

**MODIFICATIONS TO THE PROPOSED REGULATION ORDER  
MADE AVAILABLE FOR SUPPLEMENTAL COMMENT**

**PROPOSED 2003 AMENDMENTS TO THE  
CALIFORNIA ZERO EMISSION VEHICLE REGULATION**

**Note:** Set forth below are modifications to the proposed 2003 amendments to the California zero emission vehicle (ZEV) regulation. The text of the originally proposed amendments is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions, compared to the preexisting regulatory language. The proposed modifications to the original proposal are shown in double underline to indicate additions and ~~double strike-out~~ to indicate deletions.

Most of the modifications were initially shown in Appendix A to a March 5, 2003 document entitled “Description and Rationale for Staff’s Additional Proposed Modifications to the January 10, 2003 ZEV Regulatory Proposal.” On April 24, 2003, the Air Resources Board adopted Resolution 03-04, in which it initiated steps towards final adoption of the modified amendments in Appendix A to the March 5 document with further modifications described in a two-page Attachment D to the Resolution. The Resolution directed the Executive Officer to prepare a proposed modified text of the regulation reflecting these modifications with such additional conforming modifications as may be appropriate.

The March 5 document, available at the ARB’s Internet site for this rulemaking ([www.arb.ca.gov/regact/zev2003/zev2003.htm](http://www.arb.ca.gov/regact/zev2003/zev2003.htm)), explains and provides the rationale for the modifications distributed at that time. In the text below, italicized and indented commentaries explain the rationale for all of the modifications made after distribution of the March 5, 2003 document. Each modification that represents a change made subsequent to the April 24, 2003 hearing is identified as a “post-hearing modification.” The italicized commentaries are not part of the actual regulation.

1. Amend California Code of Regulations, title 13, section 1962 to read as follows:

**§ 1962. Zero-Emission Vehicle Standards for ~~2003~~ 2005 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.**

(a) *ZEV Emission Standard.* The Executive Officer shall certify new ~~2003~~ 2005 and subsequent model passenger cars, light-duty trucks and medium-duty vehicles as ZEVs if the vehicles produce zero exhaust emissions of any criteria pollutant (or precursor pollutant) under any and all possible operational modes and conditions. Incorporation of a fuel-fired heater shall not preclude a vehicle from being certified as a ZEV provided: (1) the fuel-fired heater cannot be operated at ambient temperatures above 40°F, (2) the heater is demonstrated to have zero fuel evaporative emissions under any and all possible operational modes and conditions, and (3) the emissions of any pollutant from the fuel-fired heater when operated at an ambient temperature between 68°F and 86°F do not exceed the emission standard for that pollutant for a ULEV under section 1961(a)(1).

A vehicle that would meet the emissions standards for a ZEV except that it uses a fuel-fired heater that can be operated at ambient temperatures above 40°F, that cannot be demonstrated to have zero fuel evaporative emissions under any and all possible operation modes and conditions, or that has emissions of any pollutant exceeding the emission standard for that pollutant for a ULEV under section 1961(a)(1), shall be certified based on the emission level of the fuel-fired heater.

(b) *Percentage ZEV Requirements.*

(1) *General Percentage ZEV Requirement.*

(A) *Basic Requirement.* The minimum percentage ZEV requirement for each manufacturer is listed in the table below as the percentage of the PCs and LDT1s, and LDT2s to the extent required by section (b)(1)(C), produced by the manufacturer and delivered for sale in California that must be ZEVs, subject to the conditions in this section 1962(b).

| <i>Model Years</i>                       | <i>Minimum ZEV Requirement</i> |
|--|--------------------------------|
| <del>2003</del> <u>2005</u> through 2008 | 10 percent                     |
| 2009 through 2011                        | 11 percent                     |
| 2012 through 2014                        | 12 percent                     |
| 2015 through 2017                        | 14 percent                     |
| 2018 and subsequent                      | 16 percent                     |

(B) *Calculating the Number of Vehicles to Which the Percentage ZEV Requirement is Applied.* A manufacturer's volume of PCs and LDT1s produced and delivered for sale in California will be averaged for the 1997, 1998, and 1999 model years to determine the California PC and LDT1 production volume for the model year ~~2003 to~~ 2005 ZEV requirements. For subsequent three-year periods following model years ~~2003 to~~ 2005, a manufacturer's California production volume of PCs and LDT1s, and LDT2s as applicable, will be based on a three-year average of the manufacturer's volume of PCs and LDT1s, and LDT2s as applicable, produced and delivered for sale in California in the prior fourth, fifth and sixth years (e.g. 2006 to 2008 model-year ZEV requirements will be based on California production volumes of PCs and LDT1s, and LDT2s as applicable, for 2000 to 2002 model years). This production averaging is used to determine ZEV requirements only, and has no effect on a manufacturer's size determination. As an alternative to the three year averaging of prior year production described above, a manufacturer may during model year 2005 or the first model year of a subsequent three year period elect to base its ZEV obligation on the number of PCs and LDT1s, and LDT2s to the extent required by section (b)(1)(C), produced by the manufacturer and delivered for sale in California that same year. If a manufacturer elects to use this method after model year 2005 it must be used for each year of the three-year period. In applying the ZEV requirement, a PC, LDT1, or LDT2 (beginning in the 2007 model year) that is produced by a small volume manufacturer, but is marketed in California by another manufacturer under the other manufacturer's nameplate, shall be treated as having been produced by the marketing manufacturer.

(C) *Phase-in of ZEV Requirements for LDT2s.* Beginning with the ZEV requirements for the 2007 model year, a manufacturer's LDT2 production shall be included in determining the manufacturer's overall ZEV requirement under section (b)(1)(A) in the increasing percentages shown the table below.

| 2007 | 2008 | 2009 | 2010 | 2011 | 2012+ |
|------|------|------|------|------|-------|
| 17%  | 34%  | 51%  | 68%  | 85%  | 100%  |

(D) *Exclusion of ZEVs in Determining a Manufacturer's Sales Volume.* In calculating for purposes of sections 1962(b)(1)(B) and 1962(b)(1)(C) the volume of PCs, LDT1s and LDT2s a manufacturer has produced and delivered for sale in California, the manufacturer shall exclude the number of ZEVs produced by the manufacturer, or by a subsidiary in which the manufacturer has a greater than 50% ownership interest, and delivered for sale in California.

(2) *Requirements for Large Volume, Intermediate Volume, Independent Low Volume, and Small Volume Manufacturers.*

(A) *Primary Requirements for Large Volume Manufacturers.*

~~1. *Model Years 2005-2008.* In the 2003 2005 through 2008 model years, a large-volume manufacturer must meet at least 20% 10% 20% of its ZEV requirement with ZEVs or ZEV credits generated by such vehicles, and at least another 20% 30% 20% with ZEVs, advanced technology PZEVs, or credits generated by such vehicles. The remainder of the large-volume manufacturer's ZEV requirement may be met using PZEVs or credits generated by such vehicles.~~

~~2. *Model Years 2009-2011.* In 2009 through 2011 model years, the maximum portion of a large volume manufacturer's 11% percentage ZEV requirement that may be satisfied by 0.2 allowance PZEVs, or credits generated by such vehicles, is limited to 6% of the manufacturer's applicable California PC, LDT1, and LDT2 production volume. The maximum portion of the ZEV requirement that may be satisfied by advanced technology PZEVs, or credits generated by such vehicles, is limited to 3.75% of the manufacturer's applicable California PC, LDT1, and LDT2 production volume. The 1.25% of the manufacturer's applicable California PC, LDT1, and LDT2 production volume that remains must be met only with ZEVs or credits generated by ZEVs.~~

~~3. *Model Years 2012 and subsequent.* As the ZEV requirement increases over time (from 10% from 12% 10% in model year 2003 2012 2005 to 16% in model years 2018 and subsequent), the maximum portion of the a large volume manufacturer's percentage ZEV requirement that may be satisfied by 0.2 allowance PZEVs that are not advanced technology PZEVs, or credits generated by such vehicles, is limited to 6% of the manufacturer's applicable California PC, LDT1, and~~

LDT2 production volume; advanced technology PZEVs or credits generated by such vehicles may be used to meet up to one-half of the manufacturer's remaining ZEV requirement.

*[Commentary: A post-hearing modification corrects the model-year reference in the second line that appeared in the March 5 modifications to refer to 2005.]*

(B) *Alternative Requirements for Large Volume Manufacturers.*

1. *Minimum Floor for Production of Type III ZEVs.*

a. *Requirement For the 2005-2008 Model Years.* A large volume manufacturer electing to be subject to the alternative compliance requirements during model years 2005 through 2008 must produce, deliver for sale, and place in service in California enough 2001-2008 model-year Type III ZEVs to generate ZEV credits sufficient to meet a cumulative percentage ZEV requirement of 1.09 percent of the manufacturer's average annual California sales of PCs and LDT1s over the five year period from model years 1997 through 2001, or submit an equivalent number of credits generated by such vehicles. The manufacturer may meet up to one half of this requirement with Type I or Type II ZEVs, provided that 20 Type I ZEVs or 10 Type II ZEVs will equal one Type III ZEV.

*[Commentary: Post-hearing modifications change "optional requirements" to "alternative requirements" throughout to better track the common terminology in the rulemaking. Subdivisions of section 1962(b)(2)(B)1. have been added to accommodate the modifications in Item 1 of Attachment D to Resolution 03-4 that add minimum floor requirements for production of Type III ZEVs after the 2008 model year under the alternative compliance path. Those modifications are discussed in the Commentary following section 1962(b)(2)(B)1.e. What had been the last sentence of section 1962(b)(2)(B)1.a., excluding additional credits for transportation systems, has been moved to a new section 1962(b)(2)(B)1.f. What had been section 1962(b)(2)(B)1.b. in the March 5 modifications has been relettered as section 1962(b)(2)(B)1.h.*

*The last sentence of section 1962(b)(2)(B)1.a. reflects the first paragraph of Item 2 in Attachment D to the Resolution. It provides an additional incentive for the production of fresh battery electric vehicles while maintaining a core alternative compliance path requirement for production of fuel cell vehicles. Identical language is also included in section 1962(b)(2)(B)1.b.-d.*

*Item 2 in Attachment D to the Resolution included a second paragraph under which credits earned by extended in-use Type I and Type II ZEVs in 2003 and beyond could be used at a 33 to 1 credit ratio towards satisfaction of the one half of the minimum floor requirement that could be met by Type I and Type II ZEVs. While staff had considered this element as a potential April 24 modification, staff*

*had ultimately decided not to propose it and inclusion of the second paragraph of Item 2 in Attachment D was in error. Staff's oral presentation to the Board of the suggested additional modifications did not include the element, and the Board's intent is best effectuated by omitting it from the regulatory proposal. The proposed modifications to section 1961(f) provide sufficient additional incentives for extending the use of battery electric vehicles, and additional incentives in the alternative compliance plan provisions are not needed but could reduce the number of Type III ZEVs introduced in the near term.]*

b. Requirement For the 2009-2011 Model Years. A large volume manufacturer electing to be subject to the alternative compliance requirements during model years 2009 through 2011 must produce, deliver for sale, and place in service in California enough 2009-2011 model-year Type III ZEVs to generate ZEV credits sufficient to meet the 2009-2011 alternative path percentage, as calculated pursuant to section 1962(b)(2)(B)1.e., of the manufacturer's section 1962(b)(1) percentage ZEV requirement for the 2010 model year, based on the prior year method described in section 1962(b)(1)(B), or submit an equivalent number of credits generated by such vehicles. The manufacturer may meet up to one half of this requirement with Type I or Type II ZEVs, provided that 20 Type I ZEVs or 10 Type II ZEVs will equal one Type III ZEV.

c. Requirement For the 2012-2014 Model Years. A large volume manufacturer electing to be subject to the alternative compliance requirements during model years 2012 through 2014 must produce, deliver for sale, and place in service in California enough 2012-2014 model-year Type III ZEVs to generate ZEV credits sufficient to meet the 2012-2014 alternative path percentage, as calculated pursuant to section 1962(b)(2)(B)1.e., of the manufacturer's section 1962(b)(1) percentage ZEV requirement for the 2013 model year, based on the prior year method described in section 1962(b)(1)(B), or submit an equivalent number of credits generated by such vehicles. The manufacturer may meet up to one half of this requirement with Type I or Type II ZEVs, provided that 10 Type I ZEVs or 5 Type II ZEVs will equal one Type III ZEV.

d. Requirement For the 2015-2017 Model Years. A large volume manufacturer electing to be subject to the alternative compliance requirements during model years 2015 through 2017 must produce, deliver for sale, and place in service in California enough 2015-2017 model-year Type III ZEVs to generate ZEV credits sufficient to meet the 2015-2017 alternative path percentage, as calculated in section 1962(b)(2)(B)1.e., of the manufacturer's section 1962(b)(1) percentage ZEV requirement for the 2016 model year, based on the prior year method described in section 1962(b)(1)(B), or submit an equivalent number of credits generated by such vehicles. The manufacturer may meet up to one half of this requirement with Type I or Type II ZEVs, provided that 10 Type I ZEVs or 5 Type II ZEVs will equal one Type III ZEV.

e. A manufacturer's alternative path percentage for a given time period is calculated as the target number of credits for each time period divided by the applicable combined model year ZEV obligation of all large volume manufacturers for that same time period, where:

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| <u>Time Period</u> | <u>Target Number of Alternative Path Type III ZEVs</u> | <u>Credits per Vehicle</u> | <u>Target Number of Credits</u> | <u>Combined Model Year ZEV Obligation</u> | <u>Alternative Path Percentage</u> |
|--------------------|--|----------------------------|---------------------------------|---|------------------------------------|
| <u>2009 – 2011</u> | <u>2,500</u>   | <u>4</u>                   | <u>10,000</u>                   | <u>A</u>                                  | <u>10,000/A</u>                    |
| <u>2012 – 2014</u> | <u>25,000</u>  | <u>3</u>                   | <u>75,000</u>                   | <u>B</u>                                  | <u>75,000/B</u>                    |
| <u>2015 – 2017</u> | <u>50,000</u>  | <u>3</u>                   | <u>150,000</u>                  | <u>C</u>                                  | <u>150,000/C</u>                   |

And where:

A = The combined total section 1962(b)(1) percentage ZEV requirement, based on the prior year method described in section 1962(b)(1)(B), that would apply for all large manufacturers for the 2010 model year.

B = The combined total section 1962(b)(1) percentage ZEV requirement, based on the prior year method described in section 1962(b)(1)(B), that would apply for all large manufacturers for the 2013 model year, and

C = The combined total section 1962(b)(1) percentage ZEV requirement, based on the prior year method described in section 1962(b)(1)(B), that would apply for all large manufacturers for the 2016 model year.

*[Commentary: Subsections 1962(b)(2)(B)1.b.-e. have been added to implement Item 1 of Attachment D to the Resolution. The calculation of the alternative path percentages of Type III ZEVs for the 2009 and subsequent model years is designed to result in 2,500 Type III ZEVs in model years 2009-2011, 25,000 Type III ZEVs in model years 2012-2011, and 50,000 Type III ZEVs in model years 2015-2017 if all large volume manufacturers participate in the alternative compliance path.*

*The specified volumes are based on the principle that early production for new types of vehicles proceeds in stages in which volumes typically grow from tens to hundreds and then to thousands. The numbers are also generally consistent with the U.S. Department of Energy targets when those targets are scaled to California rather than national coverage.*

*The method used to derive the percentage requirement for the 2009-2011 and subsequent time periods is similar to the method used for the 2001-2008 time period. For 2001-2008, to be eligible for the alternative path manufacturers must generate ZEV credits sufficient to meet a cumulative percentage ZEV requirement of 1.09 percent of the manufacturer's average annual California sales of PCs and LDT1s over the five year period from model years 1997 through 2001. This results in 250 vehicles.*

*For the 2009-2011 and later time periods, the modifications reflect a similar calculation method except that (1) the percentage requirements are assessed against more recent sales periods, (2) the percentage requirements are assessed against the manufacturer's ZEV obligation, rather than against vehicle sales, (3) the calculations are designed to generate larger numbers of vehicles (2,500 in 2009-2011, 25,000 in 2012-2014, and 50,000 in 2015-2018), and (4) rather than specifying a fixed percentage for each time period, the calculation method derives the percentage for each time period that is needed to generate the target number of Type III ZEVs, taking into account actual sales. For example, the alternative path percentage requirement for 2009-2011 is assessed against the manufacturer's section 1962(b)(1) percentage ZEV requirement for the 2010 model year, based on the "prior year method" described in section 1962(b)(1)(B). Given the operation of the prior year method this means that the requirement for the 2009-2011 period is based on the manufacturer's three-year average sales for 2003-2005.*

*Similarly, the requirement for the 2012-2014 time period is based on 2006-2008 average sales, and would result in 25,000 vehicles; the requirement for 2015-2017 is based on 2009-2011 average sales and would result in 50,000 vehicles.*

*Staff elected to use this approach for several reasons. First, it results in the desired target number of vehicles. Alternative approaches that use a predefined percentage would result in more or fewer vehicles, depending on actual future sales. Second, this method provides a known, firm target for manufacturers that allows ample lead-time. At the conclusion of sales reporting for the 2005 model year manufacturers will know with certainty their 2009-2011 obligation. This simplifies compliance planning. Third, the use of more recent sales data allows the requirement to better track any changes in market share, and also allows for the incorporation of LDT2 sales as is the case on the base path. This results in a more equitable distribution of the compliance burden. Finally, assessing the requirement against the ZEV obligation rather than against sales simplifies the calculation – the LDT2 phase-in is "built in" to the calculation and does not need to be added in separately.*

*The Board also directed that manufacturers be allowed to meet up to one-half of the minimum floor requirements with credits from Type I and Type II ZEVs. If manufacturers choose to use Type I or Type II ZEVs to meet the alternative path requirements, the credit ratios adopted by the Board were such that 20 Type I ZEVs, or 10 Type II ZEVs, would equal one Type III ZEV in the 2005-2008 timeframe. The Board's intent is to have the alternative structure provide an appropriate volume requirement for all ZEV types that reflects their state of development and progress towards commercialization.*

*Based on cost estimates and information from battery EV advocates, staff proposes that the same ratios be used for 2009-2011 with the understanding that there is significant uncertainty in the future cost estimates and that the ARB may need to adjust the ratios in the future.*

*For 2012 and later, staff proposes that 10 Type I ZEVs, or 5 Type II ZEVs equal one Type III ZEV. Again, staff expects that these ratios may need to be adjusted in the future when new cost information is available.]*

f. *Exclusion of Additional Credits for Transportation Systems.* Any additional credits for transportation systems generated in accordance with section 1962(g)(5) shall not be counted towards compliance with this section 1962(b)(2)(B)1.a.-d.

g. *Carry-over of Excess Credits.* Where a manufacturer generates more qualifying ZEV credits than are needed to meet the minimum floor requirement for the production of Type III ZEVs in one of the periods identified in section 1962(b)(2)(B)1.a.-c., the qualifying ZEV credits may be used towards meeting the minimum floor requirement for the production of Type III ZEVs in a subsequent period, provided that the value of these carryover credits shall be based on the model year in which the credits are used.

*[Commentary: The post-hearing addition of section 1962(b)(2)(B)1.g. clarifies whether excess credits towards meeting the alternative compliance path requirements may be used to meet the minimum floor requirements in subsequent model years. The staff believes that it is appropriate to provide incentives to a manufacturer wishing to produce more fresh ZEV credits than are needed under the alternative compliance path provisions. However, the value of these credits in meeting subsequent alternative compliance path requirements should be based on the year they are used, to avoid a situation where early credits towards the minimum floor requirements substantially reduce the number of new credit-generating ZEVs needed during the subsequent phases. Note that these provisions do not affect how credits are calculated in meeting a manufacturer's overall percentage ZEV requirement.]*

h. *Failure to Meet Requirement for Production of Type III ZEVs.* A manufacturer that, after electing to be subject to the alternative requirements in section 1962(b)(2)(B) for any model year from 2005 through 2017, fails to meet the requirement in section 1962(b)(2)(B)1.a.-d. by the end of the specified three or four year period in which the model year falls, shall be treated as subject to the primary requirements in section 1962(b)(2)(A) for all model years in the specified three or four year period.

2. *Compliance With Percentage ZEV Requirements.* In 2005 through 2008 model years, a large volume manufacturer electing to be subject to the alternative compliance

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requirements in a given model year must meet at least 40 percent of its ZEV requirement for that model year with ZEVs, advanced technology PZEVs, or credits generated from such vehicles. The remainder of the large volume manufacturer's ZEV requirement may be met using PZEVs or credits generated from such vehicles. As the ZEV requirement increases over time from 11% in model year 2009 to 16% in model years 2018 and subsequent, the maximum portion of the large volume manufacturer's percentage ZEV requirement that may be satisfied by PZEVs that are not advanced technology PZEVs, or credits generated by such vehicles, is limited to 6% of the manufacturer's applicable California PC, LDT1, and LDT2 production volume; ZEVs, advanced technology PZEVs, or credits generated by such vehicles may be used to meet the manufacturer's remaining ZEV requirement.

3. *Sunset of Alternative Requirements After the 2017 Model Year.* The alternative requirements in section 1962(b)(2)(B) are not available after the 2017 model year.

*[Commentary: This new provision reflects one element of Item 1 in Attachment D to Resolution 03-4]*

(C) *Election of the Primary or Alternative Requirements for Large Volume Manufacturers.* A large volume manufacturer shall be subject to the primary ZEV requirements for the 2005 model year unless it notifies the Executive Officer in writing prior to the start of the 2005 model year that it is electing to be subject to the alternative compliance requirements for that model year. Thereafter, a manufacturer shall be subject to the same compliance option as applied in the previous model year unless it notifies the Executive Officer in writing prior to the start of a new model year that it is electing to switch to the other compliance option for that new model year. However, a large volume manufacturer that has previously elected to be subject to the primary ZEV requirements for one or more of the model years in the three or four year periods identified in section 1961(b)(1)(B)1.a.-d. may prior to the end of the three or four year period elect to become subject to the alternative compliance requirements for the full three or four year period upon a demonstration that it has complied with all of the applicable requirements for that period in section 1962(b)(2)(B)1.a.-d.

*[Commentary: Modifications have been made to reflect the modifications to the alternative compliance path requirements after the 2006 model year. In a post-hearing modification, the inadvertently omitted word "period" has been added after "four year" on the fourth to the last line, and "all" has been added to the second to last line for clarity.]*

(D) *Use of Credits from Model Year 2003-2004 PZEVs.* A large volume manufacturer may produce, and deliver for sale in California, model year 2003 or 2004 PZEVs that generate credits exceeding the number of credits equal to 6 percent of the average annual volume of 1997, 1998 and 1999 PCs and LDT1s produced and delivered for sale in California by the manufacturer. In that event, the manufacturer may use those excess credits as AT PZEV credits in the 2005 and 2006 model years.

~~(B)~~(3) *Requirements for Intermediate Volume Manufacturers.* In the 2003 2005 and subsequent model years, an intermediate volume manufacturer may meet its ZEV requirement with up to 100 percent partial ZEV allowance vehicles or credits generated by such vehicles.

~~(C)~~(4) *Requirements for Small Volume Manufacturers and Independent Low Volume Manufacturers.* A small volume manufacturer or an independent low volume manufacturer is not required to meet the percentage ZEV requirements. However, a small volume manufacturer or an independent low volume manufacturer may earn and market credits for the ZEVs or PZEVs it produces and delivers for sale in California.

~~(3)~~(5) *Counting ZEVs and PZEVs in Fleet Average NMOG Calculations.* For the purposes of calculating a manufacturer's fleet average NMOG value and NMOG credits under sections 1960.1(g)(2) and 1961(b) and (c), a vehicle certified as a ZEV is counted as one ZEV, and a PZEV is counted as one SULEV certified to the 150,000 mile standards regardless of any ZEV or PZEV multipliers.

~~(4)~~(6) *Implementation Prior to 2003 2005 Model Year.* Prior to the 2003 2005 model year, a manufacturer that voluntarily produces vehicles meeting the ZEV emission standards applicable to 2003 2005 and subsequent model year vehicles may certify the vehicles to those standards and requirements for purposes of calculating fleet average NMOG exhaust emission values and NMOG credits under sections 1960.1(g)(2) and 1961(b) and (c), and for calculating ZEV credits as set forth in section 1962(d).

~~(5)~~(7) *Changes in Small Volume, Independent Low Volume, and Intermediate Volume Manufacturer Status.*

(A) *Increases in California Production Volume.* In the 2003 and subsequent model years, if a small volume manufacturer's average California production volume exceeds 4,500 units of new PCs, LDTs, and MDVs based on the average number of vehicles produced and delivered for sale for the three previous consecutive model years, or if an independent low volume manufacturer's average California production volume exceeds 10,000 units of new PCs, LDTs, and MDVs based on the average number of vehicles produced and delivered for sale for the three previous consecutive model years, or if an intermediate volume manufacturer's average California production volume exceeds 60,000 units of new PCs, LDTs, and MDVs based on the average number of vehicles produced and delivered for sale for the three previous consecutive model years, the manufacturer shall no longer be treated as a small volume, independent low volume, or intermediate volume manufacturer, as applicable, and shall comply with the ZEV requirements for independent low volume, intermediate volume or large volume manufacturers, as applicable, beginning with the sixth model year after the last of the three consecutive model years. The lead time shall be four rather than six years where a manufacturer ceases to be a small or intermediate volume manufacturer in the 2003 or subsequent years due to the aggregation requirements in majority ownership situations, except that if the majority ownership in the

manufacturer was acquired prior to the 2001 model year, the manufacturer must comply with the stepped-up ZEV requirements starting in the 2010 model year.

(B) *Decreases in California Production Volume.* If a manufacturer's average California production volume falls below 4,500, 10,000 or 60,000 units of new PCs, LDTs, and MDVs, as applicable, based on the average number of vehicles produced and delivered for sale for the three previous consecutive model years, the manufacturer shall be treated as a small volume, independent low volume, or intermediate volume manufacturer, as applicable, and shall be subject to the requirements for a small volume, independent low volume, or intermediate volume manufacturer beginning with the next model year. ~~In determining small volume manufacturer status, vehicles produced by one manufacturer and marketed in California by another manufacturer under the other manufacturer's nameplate shall be treated as part of the California production volume of the sales of the marketing manufacturer.~~

*[Commentary: For this post-hearing modification, see the commentary for the amendments to section 1900(b)(19) and (20) on p. 36.]*

(C) *Calculating California Production Volume in Change of Ownership Situations.* Where a manufacturer experiences a change in ownership in a particular model year, the change will affect application of the aggregation requirements on the manufacturer starting with the next model year. The manufacturer's small or intermediate volume manufacturer status for the next model year shall be based on the average California production volume in the three previous consecutive model years of those manufacturers whose production volumes must be aggregated for that next model year. For example, where a change of ownership during the 2004 model year results in a requirement that the production volume of Manufacturer A be aggregated with the production volume of Manufacturer B, Manufacturer A's status for the 2005 model year will be based on the production volumes of Manufacturers A and B in the 2002-2004 model years. Where the production volume of Manufacturer A must be aggregated with the production volumes of Manufacturers B and C for the 2004 model year, and during that model year a change in ownership eliminates the requirement that Manufacturer B's production volume be aggregated with Manufacturer A's, Manufacturer A's status for the 2005 model year will be based on the production volumes of Manufacturers A and C in the 2002-2004 model years. In either case, the lead time provisions in section 1962(b)(5)(A) and (B) will apply.

(c) *Partial ZEV Allowance Vehicles (PZEVs).*

(1) *Introduction.* This section 1962(c) sets forth the criteria for identifying vehicles delivered for sale in California as PZEVs. A PZEV is a vehicle that cannot be certified as a ZEV but qualifies for a PZEV allowance of at least 0.2.

(2) *Baseline PZEV Allowance.* In order for a vehicle to be eligible to receive a PZEV allowance, the manufacturer must demonstrate compliance with all of the following requirements. A qualifying vehicle will receive a baseline PZEV allowance of 0.2.

(A) *SULEV Standards.* Certify the vehicle to the 150,000-mile SULEV exhaust emission standards for PCs and LDTs in section 1961(a)(1) (for model years 2003 through 2006, existing SULEV intermediate in-use compliance standards shall apply to all PZEVs). Bi-fuel, fuel-flexible and dual-fuel vehicles must certify to the applicable 150,000-mile SULEV exhaust emission standards when operating on both fuels;

(B) *Evaporative Emissions.* Certify the vehicle to the evaporative emission standards in section 1976(b)(1)(E) (“zero” evaporative emissions standards);

(C) *OBD.* Certify that the vehicle will meet the applicable on-board diagnostic requirements in section 1968.1 for 150,000 miles; and

(D) *Extended Warranty.* Extend the performance and defects warranty period set forth in sections 2037(b)(2) and 2038(b)(2) to 15 years or 150,000 miles, whichever occurs first. ~~For HEVs that are advanced technology PZEVs, the traction battery must be included as a warranty item. except that the time period is to be 10 years for a zero emission energy storage device used for traction power (such as a battery, an ultracapacitor, or a hydraulic, pneumatic and hydrogen other electric storage device ) other than the device’s on-board diagnostic elements.~~

(3) *Zero-Emission VMT PZEV Allowance.*

(A) *Calculation of Zero Emission VMT Allowance.* A vehicle that meets the requirements of section 1962(c)(2) and has zero-emission vehicle miles traveled (“VMT”) capability will generate an additional zero emission VMT PZEV allowance calculated as follows:

| <i>Urban All-Electric Range</i>            | <i>Zero-emission VMT Allowance</i>          |
|--|---|
| < 10 miles                                 | 0.0   |
| 10 miles to <del>120</del> <u>90</u> miles | <del>(40 33.8</del> + [0.5 x Urban AER])/35 |
| <del>&gt;120</del> <u>90</u> miles         | <del>2.0</del> <u>2.25</u>                  |

The urban all-electric range shall be determined in accordance with section E.3.(2)(a) of the “California Exhaust Emission Standards and Test Procedures for ~~2003~~ 2005 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,” incorporated by reference in section 1962(h).

*[Commentary: A post-hearing modification corrects the reference to the incorporated document.]*

(B) *Alternative Procedures.* As an alternative to determining the zero-emission VMT allowance in accordance with the preceding section 1962(c)(3)(A), a manufacturer may submit for Executive Officer approval an alternative procedure for determining the zero-emission VMT potential of the vehicle as a percent of total VMT, along with an engineering evaluation that adequately substantiates the zero-emission VMT determination. For example, an alternative procedure may provide that a vehicle with zero-emissions of one regulated pollutant (e.g. NOx) and not another (e.g. NMOG) will qualify for a zero-emission VMT allowance of ~~one-half that of a vehicle with zero emissions of all regulated pollutants~~ 1.5.

(C) *Additional Allowances for Qualifying HEVs.* The Executive Officer shall approve an additional 0.1 zero-emission VMT partial ZEV allowance for an HEV with an all-electric range if the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer that the HEV is equipped with software and/or other strategies that would promote maximum use of off-vehicle charging, and that the strategies employed are reasonably reliable and tamper-proof.

(4) *PZEV Allowance for Advanced ZEV Componentry.* A vehicle that meets the requirements of section 1962(c)(2) ~~but does not qualify for any zero-emission VMT PZEV allowance under section 1962(c)(3)~~ may qualify for an advanced componentry PZEV allowance as provided in this section 1962(c)(4).

(A) *Use of High Pressure Gaseous Fuel or Hydrogen Storage System.* A vehicle equipped with a high pressure gaseous fuel storage system capable of refueling at 3600 pounds per square inch or more and operating exclusively on this gaseous fuel shall qualify for an advanced componentry PZEV allowance of ~~0.1~~ 0.2. A vehicle ~~fueled~~ capable of operating exclusively by on hydrogen stored in a high pressure system capable of refueling at 3600 pounds per square inch or more, or stored in nongaseous form, shall ~~also~~ instead qualify for an advanced componentry PZEV allowance of ~~0.1~~ ~~0.2~~ 0.3.

(B) ~~*Other Advanced ZEV Componentry*~~ *Use of a Qualifying HEV Electric Drive System.*

~~1. *Qualification for Allowance.* A vehicle shall qualify for an additional advanced componentry allowance of 0.4 in the 2003 through 2011 model years, and 0.35 in the 2012 and subsequent model years, if the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer that the vehicle is equipped with advanced ZEV componentry such as an advanced battery integral to the operation of the vehicle power train or an electric power train and qualifies under one of the two methods listed below. The allowance earned by a vehicle shall be calculated according to one of the following methods, as elected by the manufacturer:~~

~~a. *The maximum system power output available from the electrical storage device divided by the sum of the electrical storage device and the SAE net power of the heat engine is greater than 13%; or*~~

~~b. The maximum system power output available from the electrical storage device divided by the sum of the electrical storage device and the SAE net power of the heat engine is greater than 8% and the maximum power rating of the zero emission drive system is at least 10 kilowatts.~~

1. Classification of HEVs. HEVs qualifying for additional allowances or allowances that may be used in the AT PZEV category are classified in one of five types of HEVs based on the criteria in the following table.

| <u>Characteristics</u>                         | <u>Type A</u>                     | <u>Type B</u>   | <u>Type C</u>                     | <u>Type D</u>                     | <u>Type E</u>                     |
|--|-----------------------------------|---|-----------------------------------|-----------------------------------|-----------------------------------|
| <u>Electric Drive System Peak Power Output</u> | <u><math>\geq 4</math> kW</u>     | <u><math>\geq 4</math> kW</u><br><u><math>&lt; 10</math> kW</u> | <u><math>\geq 10</math> kW</u>    | <u><math>\geq 10</math> kW</u>    | <u><math>\geq 50</math> kW</u>    |
| <u>Traction Drive System Voltage</u>           | <u><math>&lt; 60</math> Volts</u> | <u><math>\geq 60</math> Volts</u>                               | <u><math>&lt; 60</math> Volts</u> | <u><math>\geq 60</math> Volts</u> | <u><math>\geq 60</math> volts</u> |
| <u>Traction Drive Boost</u>                    | <u>Yes</u>                        | <u>Yes</u>  | <u>Yes</u>                        | <u>Yes</u>                        | <u>Yes</u>                        |
| <u>Regenerative Braking</u>                    | <u>Yes</u>                        | <u>Yes</u>  | <u>Yes</u>                        | <u>Yes</u>                        | <u>Yes</u>                        |
| <u>Idle Start/Stop</u>                         | <u>Yes</u>                        | <u>Yes</u>  | <u>Yes</u>                        | <u>Yes</u>                        | <u>Yes</u>                        |

2. Type A HEVs. A 2008 or earlier model-year PZEV that the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer meets all of the criteria for a Type A HEV does not receive an additional allowance for meeting those criteria but generates credits that may be used in the AT PZEV category through the 2008 model year.

3. Type B HEVs. A 2008 or earlier model-year PZEV that the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer meets all of the criteria for a Type B HEV qualifies for an additional advanced componentry allowance of 0.2.

4. Type C HEVs. A PZEV that the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer meets all of the criteria for a Type C HEV qualifies for an additional advanced componentry allowance of 0.2 in the 2003 through 2011 model years, 0.15 in the 2012 through 2014 model years, and 0.1 in the 2015 and subsequent model years.

5. Type D HEVs. A PZEV that the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer meets all of the criteria for a Type D HEV qualifies for an additional

advanced componentry allowance of 0.4 in the 2003 through 2011 model years, 0.35 in the 2012 through 2014 model years, and 0.25 in the 2015 and subsequent model years.

6. *Type E HEVs.* A PZEV that the manufacturer demonstrates to the reasonable satisfaction of the Executive Officer meets all of the criteria for a Type E HEV qualifies for an additional advanced componentry allowance of 0.5 in the 2003 through 2011 model years, 0.45 in the 2012 through 2014 model years, and 0.35 in the 2015 and subsequent model years.

*[Commentary: Section 1962(c)(4)(B) reflects post-hearing modifications to the table and accompanying provisions that appeared in the staff's suggested modifications of March 5, 2003. The provisions in the March 5 document are all retained intact, except that "Low Voltage HEVs," "High Voltage HEVs," and "High Voltage/ High Power HEVs" are now called Type A, Type D, and Type E HEVs respectively. The modifications allow AT PZEV credits to be earned for a high voltage/ low power configuration (new Type B HEVs) that did not qualify under the March 5 document. The modifications also increase the allowances earned by a subset of low voltage HEVs that exhibit increased power characteristics (new Type C HEVs).*

*As pointed out by auto manufacturers, the March 5 modified proposal – which effectively used two variables for assessing HEVs – did not account for all possible combinations of voltage and power. It was inappropriate for the March 5 version to allow low-voltage/ low power HEVs to generate a baseline PZEV allowance that may be used in the AT PZEV category through the 2008 model year, while not allowing at least as favorable treatment for HEVs with the same power ranges but higher voltages. Since the new Type B category is more advanced than the Type A category, Type B HEVs would earn an additional AT PZEV allowance of 0.2 in the 2008 and earlier model years. Due to the relatively low power characteristics, treatment of Type B HEVs as AT PZEVs would sunset after the 2008 model year.*

*The new Type C category will provide additional allowances for certain hybrids that provide substantial output power (greater than 10 kW), since these systems are also expected to act as significant "stepping stones" to future electric drive vehicles even though they do not use high-voltage systems. During the 2011 and earlier model years, Type C HEVs would qualify for one-half of the allowance earned by Type D HEVs, with a somewhat higher differential after that time when technologies are expected to be more advanced. The proposed definitions now account for*

*all combinations of power and voltage. Staff seeks comment on the new definitions.]*

27. *Severability.* In the event that ~~one of the two methods in all or part of~~ section 1962(c)(4)(B)1.-6. is found invalid, the remainder of section 1962, including ~~the remainder of~~ section 1962(c)(4)(B)1.-6. if any, remains in full force and effect. ~~In the event that both of the two methods in section 1962(c)(4)(B)1. are found invalid, the remainder of section 1962 without section 1962(e)(4)(B)1. remains in full force and effect.~~

*[Commentary: In a post-hearing change, the numbering of this subsection and the reference to section 1962(c)(4)(B)1.-6. have been updated.]*

1. *CO<sub>2</sub> Reduction Method.*

a. *General.* ~~A vehicle whose operation results in reduced CO<sub>2</sub> emissions as compared to the average vehicle in its class may qualify for an additional advanced componentry allowance in accordance with this section (c)(4)(B)1. The vehicle's class is determined in accordance with section 1962(e)(3).~~

b. *Equation for Determining Additional Allowance.* ~~The following equation is used to calculate the additional allowance, provided that in order to earn any additional allowance, the CO<sub>2</sub> Savings must be at least 39,000:~~

$$\text{Advanced Componentry Allowance} = \text{CO}_2\text{-Savings} \div 250,000$$

~~Where: CO<sub>2</sub> Savings = (Class Average CO<sub>2</sub> Production) - (Vehicle CO<sub>2</sub> Production)~~

~~Vehicle CO<sub>2</sub> Production = (150,000 + CMPEG) × 19.564~~

~~CMPEG is determined in accordance with section (e)(2)~~

~~Class Average CO<sub>2</sub> Production for the 2000-2007 model years is determined using the following table:~~



| <i>Vehicle Class</i> | <i>Class Average CO<sub>2</sub> Production, 2000-2007 MY</i> |
|----------------------|--|
| Subcompact PC        | 95,902   |
| Compact PC           | 96,533   |
| Midsized PC          | 108,689  |
| Large PC             | 114,633  |
| Small Truck          | 117,384  |
| Medium Truck         | 137,131  |
| Large Truck          | 161,242  |

Class Average CO<sub>2</sub> Production for the 2008-2014 model years is determined in accordance with the following equation:

$$\text{Class Average CO}_2 \text{ Production} = (150,000 / \text{Baseline Fuel Economy for model years 2008-2014}) \times 19.564$$

Where: ~~Baseline Fuel Economy for model years 2008-2014 means Baseline Fuel Economy for either the 2008-2011 or 2012-2014 model years, as applicable, as determined in accordance with section (e)(5).~~

~~c. *Alternative Method for Determining CO<sub>2</sub> Savings of a Vehicle That Is Not Gasoline Fueled.* For purposes of the equation in section (c)(4)(B)1.b., the Executive Officer shall approve an alternative method for determining CO<sub>2</sub> savings of a vehicle that is not gasoline fueled, if the manufacturer submits the alternative method with an engineering evaluation that demonstrates to the reasonable satisfaction of the Executive Officer that the alternative method fairly represents the CO<sub>2</sub> impacts of the vehicle.~~

~~2. *Alternative Efficiency Method.* A manufacturer may elect to have a vehicle's additional advanced componentry allowance determined according to the Efficiency Method, in which case the allowance shall be determined in accordance with the following equation:~~

$$\text{Advanced Componentry Allowance} = ((\text{CMPEG} / (1.3 * \text{Baseline Fuel Economy})) - 1) * 0.5$$

~~Where: ~~CMPEG is determined in accordance with section (e)(2).~~~~

~~Baseline Fuel Economy is determined in accordance with section (e)(4).~~

~~A vehicle earning an Efficiency Method advanced componentry allowance of less than zero pursuant to this subsection will be treated as having an Efficiency Method advanced componentry allowance of zero.~~

~~3. *Alternative Percent Peak Power Method For the 2000-2007 Model Years.* For the 2000-2007 model years only, a manufacturer may elect to have a vehicle's additional advanced componentry allowance determined using the Percent Peak Power method, in which case the allowance shall be determined in accordance with the following equation:~~

~~Advanced Componentry Allowance = Percentage of "maximum available power" from the electric storage device~~

~~Where: Percentage of "maximum available power" means the maximum system power output available from the electrical storage device divided by the sum of the electrical storage device and the SAE net power of the heat engine.~~

~~In order to earn any score using the Percent Peak Power method a vehicle must be able to recover kinetic energy through regenerative braking and provide at least 13 percent of "maximum available power" from the electrical storage device.~~

(5) *PZEV Allowance for Low Fuel-Cycle Emissions.* A vehicle that uses fuel(s) with very low fuel-cycle emissions shall receive a PZEV allowance not to exceed ~~0.2~~ 0.3 (0.15 in the case of an HEV that uses for propulsion any fuel that does not have very low fuel-cycle emissions). In order to receive the fuel-cycle PZEV allowance, a manufacturer must demonstrate to the Executive Officer, using peer-reviewed studies or other relevant information, that NMOG emissions associated with the fuel(s) used by the vehicle (on a grams/mile basis) are lower than or equal to 0.01 grams/mile. Fuel-cycle emissions must be calculated based on near-term production methods and infrastructure assumptions, and the uncertainty in the results must be quantified. The fuel-cycle PZEV allowance is calculated according to the following formula:

$$\text{PZEV Fuel Cycle Allowance} = \del{0.2} \underline{0.3} \times [(\text{percent of VMT using fuel(s) meeting the requirements of the preceding paragraph}) / 100]$$

A manufacturer's demonstration to the Executive Officer that a vehicle qualifies for a fuel-cycle PZEV allowance shall include test results and/or empirical data supporting the estimate of the relative proportion of VMT while operating on fuel(s) with very low fuel-cycle emissions.

(6) *Combined ZEV Allowance.*

~~(A) *Calculation of Combined ZEV Allowance for a Vehicle.* The combined PZEV allowance for a qualifying vehicle in a particular model year is the sum of the PZEV allowances listed in this section 1962(c)(6), multiplied by any PZEV introduction phase-in multiplier or PZEV high efficiency multiplier listed in section 1962(c)(7) (if a 2002 through 2005 model year PZEV qualifies for both multipliers listed in section 1962(c)(7), the product of the two multipliers is used as the PZEV multiplier), subject to the caps in section 1962(c)(6)(B) for 2002 and subsequent model year vehicles.~~

~~(A) 1. *Baseline PZEV Allowance.* The baseline PZEV allowance of 0.2 for vehicles meeting the criteria in section 1962(c)(2);~~

~~(B) 2. *Zero-Emission VMT PZEV Allowance.* The zero-emission VMT PZEV allowance, if any, determined in accordance with section 1962(c)(3);~~

~~(C) 3. *Advanced Componentry PZEV Allowance.* The advanced ZEV componentry ZEV allowance, if any, determined in accordance with section 1962(c)(4); and~~

~~(D) 4. *Fuel-Cycle Emissions PZEV Allowance.* The fuel-cycle emissions ZEV allowance, if any, determined in accordance with section 1962(c)(5).~~

(B) *Caps on the Value of an AT PZEV Allowance.*

1. *Cap for 2012 and Subsequent Model-Year Vehicles.* The maximum value of AT PZEV allowances a 2012 and subsequent model-year vehicle may earn, including the baseline PZEV allowance, is 3.0.

2. *Cap Based on the Credit Value of a Type III ZEV.* In no case may the combined AT PZEV allowance for a qualifying vehicle in a particular model year, including the baseline PZEV allowance, exceed the ZEV credits for a Type III ZEV placed in service in the same model year.

*[Commentary: The post-hearing modification limiting the combined PZEV allowance of a vehicle to the total ZEV credits for a Type III ZEV in the same model year addresses the situations in which the AT PZEV allowances for hydrogen internal combustion engine and grid-connect hybrids could be greater than the credit for Type III (fuel cell) vehicles in the 2009-2011 model years. Since the alternative path credits from such vehicles are interchangeable with “gold” credits, it is inappropriate for technologies with direct emissions to earn greater credit than the highest scoring ZEV.]*

(7) *PZEV Multipliers.*

(A) *PZEV Introduction Phase-In Multiplier.* Each 2000 through 2005 model-year PZEV that is produced and delivered for sale in California, other than a PZEV qualifying for a phase-in multiplier under section 1962(c)(7)(B), qualifies for a PZEV introduction phase-in multiplier as follows:

|            | <i>MY 2000-2003</i> | <i>MY 2004</i> | <i>MY 2005</i> |
|------------|---------------------|----------------|----------------|
| Multiplier | 4.0                 | 2.0            | 1.33           |

~~(B) *AT PZEV High Efficiency Multiplier.* An AT PZEV qualifies for a full high-efficiency multiplier in accordance with section 1962(e) starting with the 2002 model year.~~

~~(C) (B) *Introduction Phase-In Multiplier for PZEVs with > 10 Mile That Earn a Zero Emission Range VMT Allowance.* Each 2000 through 2011 model year PZEV with > 10 miles that earns a zero emission range VMT allowance under section 1962(c)(3) and is produced and delivered for sale in California qualifies for a phase-in multiplier as follows:~~

|            | <i>MY 2000-2007-2008</i>  | <i>MY 2008-2009-2011</i>  | <i>MY 2010-2011</i> |
|------------|---------------------------|---------------------------|---------------------|
| Multiplier | <del>2.0</del> <u>6.0</u> | <del>1.5</del> <u>3.0</u> | <del>1.25</del>     |

(d) *Qualification for ZEV Multipliers and Credits.*

(1) *1996-1998 Model-Year ZEV Multipliers.*

(A) *1996-1998 Model-Year ZEV Multiplier Based on Vehicle Range.*  
1996-1998 model-year ZEVs shall qualify for a ZEV multiplier based on vehicle range as follows:

| <i>ZEV Multiplier</i> | <i>Vehicle Range (miles)</i>     |                        |
|-----------------------|----------------------------------|------------------------|
|                       | <i>Model Years 1996 and 1997</i> | <i>Model Year 1998</i> |
| 2                     | any                              | =100                   |
| 3                     | =70                              | =130                   |

Range shall be determined in accordance with section 9.f.(2)(a) of the “California Exhaust Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles,” incorporated by reference in section 1960.1(k).

(B) *1996-1998 Model-Year ZEV Multiplier Based on Specific Energy of Battery.* 1996-1998 model-year ZEVs shall qualify for a ZEV multiplier based on specific energy of the battery as follows:

| <i>ZEV Multiplier</i> | <i>Specific Energy of Battery (w-hr/kg)</i> |
|-----------------------|---|
| 2                     | any   |
| 3                     | =40   |

(C) *Election of Multiplier.* A 1996-1998 model-year ZEV may qualify for a ZEV multiplier according to section 1962(d)(1)(A) or section 1962(d)(1)(B), but not both.

(2) *1999-2000 Model-Year ZEV Multiplier Calculation for Extended Electric Range Vehicles.* Each ZEV that is produced and delivered for sale in California in the 1999-2000 model years and that has an extended electric range shall qualify for a ZEV multiplier as follows:

| <i>All-electric range</i> | <i>MY 1999-2000</i> |
|---------------------------|---------------------|
| 100-175                   | 6-10                |

ZEV multipliers under the above schedule will be determined by linear interpolation between the values shown in the above schedule. Range shall be determined in accordance with Section E.3.(2)(a) of 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,” incorporated by reference in section 1962(h). ZEVs that have a refueling time of less than 10 minutes and a range of 100 miles or more shall be counted as having unlimited all-electric range, and shall consequently earn the maximum allowable ZEV multiplier for a specific model year. ZEVs that have a range of 80 to 99 miles shall qualify for ZEV multipliers in the 1999-2000 model years in accordance with the following equation:

$$\text{ZEV multiplier} = (6) \times (\text{AER equivalent to a 10 minute recharge}/100) \times 0.5.$$

As an option to the above mechanism, the manufacturer of a 1999 model-year ZEV may elect to have its multiplier based on the regulatory requirements pertaining to multipliers based on range or specific energy in section 1960.1(g)(2) and (h)(2), title 13, California Code of Regulations that were applicable to 1999 model-year ZEVs immediately before this section 1962 became operative on November 27, 1999 as a result of the “LEV II” rulemaking.

(3) *ZEV Multipliers for 2001-2002 ~~and Subsequent~~ Model Years.*

(A) *ZEV Phase-In Multiplier.* Each 2001 ~~to 2005~~ and 2002 model-year ZEV that is placed in service in California by April 15, September 30, 2003 qualifies for a ZEV phase-in multiplier ~~as follows: of 4.0.~~ A 2001 ~~to~~ or 2002 model-year ZEV that is placed in service in California after April 15, September 30, 2003 earns credits in accordance with section 1962(d)(5) instead of section 1962(d)(3).

|                   |                     |                     |
|-------------------|---------------------|---------------------|
|                   | <i>MY 2001-2002</i> | <i>MY 2003-2005</i> |
| <b>Multiplier</b> | 4.0                 | 1.25                |

(B) ~~ZEV Discount Multiplier for NEVs.~~ Each 2004 and subsequent model year NEV that is produced and delivered for sale in California is subject to a ZEV discount multiplier for NEVs as follows:

|                            |                         |                                |
|----------------------------|-------------------------|--------------------------------|
|                            | <i>MY 2004- MY 2005</i> | <i>MYs 2006 and Subsequent</i> |
| <b>Discount Multiplier</b> | 0.5                     | 0.15                           |

~~(C)~~(B) *ZEV Extended Electric Range Multiplier.*

1. *Basic Multiplier Schedule.* Each 2001 and subsequent 2002 model-year ZEV that is placed in service in California and that has an extended urban electric range qualifies for a ZEV extended electric range multiplier as follows:

| <i>Urban All-Electric Range</i> | <i>Multiplier</i> |
|---------------------------------|-------------------|
| < 50 miles                      | 1                 |
| > 50 miles to < 275 miles       | (Urban AER-25)/25 |
| > 275 miles                     | 10                |

A NEV is not eligible to earn a ZEV extended electric range multiplier. In determining ZEV range multipliers, specialty ~~electric vehicles~~ ZEVs may, upon Executive Officer approval, be tested at the parameters used to determine the ZEV multipliers for the existing ~~electric vehicle~~ ZEV.

2. *Fast refueling.*

a. *Full Fueling in 10 Minutes or Less.* A ~~2008 and earlier~~ 2001-2002 model-year ZEV with the demonstrated capability to accept fuel or electric charge until achieving at least 95% SOC or rated fuel capacity in 10 minutes or less when starting from all operationally allowable SOC or fuel states is counted as having unlimited zero emission range and qualifies for the maximum allowable ZEV extended electric range multiplier.

b. *At Least 60-Mile Range in Less Than 10 Minutes.* A ~~2008 and earlier~~ 2001-2002 model year ZEV with the demonstrated capacity to accept fuel or electric charge equivalent to at least 60 miles of UDSS range when starting from 20% SOC in less than 10 minutes is counted as

having 60 additional miles (up to a 275 mile maximum) of UDDS range in the range multiplier determination in section 1962(d)(3)(C)1.

~~3. *Multiplier Phase Down.* Starting with the 2005 model year, the ZEV extended electric range multiplier is phased down to 0.15 of its value in accordance with section 1962(e)(6).~~

~~(D)(C)~~ *Combined ZEV Multiplier.* ~~Starting with~~ During the 2001-2002 model years, the combined ZEV multiplier for each ZEV in a specific model year is the product of:

1. The ZEV phase-in multiplier if any as set forth in section 1962(d)(3)(A), times
- ~~2. In the case of a NEV, the ZEV discount multiplier for NEVs if any as set forth in section 1962(d)(3)(B), times~~
- ~~3.~~ 2. The extended electric range multiplier if any as set forth in section 1962(d)(3)~~(C)(B)~~, times.
4. ~~The high efficiency multiplier if any as set forth in section 1962(e).~~

(4) ~~(E)~~ *Effect of ZEV Multipliers in the 1996-2002 Model Years.* In calculating the number of ZEVs produced and delivered for sale in California by a manufacturer in a the 1996-2002 model years and the ZEV credits from such vehicles, the number of ZEVs qualifying for a particular ZEV multiplier shall be multiplied by the combined ZEV multiplier.

(5) *ZEV Credits for 2003 and Subsequent Model Years.*

(A) *ZEV Tiers for Credit Calculations.* Starting in the 2003 model year, ZEV credits from a particular ZEV are based on the assignment of a given ZEV into one of the following five ZEV tiers:

| <u>ZEV Tier</u> | <u>Common Description</u> | <u>UDDS ZEV Range</u>          | <u>Fast Refueling Capability</u>  |
|-----------------|---------------------------|--------------------------------|---|
| <u>NEV</u>      | <u>NEV</u>                | <u>No minimum</u>              | <u>N/A</u>  |
| <u>Type 0</u>   | <u>Utility EV</u>         | <u>&lt;50 miles</u>            | <u>N/A</u>  |
| <u>Type I</u>   | <u>City EV</u>            | <u>&gt;= 50, &lt;100 miles</u> | <u>N/A</u>  |
| <u>Type II</u>  | <u>Full Function EV</u>   | <u>&gt;= 100 miles</u>         | <u>N/A</u>  |
| <u>Type III</u> | <u>Fuel Cell EV</u>       | <u>&gt;= 100 miles</u>         | <u>Must be capable of replacing 95% maximum rated energy capacity in &lt;= 10 minutes</u> |

A specialty ZEV that has the same zero emission energy storage device and chassis as an existing ZEV from which it was modified may, upon Executive Officer approval, be categorized on the basis of the that existing ZEV from which it is modified. A specialty vehicle that is optimized for a particular duty cycle that conflicts with optimization for maximum vehicle range may be promoted to the next higher ZEV tier upon a determination by the Executive Officer that the specialty vehicle has ZEV componentry equivalent to that utilized by ZEVs in the next tier and would meet the requirements for the next tier if optimized for maximum range.

(B) ZEV Credits for 2003 and ~~Subsequent~~ ~~Model-~~Year~~~~ ZEVs. A 2003 and subsequent model-year ZEV, other than a NEV, earns 1 ZEV credit when it is produced and delivered for sale in California. A 2003 and subsequent model-year ZEV earns additional credits based on the earliest model year in which the ZEV is placed in service (not earlier than the ZEV's model year). The following table identifies the credits that a ZEV in each of the five ZEV tiers will earn, including the credit not contingent on placement in service, if it is placed in service in the specified model year or by ~~March 31~~ June 30 after the end of the specified model year.



| <i>Tier</i>             | <i>Model Year in Which ZEV is Placed in Service</i> |              |              |                         |                         |                         |             |             |             |              |
|-------------------------|---|--------------|--------------|-------------------------|-------------------------|-------------------------|-------------|-------------|-------------|--------------|
|                         | <u>2003</u>   | <u>2004</u>  | <u>2005</u>  | <u>2006</u>             | <u>2007</u>             | <u>2008</u>             | <u>2009</u> | <u>2010</u> | <u>2011</u> | <u>2012+</u> |
| <u>NEV</u>              | <u>1.25</u>   | <u>0.625</u> | <u>0.625</u> | <u>0.15</u>             | <u>0.15</u>             | <u>0.15</u>             | <u>0.15</u> | <u>0.15</u> | <u>0.15</u> | <u>0.15</u>  |
| <u>Type 0 (Utility)</u> | <u>1.5</u>  | <u>1.5</u>   | <u>1.5</u>   | <u>1.5</u>              | <u>1.5</u>              | <u>1.5</u>              | <u>1</u>    | <u>1</u>    | <u>1</u>    | <u>1</u>     |
| <u>Type 1 (City)</u>    | <u>8</u>  | <u>8</u>     | <u>8</u>     | <u>7</u>                | <u>7</u>                | <u>7</u>                | <u>2</u>    | <u>2</u>    | <u>2</u>    | <u>2</u>     |
| <u>Type II</u>          | <u>12</u>   | <u>12</u>    | <u>12</u>    | <u>10</u>               | <u>10</u>               | <u>10</u>               | <u>3</u>    | <u>3</u>    | <u>3</u>    | <u>3</u>     |
| <u>Type III</u>         | <u>40</u>   | <u>40</u>    | <u>40</u>    | <del>15</del> <u>40</u> | <del>15</del> <u>40</u> | <del>15</del> <u>40</u> | <u>4</u>    | <u>4</u>    | <u>4</u>    | <u>3</u>     |

(C) Multiplier for Certain Type I and Type II ZEVs. A 2003 through 2011 model-year Type I and Type II ZEV shall qualify for a multiplier of 1.25 if it is either sold to a motorist or is leased for three or more years to a motorist who is given the option to purchase or re-lease the vehicle at the end of the first lease term.

*[Commentary: This new subsection 1961(d)(5)(C) has been added to reflect Item 3 of Attachment D to the Resolution. It is designed to provide additional incentives for battery electric vehicles to be kept on the road longer, since battery electric drivers who have been delighted with the performance of their cars have sometimes been unable to obtain extensions of initial three-year leases.]*

(D) Counting a Type III ZEV Placed in a Section 177 State. Through the 2011 model year, a Type III ZEV that is certified to the California ZEV standards and is placed in service in a state that is administering the California ZEV requirements pursuant to section 177 of the federal Clean Air Act (42 U.S.C. § 7507) applicable for the ZEV's model year may be counted towards compliance with the California percentage ZEV requirements in section 1962(b), including the requirements in section 1962(b)(2)(B), as if it were delivered for sale and placed in service in California. Similarly, a 2011 and earlier model-year Type III ZEV that is certified to the California ZEV standards and is placed in service in California may be counted towards the percentage ZEV requirements of any state that is administering the California ZEV requirements pursuant to section 177 of the federal Clean Air Act, including requirements based on section 1962(b)(2)(B).

*[Commentary: Modifications have been made to sunset this provision after the 2011 model year, reflecting Item 5 in Attachment D to the Resolution.*

*Additional post-hearing modifications have been made to reaffirm the intent that this provision will result in both having section 177 state Type III ZEVs counted in California and having California Type III ZEVs counted in section 177 states.]*

~~(e)(c) [Reserved] ZEV and Advanced Technology PZEV High Efficiency Multipliers~~

~~(1) *Eligibility.* Beginning with the 2005 model year for ZEVs and the 2002 model year for advanced technology PZEVs, both ZEVs and advanced technology PZEVs are eligible for a high efficiency multiplier. A NEV is not eligible to earn an efficiency multiplier. A vehicle earning an efficiency multiplier value of less than 1.00 pursuant to section 1962(e)(3) will be treated as having an efficiency multiplier of 1.~~

~~(2) *Calculation of CMPEG Rating.* For all vehicle types, a CMPEG (California miles per equivalent gallon) rating is determined as follows:~~

~~(A) For gasoline fueled vehicles and HEVs with < 10 mile zero emission range, CMPEG = Combined Fuel Economy determined in accordance with 40 CFR Part 600 = 1 / [.55 / (EPA city mpg, unadjusted) + .45 / (EPA highway mpg, unadjusted)].~~

~~(B) For BEVs and off vehicle charge capable HEVs with = 10 mile zero emission range, CMPEG = [ 33,705 AC whr/gal / (.55 (AC whr/mile UD DS) + .45 (AC whr/mile HFEDS))] where AC whr/ mile values are determined in accordance with section E.3. "Determination of All-Electric Range Urban," and "Determination of All Electric Range Highway" of 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," as incorporated by reference in section 1962(h). Qualifying HEV CMPEG determination shall be based solely on electric mode operating efficiency for vehicles that are able to maintain test cycle speed and time tolerances for the entire zero emission range test.~~

~~(C) *Alternative Fuel Vehicles.*~~

~~1. For vehicles operating on an alternative fuel other than hydrogen, including CNG or alcohol, CMPEG = Combined Fuel Economy as determined in accordance with 40 CFR Part 600. Alternate fuel vehicle CMPEG shall not be compensated with the federal (1/0.15) "fuel content" factor used in determining average fuel economy.~~

~~2. For vehicles operating on hydrogen, CMPEG shall be determined by converting the combined fuel economy value measured on the basis of miles per kg of hydrogen (MPkg) into CMPEG as follows:~~

$$\text{Hydrogen MPkg} \times (1.0 \text{ kg H}_2/\text{gallon gasoline}) = \text{CMPEG}$$

(D) For flexible fuel or dual fuel vehicles, CMPEG is the lowest of the federal combined fuel economy values determined for any fuel or fuel mixture on which the vehicle is certified to operate.

(3) *Vehicle classes.*

(A) *List of vehicle classes.* Efficiency multipliers will be determined based on assignment of a vehicle to one of the following vehicle classes; interior volume is determined in accordance with SAE Recommended Practice J1100 and U.S. EPA Fuel economy regulations, 40 CFR 600.315-82.

| <i>Vehicle Class</i>                                     | <i>Class Description</i>  |
|--|---|
| City Vehicle<br>(effective beginning in 2008 model year) | 2-passenger electric vehicle with length < 3 meters               |
| Subcompact PC  | Interior volume up to 99 ft <sup>3</sup> , and not a City Vehicle |
| Compact PC   | Interior volume 100-109 ft <sup>3</sup>                           |
| Midsize PC   | Interior volume 110-119 ft <sup>3</sup>                           |
| Large PC   | Interior volume over 120 ft <sup>3</sup>                          |
| Small Truck  | LDT 1   |
| Medium Truck   | LDT 2   |
| Large Truck  | LDT 3 & 4   |

(B) *Assignment of derivative or converted vehicles.* A derivative station wagon shall be placed in the same class as the sedan on which it is based. A minivan shall be placed in the appropriate truck category based on adjusted or adjusted loaded vehicle weight. A derivative or conversion ZEV that shares a production platform with one or more gasoline engine versions shall be placed in the same class as the smallest or lightest gasoline version of the same platform for that model year.

(4) *High efficiency multipliers for the 2002-2007 model years.* For model years 2002-2007, the efficiency multiplier for each vehicle class is determined according to the following equation:

$$\text{High Efficiency Multiplier} = \text{CMPEG} / (1.5 * \text{Baseline Fuel Economy})$$

Where: ~~\_\_\_\_\_~~ Baseline Fuel Economy is determined in accordance with the following table:

| <i>Vehicle Class</i> | <i>Baseline Fuel Economy MY 2002-2007</i> |
|----------------------|---|
| Subcompact PC        | 30.6                                      |
| Compact PC           | 30.4                                      |
| Midsized PC          | 27.0                                      |
| Large PC             | 25.6                                      |
| Small Truck          | 25.0                                      |
| Medium Truck         | 21.4                                      |
| Large Truck          | 18.2                                      |

(5) ~~High efficiency multipliers for the 2008 and subsequent model years. For the 2008 and subsequent model years, the efficiency multiplier for each vehicle class is determined in accordance with the following equations:~~

~~For ZEVs and PZEVs with > 10 mile Zero Emission Range: Efficiency multiplier = CMPEG / (2.0 \* Baseline Fuel Economy)~~

~~For all other AT PZEVs: Efficiency multiplier = CMPEG / (1.5 \* Baseline Fuel Economy)~~

Where: ~~\_\_\_\_\_~~ *Baseline Fuel Economy* for model years 2008-2011 is the model year 2004 unadjusted combined federal sales weighted fuel economy for the vehicle class as determined by U.S. EPA. For a City Vehicle, the baseline fuel economy is 45.9.

~~Baseline Fuel Economy for Model Years 2012-2014 is the model year 2008 unadjusted combined federal sales weighted fuel economy for the vehicle class as determined by U.S. EPA. For a City Vehicle, the baseline fuel economy is 45.9.~~

~~Baseline Fuel Economy for model years 2015 and beyond shall be determined using the same methodology.~~

(6) *Phasing in the High Efficiency Multiplier for ZEVs.*

(A) *Range and Efficiency Phasing Factors.* For ZEVs, the high efficiency multiplier is phased in, and the extended electric range multiplier is phased down to 0.15 of its initial value, using the phasing factors in the following schedule:

*Range and Efficiency Phasing Factors for Each Model Year*

|            | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012+ |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Range      | 1.000 | 0.825 | 0.600 | 0.450 | 0.300 | 0.250 | 0.200 | 0.200 | 0.150 |
| Efficiency | 0.000 | 0.100 | 0.350 | 0.550 | 0.600 | 0.700 | 0.800 | 0.800 | 0.825 |

(B) *Application of the Range and Efficiency Phasing Factors.* The range and efficiency phasing factors are applied as follows:

$$\text{Phased range multiplier} = ((\text{range multiplier} - 1) \times \text{range phasing factor}) + 1$$

$$\text{Phased efficiency multiplier} = ((\text{efficiency multiplier} - 1) \times \text{efficiency phasing factor}) + 1$$

(f) ~~In Extended Service Warranty Multiplier for 2001-2004 Model-Year ZEVs and PZEVs With <sup>3</sup> 10 Mile Zero Emission Range.~~ Except in the case of a NEV, an additional ZEV or PZEV multiplier will be earned ~~for the~~ by a 2001 through 2011 2004 model-year ~~by a ZEV, or a PZEV with  $\geq$  10 mile zero emission range whose zero-emission energy storage or conversion system is under an original warranty from the vehicle manufacturer beyond three years of service and for each full year it is registered for operation on public roads in California beyond its first three years of service, through the 2011 calendar year.~~ For the 2001 through 2007 model years, a ~~The~~ manufacturer will receive ~~0.1~~ 0.2 times the ZEV credit that would be earned by the vehicle if it were leased or sold new in that year, including multipliers, on a year-by-year basis beginning in the fourth year after the vehicle is initially placed in service. ~~For the 2008 through 2011 model years, a manufacturer will receive 0.05 times the ZEV credit earned by the vehicle if it were leased or sold new in that year, including multipliers, on a year-by-year basis beginning in the fourth year.~~ The warranty extended service multiplier is reported and earned in the year following each continuous year of service. ZEVs, other than NEVs, re-leased prior to January 25, 2001 for a period beyond three years of service will earn an additional ZEV multiplier of 0.1 times the ZEV credit earned by the vehicle if it were leased or sold new in that year, including multipliers, for each additional year that they are in service and registered for operation on public roads in California. ~~Such vehicles are not required to have the zero-emission energy storage or conversion system under an original warranty from the vehicle manufacturer.~~

*[Commentary: These modifications reflect Item 4 in Attachment D to the Resolution. The requirement for an extended battery warranty in order for extended-use ZEVs to qualify for additional credits has been an impediment to*

*lease extensions, since manufacturers are reluctant to commit to having to purchase a replacement battery pack while customers may be fully willing to lease the vehicle without an extended warranty as long as it continues to meet the customer's needs.]*

(g) *Generation and Use of ZEV Credits; Calculation of Penalties*

(1) *Introduction.* A manufacturer that produces and delivers for sale in California ZEVs or PZEVs in a given model year exceeding the manufacturer's ZEV requirement set forth in section 1962(b) shall earn ZEV credits in accordance with this section 1962(g).

(2) *ZEV Credit Calculations.*

(A) *Credits from ZEVs.* The amount of g/mi ZEV credits earned by a manufacturer in a given model year from ZEVs shall be expressed in units of g/mi NMOG, and shall be equal to the number of credits from ZEVs produced and delivered for sale in California that the manufacturer applies towards meeting the ZEV requirements for the model year subtracted from the number of ZEVs produced and delivered for sale in California by the manufacturer in the model year and then multiplied by the NMOG fleet average requirement for PCs and LDT1s for that model year.

(B) *Credits from PZEVs.* The amount of g/mi ZEV credits from PZEVs earned by a manufacturer in a given model year shall be expressed in units of g/mi NMOG, and shall be equal to the total number of PZEVs produced and delivered for sale in California that the manufacturer applies towards meeting its ZEV requirement for the model year subtracted from the total number of PZEV allowances from PZEVs produced and delivered for sale in California by the manufacturer in the model year and then multiplied by the NMOG fleet average requirement for PCs and LDT1s for that model year.

(C) *Separate Credit Accounts.* The number of credits from a manufacturer's [i] ZEVs, [ii] advanced technology PZEVs, and [iii] all other PZEVs shall each be maintained separately.

(3) *ZEV Credits for MDVs and LDTs ~~Other Than~~ LDT1s.* ZEVs and PZEVs classified as MDVs or as LDTs other than LDT1s may be counted toward the ZEV requirement for PCs and LDT1s, and included in the calculation of ZEV credits as specified in this section 1962(g) if the manufacturer so designates.

(4) *ZEV Credits for Advanced Technology Demonstration Programs.* A vehicle other than a NEV, that is placed in a California advanced technology demonstration program may earn ZEV credits even if it is not "delivered for sale." To earn such credits, the manufacturer must demonstrate to the reasonable satisfaction of the Executive Officer that the vehicles will be regularly used in applications appropriate to evaluate issues related to safety, infrastructure, fuel specifications or public education, and that for more than 50 percent of the first year of placement the vehicle will be situated in California.

Such a vehicle is eligible to receive the same allowances and credits that it would have earned if placed in service. To determine vehicle credit, the model-year designation for a demonstration vehicle shall be consistent with the model-year designation for conventional vehicles placed in the same timeframe.

(5) *ZEV Credits for Transportation Systems.*

(A) *General.* In model years 2001 through ~~2007~~ 2011, a ZEV, advanced technology PZEV or PZEV placed as part of a transportation system may earn additional ZEV credits, which may be used in the same manner as other credits earned by vehicles of that category, except as provided in section (g)(5)(C) below. A NEV is not eligible to earn credit for transportation systems. To earn such credits, the manufacturer must demonstrate to the reasonable satisfaction of the Executive Officer that the vehicle will be used as a part of a project that uses an innovative transportation system as described in section (g)(5)(B) below.

(B) *Credits Earned.* In order to earn additional credit under this section (g)(5), a project must at a minimum demonstrate [i] shared use of ZEVs, AT PZEVs or PZEVs, and [ii] the application of “intelligent” new technologies such as reservation management, card systems, depot management, location management, charge billing and real-time wireless information systems. If, in addition to factors [i] and [ii] above, a project also features linkage to transit, the project may receive further additional credit. For ZEVs only, not including NEVs, a project that features linkage to transit, such as dedicated parking and charging facilities at transit stations, but does not demonstrate shared use or the application of intelligent new technologies, may also receive additional credit for linkage to transit. The maximum credit awarded per vehicle shall be determined by the Executive Officer, based upon an application submitted by the manufacturer and, if appropriate, the project manager. The maximum credit awarded shall not exceed the following:

| <i>Type of Vehicle</i>   | <i>Shared Use, Intelligence</i> | <i>Linkage to Transit</i> |
|--------------------------|---------------------------------|---------------------------|
| PZEV                     | 2                               | 1                         |
| Advanced Technology PZEV | 4                               | 2                         |
| ZEV                      | 6                               | 3                         |

(C) *Cap on Use of Credits.*

1. *ZEVs.* Credits earned or allocated by ZEVs pursuant to this section (g)(5), not including all credits earned by the vehicle itself, may be used to satisfy up to one-tenth of a manufacturer’s ZEV obligation in any given model year.

2. *AT PZEVs.* Credits earned or allocated by AT PZEVs pursuant to this section (g)(5), not including all credits earned by the vehicle itself, may be used to satisfy up to one-twentieth of a manufacturer’s ZEV obligation in any given model year, but may only be used in the same manner as other credits earned by vehicles of that category.

3. *PZEVs.* Credits earned or allocated by PZEVs pursuant to this section (g)(5), not including all credits earned by the vehicle itself, may be used to satisfy up to one-fiftieth of the manufacturer's ZEV obligation in any given model year, but may only be used in the same manner as other credits earned by vehicles of that category.

(D) *Allocation of Credits.* Credits shall be assigned by the Executive Officer to the project manager or, in the absence of a separate project manager, to the vehicle manufacturers upon demonstration that a vehicle has been placed in a project. Credits shall be allocated to vehicle manufacturers by the Executive Officer in accordance with a recommendation submitted in writing by the project manager and signed by all manufacturers participating in the project, and need not be allocated in direct proportion to the number of vehicles placed.

(6) *Submittal of ZEV Credits.* A manufacturer may meet the ZEV requirements in any given model year by submitting to the Executive Officer a commensurate amount of g/mi ZEV credits, consistent with section 1962(b). These credits may be earned previously by the manufacturer or acquired from another ~~manufacturer party~~, except that beginning with the 2006 model year credits earned from NEVs offered for sale or placed in service in model years 2001 through 2005 cannot be used to satisfy more than the following portion of ~~any program category (ZEV, AT PZEV, PZEV)~~ a manufacturer's percentage ZEV obligation that may ~~not only~~ be satisfied with credits from ~~AT PZEVs or PZEVs~~ ZEVs and, starting with the 2009 model year, the manufacturer's percentage ZEV obligation that may be satisfied by credits from AT PZEVs but not PZEVs:

| <u>ZEV Category</u> |                 | <u>AT PZEV Category</u> |                        |
|---------------------|-----------------|-------------------------|------------------------|
| 2006                | 2007 and beyond | <u>2009</u>             | <u>2010 and beyond</u> |
| 75%                 | 50%             | <u>75%</u>              | <u>50%</u>             |

This limitation applies to credits earned in model years 2001 through 2005 by the same manufacturer or earned in model years 2001 through 2005 by another manufacturer and acquired. The amount of g/mi ZEV credits required to be submitted shall be calculated according to the criteria set forth in this section 1962(g).

(7) *Requirement to Make Up a ZEV Deficit.*

(A) *General.* A manufacturer that produces and delivers for sale in California fewer ZEVs than required in a given model year shall make up the deficit by the end of the next model year by submitting to the Executive Officer a commensurate amount of g/mi ZEV credits, except that credits generated from PZEVs may be used to offset deficits for two model years. The amount of g/mi ZEV credits required to be submitted shall be calculated by [i] adding the number of ZEVs produced and delivered for sale in California by the manufacturer for the model year to the number of ZEV allowances from partial ZEV allowance vehicles produced and delivered for sale in California by the

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manufacturer for the model year (for a large volume manufacturer, not to exceed that permitted under section 1962(b)(2)), [iii] subtracting that total from the number of ZEVs required to be produced and delivered for sale in California by the manufacturer for the model year, and [iii] multiplying the resulting value by the fleet average requirements for PCs and LDT1s for the model year in which the deficit is incurred.

(B) *Additional Time to Make Up ZEV Deficits for the 2003-2004 Model Years.*

1. ~~*Model Year 2003 ZEV Deficits.* A manufacturer that produces, and delivers for sale in California, model year 2003 or earlier PZEVs that generate at least twice as many credits as are necessary to take full advantage of the manufacturer's 60% PZEV option for the 2003 model year has through the 2007 model year to fully exercise its option to meet an additional 20% of its ZEV requirement for the 2003 model year with credits from advanced technology PZEVs.~~

2. ~~*Model Year 2004 ZEV Deficits.* A manufacturer that qualifies under section 1962(g)(7)(B) 1., and produces, and delivers for sale in California, model year 2004 or earlier PZEVs that generate at least twice as many credits as are necessary to take full advantage of the manufacturer's 60% PZEV option for the 2003 and 2004 model years, has through the 2008 model year to fully exercise its option to meet an additional 20% of its ZEV requirement for the 2004 model year with credits from advanced technology PZEVs.~~

(8) *Penalty for Failure to Meet ZEV Requirements.* Any manufacturer that fails to produce and deliver for sale in California the required number of ZEVs or submit an appropriate amount of g/mi ZEV credits and does not make up ZEV deficits within the specified time period shall be subject to the Health and Safety Code section 43211 civil penalty applicable to a manufacturer that sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the ZEV deficits are not balanced by the end of the specified time period. For the purposes of Health and Safety Code section 43211, the number of vehicles not meeting the state board's standards shall be calculated according to the following equation, provided that the percentage of a large volume manufacturer's ZEV requirement for a given model year that may be satisfied with partial ZEV allowance vehicles or ZEV credits from such vehicles may not exceed the percentages permitted under section 1962(b)(2)(A):

$$\begin{aligned} & (\text{No. of ZEVs required to be produced and delivered for sale in California for the model year}) - \\ & (\text{No. of ZEVs produced and delivered for sale in California for the model year}) - (\text{No. of ZEV} \\ & \text{allowances from partial ZEV allowance vehicles produced and delivered for sale in California} \\ & \text{for the model year}) - [(\text{Amount of ZEV credits submitted for the model year}) / (\text{the fleet average} \\ & \text{requirement for PCs and LDT1s for the model-year})]. \end{aligned}$$

(h) *Test Procedures.* The certification requirements and test procedures for determining compliance with ~~the~~ this section 1962 are set forth in "California Exhaust Emission Standards and Test Procedures for 2003 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent

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Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” adopted by the state board on August 5, 1999, and last amended ~~July 30, 2002~~ [Insert date of amendments], which is incorporated herein by reference.

(i) *ZEV-Specific Definitions.* The following definitions apply to this section 1962.

(1) “Advanced technology PZEV” or “AT PZEV” means any PZEV with an allowance greater than 0.2 before application of the PZEV early introduction phase-in multiplier ~~or the high efficiency multiplier.~~

(2) “Battery electric vehicle” means any vehicle that operates solely by use of a battery or battery pack, or that is powered primarily through the use of an electric battery or battery pack but uses a flywheel or capacitor that stores energy produced by the electric motor or through regenerative braking to assist in vehicle operation.

(3) “Neighborhood electric vehicle” means a motor vehicle that meets the definition of Low-Speed Vehicle either in section 385.5 of the Vehicle Code or in 49 CFR 571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

(4) “Placed in service” means having been sold or leased to an end-user and not to a dealer or other distribution chain entity, and having been individually registered for on-road use by the California Department of Motor Vehicles.

(4.5) “Regenerative braking” means the partial recovery of the energy normally dissipated into friction braking that is returned as electrical current to an energy storage device.

(5) “Specialty ~~electric vehicle~~ ZEV” means a ~~version of an existing electric vehicle~~ ZEV that is designed for a commercial or governmental fleet application, and either [i] has the same battery pack zero emissions energy storage device and chassis as the an existing electric vehicle ZEV from which it is modified, or [ii] in the case of a vehicle that is not based on an existing ZEV platform, is optimized for a particular duty cycle, such as urban delivery service, that conflicts with optimization for maximum vehicle range.

(6) “Type 0, I, II, and III ZEV” all have the meanings set forth in section 1962(d)(5)(A).

(j) *Abbreviations.* The following abbreviations are used in this section 1962:

“AER” means all-electric range.

“BEV” means battery electric vehicle.

~~“CMPEG” means California miles per equivalent gallon.~~

“HEV” means hybrid-electric vehicle.

“HFEDS” means highway fuel economy driving cycle.

“LDT” means light-duty truck.

“LDT1” means a light-truck with a loaded vehicle weight of 0-3750 pounds.

“LDT2” means a “LEV II” light-duty truck with a loaded vehicle weight of 3751 pounds to a gross vehicle weight of 8500 pounds, or a “LEV I” light-duty truck with a loaded vehicle weight of 3751-5750 pounds.

“MDV” means medium-duty vehicle.

“Non-Methane Organic Gases” or “NMOG” means the total mass of oxygenated and non-oxygenated hydrocarbon emissions.

“MY” means model year.

“NEV” means neighborhood electric vehicle.

“NOx” means oxides of nitrogen.

“PC” means passenger car.

“PZEV” means any vehicle that is delivered for sale in California and that qualifies for a partial ZEV allowance of at least 0.2.

“SOC” means state of charge.

“SULEV” means super-ultra-low-emission-vehicle.

“UDDS” means urban dynamometer driving cycle.

“ULEV” means ultra-low emission vehicle.

“VMT” means vehicle miles traveled.

“ZEV” means zero-emission vehicle.

(k) Severability. Each provision of this section is severable, and in the event that any provision of this section is held to be invalid, the remainder of this article remains in full force and effect.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety Code.

2. Amend section 1900(b)(19) and (21) as follows:

## § 1900. Definitions.

(a) The definitions in this section supplement and are governed by the definitions set forth in chapter 2 (commencing with section 39010), part 1, division 26 of the Health and Safety Code. The definitions set forth in the applicable model-year new vehicle certification and assembly-line test procedures adopted in this chapter are hereby incorporated by reference.

(b) In addition to the definitions incorporated under subdivision (a), the following definitions shall govern the provisions of this chapter.

\* \* \* \* \*

(18) “Small volume manufacturer” means, with respect to the 2001 and subsequent model-years, a manufacturer with California sales less than 4,500 new passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles and heavy-duty engines based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification; however, for manufacturers certifying for the first time in California model-year sales shall be based on projected California sales. A manufacturer’s California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer’s nameplate shall be treated as California sales of the marketing manufacturer. For purposes of compliance with the zero-emission vehicle requirements, heavy-duty vehicles and engines shall not be counted as part of a manufacturer’s sales. For purposes of applying the 2003 and subsequent model year zero-emission vehicle requirements for small-volume manufacturers under section 1962(b), the annual sales from different firms shall be aggregated in the case of (1) vehicles produced by two or more firms, each one of which either has a greater than 50% equity ownership in another or is more than 50% owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of greater than 50% in each firm.

(19) “Intermediate volume manufacturer” means any pre-2001 model year manufacturer with California sales between 3,001 and 60,000 new light- and medium-duty vehicles per model year based on the average number of vehicles sold by the manufacturer each model year from 1989 to 1993; any 2001 through 2002 model year manufacturer with California sales between 4,501 and 60,000 new light- and medium-duty vehicles per model year based on the average number of vehicles sold by the manufacturer each model year from 1989 to 1993; and any 2003 and subsequent model year manufacturer with California sales between 4,501 and 60,000 new light- and medium-duty vehicles based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification. For a manufacturer certifying for the first time in California, model year sales shall be based on projected California sales. A manufacturer’s California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer’s nameplate shall be treated as California sales of the marketing manufacturer. For purposes of applying the 2003 and subsequent model year zero-emission vehicle requirements for intermediate-volume manufacturers under section 1962(b), the annual sales from different firms shall be aggregated in the case of (1) vehicles produced by two or more firms, each one of which either has a greater than 50% equity ownership in another or is more than 50% owned by another; or (2) vehicles produced by any two or more firms if a third party has equity ownership of greater than 50% in each firm.

(20) “Large volume manufacturer” means any 2000 and subsequent model year manufacturer that is not a small volume manufacturer, or an independent low volume manufacturer, or an intermediate volume manufacturer.

(21) “Independent low volume manufacturer” means a manufacturer with California annual sales of less than 10,000 new passenger cars, light-duty trucks and medium-duty vehicles following aggregation of sales pursuant to this section 1900(b)(21). Annual sales shall be determined as the average number or sales sold for the three previous consecutive model years for which a manufacturer seeks certification; however, for a manufacturer certifying for the first time in California, annual sales shall be based on projected California sales for the model year. A manufacturer’s California sales shall consist of all vehicles or engines produced by the manufacturer and delivered for sale in California, except that vehicles or engines produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer’s nameplate shall be treated as California sales of the marketing manufacturer. The annual sales from different firms shall be aggregated in the following situations:

- (A) Vehicles produced by two or more firms, one of which is 10% or greater part owned by another;
- (B) Vehicles produced by any two or more firms if a third party has equity ownership of 10% or more in each of the firms;
- (C) Vehicles produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies;
- (D) Vehicles imported or distributed by all firms where the vehicles are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, and 43104 Health and Safety Code.  
Reference: Sections 39002, 39003, 39010, 39500, 40000, 43000, 43013, 43100, 43101, 43101.5, 43102, 43104, 43106, and 43204, Health and Safety Code.

*[Commentary: The post-hearing modifications to the intermediate volume manufacturer and independent low volume manufacturer provisions add language that was added to the small volume manufacturer provisions in the LEV II rulemaking. This language applies where one manufacturer has produced a vehicle and a second manufacturer is marketing the vehicle in California under the latter manufacturer’s nameplate. The LEV II amendments assign vehicles in this situation to the marketer rather than the producer for the purposes of determining small volume manufacturer status. The rationale is that a manufacturer’s marketing presence in California will have a significant impact on its ability to sell California ZEVs. Staff believes that the same policy considerations support inclusion of identical language in the intermediate volume manufacturer and independent low volume manufacturer provisions as well. As is the case with most other responsibilities, manufacturers in a multi-manufacturer*

*arrangement may agree to assign the ZEV responsibility to the producing manufacturer.*

*Parallel small volume manufacturer language in section 1962(b)(7)(B) would be deleted because it is redundant of existing section 1900(b)(18); moreover, it had not been ARB's intent that the "multi-manufacturer" amendments finalized in 2002 would have the effect of limiting applicability of this provision to decreases in production volumes only.]*

3. Make comparable 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." In addition, add section D.3. reading as follows:

3. **ZEV Reporting Requirements.** In order to verify the status of each manufacturer's compliance with the ZEV requirements for a given calendar year, each manufacturer shall submit a report to the Executive Officer at least annually, by May 1 of the calendar year following the close of the model year, that identifies the necessary delivery and placement data of all vehicles generating ZEV credits or allowances, and all transfers and acquisitions of ZEV credits. The manufacturer may update the report by September 1 to cover activities occurring between April 1 and June 30.