;

6. Once zero emission bus technology achieves commercial-readiness metrics, a 15-percent purchase requirement should be implemented that includes an appropriate amount of lead time for budget, procurement, and manufacturing cycles and is phased in over a period of time to progressively ramp up to the full 15-percent annual purchase requirement; and

7. Due to current significant reductions in criteria pollutants from diesel and natural gas transit buses, a new focus on greenhouse gas reductions from transit is appropriate for the zero emission bus regulation;

NOW, THEREFORE, BE IT RESOLVED that the Board directs ARB staff to prepare amendments to California Code of Regulations, title 13, sections 2023.1, 2023.3, and 2023.4, to do the following:

1. Delay the purchase requirement;

2. Research and develop commercial-readiness metrics to be used as purchase-implementation criteria to initiate the zero emission bus purchase requirement;

3. Implement the purchase requirement once commercial readiness has been achieved based on the pre-determined metrics, and allow for a proper lead-time and ramp-up period to eventually reach a 15-percent annual replacement cycle; and

4. Report back to the Board no later than July 2012 on progress towards zero emission bus commercialization.

I hereby certify that the above is a true and correct copy of Resolution 09-49, as adopted by the Air Resources Board.

Monica Vejar

Monica Vejar, Clerk of the Board