

## CALIFORNIA AIR RESOURCES BOARD

### NOTICE OF PUBLIC MEETING FOR THE BIENNIAL REVIEW OF THE ZERO EMISSION VEHICLE REGULATION

The California Air Resources Board (Board or ARB) will conduct a public meeting at the time and place noted below to review the Zero Emission Vehicle regulation and progress towards its implementation.

DATE: September 7, 2000  
TIME: 8:30 a.m.  
PLACE: Lincoln Plaza  
Auditorium, 1<sup>st</sup> Floor  
400 P St.  
Sacramento, CA 95814

This item will be considered at a two-day meeting of the Board, which will commence at 8:30 a.m., on Thursday, September 7, 2000 and may continue at 8:30 a.m., on Friday, September 8, 2000. Please consult the agenda for the meeting, which will be available at least 10 days before September 7, 2000, for further information on the schedule.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board at (916) 322-5594 by August 28, 2000, to ensure accommodation. Persons with hearing or speech impairments can contact us by using our Telephone Device for the Deaf (TDD) at (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

### Background

The Zero Emission Vehicle (ZEV) program was originally adopted following a hearing in 1990, as part of the Low-Emission Vehicle regulations. The ZEV program is an integral part of California's mobile source control efforts, and is intended to create a market for advanced technologies that will secure increasing air quality benefits for California now and into the future.

ZEVs have significant long-term benefits because they have no emission control equipment that can deteriorate or fail, and generate only minimal "upstream" refueling and fuel cycle emissions in California. In addition, ZEVs can make significant positive contributions in other environmental areas. For example, the use of ZEVs reduces the multimedia impact of fuel spillage on water quality and can increase the diversity of California's energy supply, and high-efficiency ZEVs and hybrid electric near-ZEVs can lead to significant reductions in emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases. Other potential ZEV benefits include improvements in quality of life in crowded urban areas due to the smooth, quiet operation of electric drive vehicles and

a move toward a sustainable energy future because electricity and hydrogen, used to power ZEVs, can be produced from renewable sources.

When the ZEV requirement was first adopted, low- and zero-emission vehicle technology was in a very early stage of development. The Board acknowledged that many issues would need to be addressed prior to the implementation date. Thus the Board directed staff to provide an update on the ZEV program on a biennial basis, in order to provide a context for the necessary policy discussion and deliberation.

The ZEV regulation – section 1962, title 13, California Code of Regulations – requires that ten percent of the passenger cars and lightest light-duty trucks offered for sale in California by large and intermediate volume auto manufacturers be ZEVs, beginning in the 2003 model year. To provide flexibility in the ZEV program, the regulation allows different types of vehicles to be used to meet program requirements. For example, manufacturers can use extremely clean advanced-technology vehicles (referred to as “partial” ZEVs) to meet the requirement, except that large-volume manufacturers must, at a minimum, have four percent of their sales be vehicles classified as “full” ZEVs.

To encourage continued research and early introduction of electric vehicle technologies, ARB entered into Memoranda of Agreement (MOAs) with the seven largest vehicle manufacturers in 1996. Under the MOAs, the manufacturers agreed to place more than 1,800 advanced-battery electric vehicles (EVs) in California in the years 1998 through 2000. All of the required MOA vehicles produced to date have been successfully placed in California.

### **Summary of Review**

In the 2000 Biennial Review, the staff will present to the Board its assessment of the current status of ZEV technology and the prospects for improvement in the near- and long-term. To help assess the current status of technology and environmental impact of the program, ARB has funded two research projects, one to examine the performance, cost and availability of advanced batteries, and the other to examine fuel cycle emissions from various automotive fuels. ARB has also jointly funded, with the California Energy Commission, an analysis of the fuel cycle energy conversion efficiency for various fuel types.

The findings of these research efforts indicate that several battery technologies have demonstrated promise to meet the power requirements for electric vehicle propulsion. However, the cost of these batteries will likely be high, even in volume production. This finding, when incorporated into per vehicle cost analysis and lifecycle cost analysis, shows electric vehicles to be significantly more costly than conventional vehicles in the 2003 timeframe. The Battery Panel study also found that energy density, which impacts vehicle range, remains an issue. Significant improvements in energy density are not forecasted with currently available battery chemistries. Consequently, significant improvements in vehicle range are not expected of near-term electric vehicles. While current electric vehicle consumers have not found range to be an issue, manufacturers are concerned about wider market acceptance of vehicles with limited range.

The marginal fuel cycle emissions of nonmethane organic gases (NMOG), oxides of nitrogen (NOx), and toxics are significantly lower in California for electricity than for the other fuels considered. When considering both upstream and tailpipe emissions, battery EVs contribute less CO<sub>2</sub> emissions compared to other vehicle technologies.

As electric vehicle technology has advanced and vehicle makers have adapted to current circumstances, it appears that EVs in a wide range of vehicle types will be available in 2003. Staff has identified several potential applications in which these vehicles could be employed. However, manufacturers have expressed concern that adequate market interest does not exist to absorb the required volume of EVs in 2003 and beyond for reasons related to cost, range, and recharging time.

In preparation for the 2000 Biennial Review, ARB staff has worked closely with all interested parties to ensure that they have an opportunity to provide comments and suggestions throughout the review process. As part of this effort, two workshops were held in March and May/June 2000. Also, draft versions of the Staff Report have been available to the public since March 2000. The Board will consider information presented by staff and all interested parties.

### **Availability of Documents and Agency Contact Person**

The ARB staff has prepared a Staff Report for this biennial review. This notice, the Staff Report, and the following documents may be obtained from ARB's Public Information Office, 2020 L Street, Sacramento, California 95814, (916) 322-2990, or from the ARB internet site (<http://www.arb.ca.gov/msprog/zevprog/2000review/workshops.htm>):

- Draft Final Report of the Year 2000 Battery Technology Advisory Panel entitled Advanced Batteries for Electric Vehicles: An Assessment of Performance, Cost and Availability
- Status Report on the Fuel Cycle Energy Conversion Efficiency Analysis, prepared for the ARB and the California Energy Commission
- Draft Final Report: Refinement of Selected Fuel-Cycle Emissions Analyses, prepared for the ARB

To obtain these documents in an alternate format, please contact the Air Resources Board ADA Coordinator at (916) 323-4916, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

If you need additional information or have further inquiries, please contact Mr. Chuck Shulock at (916) 322-6964 or at [cshulock@arb.ca.gov](mailto:cshulock@arb.ca.gov).

### **Submittal of Comments**

The public may present comments relating to this matter orally or in writing at the meeting, and in writing or by e-mail before the meeting. To be considered by the Board, written submissions must be addressed to and received by the Clerk of the Board,

Air Resources Board, P.O. Box 2815, Sacramento, California 95812, or 2020 L Street, 4<sup>th</sup> Floor, Sacramento, CA 95814, no later than 12:00 noon on September 6, 2000, or received by the Clerk of the Board at the meeting. To be considered by the Board, e-mail submissions must be addressed to [zev00@listserv.arb.ca.gov](mailto:zev00@listserv.arb.ca.gov) and received at the ARB no later than 12:00 noon on September 6, 2000.

The Board requests, but does not require, that 30 copies of any written statement be submitted at least ten days prior to the meeting date.

No amendments to the ZEV regulation will be considered or adopted by the Board at this meeting.

CALIFORNIA AIR RESOURCES BOARD

Michael P. Kenny  
Executive Officer

Date: August 7, 2000