

State of California  
AIR RESOURCES BOARD

**EXECUTIVE ORDER G-02-009**

Relating to Amendments to the California Zero-Emission Vehicle Regulations

WHEREAS, on January 25, 2001, the Air Resources Board (ARB or Board) conducted a public hearing to consider proposed amendments to the California Zero-Emission Vehicle (ZEV) regulations;

WHEREAS, following the public hearing on January 25, 2001, the Board adopted Resolution 01-1, in which the Board approved amendments to title 13, California Code of Regulations, sections 1962, 1900, 1960.1(k) and 1961 as set forth in Attachment A thereto, and amendments to the "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," which is incorporated by reference in section 1962, as set forth in Attachment B thereto, with the modifications set forth in Attachments C and D thereto, and with further modifications described on pages 7 and 8 of the Resolution;

WHEREAS, Resolution 01-1 directed the Executive Officer to incorporate the approved modifications into the proposed regulatory text, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental written comment period of at least 15-days; he was then directed either to adopt the amendments made available with such additional modifications as may be appropriate in light of the comments received, or to present the regulations to the Board for further consideration if warranted;

WHEREAS, on October 31, 2001, the modified regulations, reflecting the amendments approved by the Board and other changes made to best reflect the intent of the Board at the hearing, were made available for public comment for a period of 15 days, with the changes to the originally proposed text clearly indicated; at the same time, the public was provided an opportunity to comment on material being added to the rulemaking file, including a staff review of a study entitled "Impacts of Alternative ZEV Sales Mandates on California Motor Vehicle Emissions" submitted by General Motors during the comment period just prior to the January hearing;

WHEREAS, 41 comments on the modified text and material added to the rulemaking file were received during the supplemental comment period; on November 19, 2001 additional modifications prepared in response to the comments were made available for public comment for a period of 15 days, with the changes to the previously proposed text clearly indicated; nine comment letters on the additional modifications were timely received;

WHEREAS, on November 15, 2001, additional material pertaining to the EMFAC 2001 ver. 2.07 draft emissions inventory model was made available for another supplemental 15-day comment period ending November 30, 2001; three timely comments were received regarding this material;

WHEREAS, after considering the comments received during these three supplemental comment periods, on December 7, 2001, I issued Executive Order G-01-058 adopting amendments to sections 1962, 1900, 1960.1(k) and 1961, title 13, California Code of Regulations, and amendments to 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," all reflecting the proposed amendments made available October 31, 2001, with the further modifications made available November 19, 2001;

WHEREAS, following the December 7, 2001 submittal of these amendments to the Office of Administrative Law (OAL), on January 23, 2002, OAL disapproved the amendments on the ground that the failure of the ARB to transmit the three supplemental "15-day" notices described above to specified persons who had submitted written comments on the day of the January 25, 2001 hearing constituted a violation of Government Code sections 11346.8(c) and 11347.1, and of section 44, title 1, California Code of Regulations;

WHEREAS, on February 8, 2002, the notices of the supplemental comment periods that had previously been distributed by October 31, November 15, and November 19 were sent to the persons described above to whom the notices had not previously transmitted, and these persons were provided the opportunity to submit written comments from February 8, 2002 to February 25, 2002; five written comments from these persons were submitted during this period;

WHEREAS, written comments timely received during the three supplemental comment periods and the additional comment period described in the preceding paragraph have been considered by the Executive Officer;

WHEREAS, Attachment 1 hereto shows amendments to sections 1962, 1900, 1960.1(k) and 1961 reflecting the proposed amendments made available October 31, 2001, with the further modifications made available November 19, 2001, and with additional nonsubstantial corrections; Attachment 2 hereto shows amendments to 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," reflecting the proposed amendments made available October 31, 2001, with the further modifications

made available November 19, 2001 and with additional nonsubstantial corrections;

WHEREAS, I find that the amendments of the ZEV regulation adopted herein are consistent with the direction of the Board at the January 25, 2001 hearing;

WHEREAS, the rationale for the modifications to the original proposal are described in the Final Statement of Reasons and Supplements prepared for this rulemaking, and based on that rationale and the findings in Resolution 01-1, I find that the amendments adopted herein are necessary and appropriate;

WHEREAS, I further find that:

Estimates of the cost-effectiveness of the amended ZEV requirements, calculated in the traditional manner as the cost in dollars for each pound or ton of emissions reduced for a particular pollutant or pollutants, fall into a range of \$58,000 to \$400,000 per ton of reactive organic gases plus oxides of nitrogen; these values are much higher than the similarly calculated cost-effectiveness values of other emission control measures implemented in the state, which have typically not exceeded \$20,000 per ton;

The ZEV program is not a traditional emission control measure, and the traditional way of comparing cost-effectiveness is not appropriate for the amended regulations; while any given pound of emissions reduced for a pollutant is typically seen as just as “valuable” as any other pound of emissions reduced – at least where the time and place are comparable – the value of a pound of emissions reduced from 2003 model year vehicles on account of the ZEV program is substantially greater than the value of a pound of emissions reduced by other control measures applicable to 2003 model year vehicles because of the promise of substantial long-term benefits;

The ZEV program as amended herein seeks to take a quantum leap forward, towards the long-term transformation of California’s vehicle pollution control strategy to zero emissions over the vehicle’s lifetime; moreover, past experience with unforeseen advances resulting from technology-forcing regulations provide promise of substantially reduced costs in the future; in the context of these considerations the ZEV regulations as amended herein are cost-effective;

WHEREAS, I further find that:

On January 23, 2001, General Motors submitted extensive comments claiming that, in comparison to not having ZEV requirements, the ZEV program with the originally proposed ZEV amendments would actually

increase rather than decrease emissions of reactive organic gases plus oxides of nitrogen (ROG + NO<sub>x</sub>); this was claimed to occur because assumed increases in the prices of new California cars and light trucks resulting from the ZEV requirements will depress sales of new vehicles, to the extent that emissions increases from the greater number of higher-emitting older vehicles on the road due to reduced “fleet turnover” will more than offset the emission decreases attributable to the presence in the new vehicle fleet of ZEVs and vehicles generating partial ZEV allowances (PZEVs);

General Motors’ claims of increased emissions were largely based on a January 2001 report by the National Economic Research Associates, Inc. and Sierra Research, Inc. entitled “Impacts of Alternative ZEV Sales Mandates on California Motor Vehicle Emissions: A Comprehensive Study” (the NERA/Sierra Report); it presented a number of emission scenarios, with the “base case” showing an increase in emissions of 2.72 tpd ROG + NO<sub>x</sub> in the South Coast Air Basin in 2010, with a 1.63 tpd increase in 2020;

An October 31, 2001 ARB Staff Review of the NERA/Sierra Report identified a number of respects in which NERA/Sierra’s incremental cost assumptions were too high based on current information; using more reasonable staff assumptions rather than the assumptions used in the NERA/Sierra analysis, the NERA/Sierra model projected an average per vehicle increased cost of roughly \$25 to \$40 per vehicle for the fleet of new vehicles whose prices would be affected by the ZEV requirements – compared to the \$250 to \$400 estimated in the NERA/Sierra Report; at these modest levels, such increases would have an insignificant effect on vehicle sales;

Even if one accepts the NERA/Sierra premise that any price increase, no matter how small, will reduce vehicle sales in accordance with its model, using analytical tools reflecting the most up-to-date corrections NERA/Sierra has shown an emissions increase from the ZEV program as amended herein only for scenarios that reject or nullify two major cost reductions identified by ARB staff, which together accounted for nearly 40 percent of the purported price increase; NERA/Sierra has not presented results for a scenario that incorporates all ARB cost assumptions and therefore has not demonstrated that the modified program results in an emission increase when using those assumptions;

The ZEV requirements as amended herein will accordingly not increase emissions of ROG + NO<sub>x</sub> compared to not having any ZEV requirements;

Compared to the emissions impacts from the currently applicable ZEV regulation, ZEV requirements as amended herein will not have a significant adverse emissions or other environmental impact; and

WHEREAS, I further find that information provided by the industry expert referred to on page 4 of the October 15, 2001 analysis by Professors Jane Hall and Victor Brajer has not been relied upon in making the findings in this Executive Order.

NOW, THEREFORE, IT IS ORDERED that the recitals and findings contained in Resolution 01-1 are incorporated herein.

IT IS FURTHER ORDERED that sections 1962, 1900, 1960.1(k) and 1961, title 13, California Code of Regulations are amended as set forth in Attachment 1 hereto, 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," is amended as set forth in Attachment 2 hereto.

IT IS FURTHER ORDERED that it is the intent of the ARB that if the amendments to section 1962, title 13, California Code of Regulations and to 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," are deemed to be wholly invalid, then section 1962 and the incorporated document as they existing prior to completion of this rulemaking shall remain in full force and effect.

Executed this \_\_\_\_\_ day of April, 2002, at Sacramento, California.

Michael P. Kenny  
Executive Officer

Attachments