PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO THE CALIFORNIA ZERO EMISSION VEHICLE PROGRAM REGULATIONS

Staff's Suggested Modifications to the Original Proposal

TO BE PRESENTED AT THE JANUARY 25, 2001 HEARING
OF THE AIR RESOURCES BOARD

The following text contains staff's suggested modifications to the originally proposed amendments to the California zero emission vehicle (ZEV) regulation, and the incorporated "California Exhaust Emission Standards and Test Procedures For 2003 and Subsequent Model Zero-Emission Vehicles, and 2001 And Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck And Medium-Duty Vehicle Classes." The text of the originally proposed amendments is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The modifications now proposed by staff are shown in double underline to indicate additions and ~~double strikeout~~ to show deletions. The italicized commentaries provide explanations of the reasons for the suggested modifications to the original proposal and are not part of the regulations. All proposed modifications will be made available to the public for a supplemental fifteen-day comment period prior to final adoption.

PROPOSED REGULATION ORDER

AMENDMENTS TO THE CALIFORNIA ZERO-EMISSION VEHICLE REGULATION

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

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

Zero-Emission Vehicle Standards

(a) *ZEV Emission Standard.* The Executive Officer shall certify new 2003 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.* The minimum percentage ZEV requirement for each manufacturer ~~in 2003 and subsequent model years~~ is listed ~~that at least 10%~~ in the table below as the percentage of the PCs and LDT1s produced by the manufacturer and delivered for sale in California that must be ZEVs, subject to the conditions in this section 1962(b). 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 2003 to 2005 ZEV requirements. For subsequent three-year periods following 2003 to 2005, a manufacturer's California PC and LDT1 production volume will be based on a three-year average of the manufacturer's volume of PCs and LDT1s 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 PC and LDT1 production volumes 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. In applying the ZEV requirement, a PC or LDT1 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.

Model Years	*Minimum ZEV Requirement*
2003 through 2008	10 percent
2009 through 2011	11 percent
2012 through 2014	12 percent
2015 through 2017	14 percent
2018 and subsequent	16 percent

~~(1)~~(2) ~~*Basic*~~ *Requirements for Large Volume, Intermediate Volume, Independent Low Volume, and Small Volume Manufacturers.*

(A) *Large Volume Manufacturers.* In 2003 ~~and subsequent~~ through 2008 model years, a large-volume manufacturer must meet at least ~~40%~~ 20% of its ZEV requirement with ZEVs, ~~full ZEV allowance vehicles,~~ extended range HEVs, or ZEV credits generated by such vehicles, and at least another 20% with ZEVs, extended range HEVs, advanced technology PZEVs, or credits generated by such vehicles. The remainder of the large-volume manufacturer's ZEV requirement may be met using ~~partial ZEV allowance vehicles~~ PZEVs or credits generated by such vehicles. As the ZEV requirement increases over time (from 10% in 2003 to 16% in 2018), the maximum portion of the 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 and LDT1 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.

(B) *Intermediate Volume Manufacturers.* In 2003 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) *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, extended range HEVs or ~~ZEV allowance vehicles~~ PZEVs it produces and delivers for sale in California.

~~(2)~~(3) *Counting ZEVs, Extended Range HEVs, and ~~ZEV Allowance Vehicles~~ PZEVs in Fleet Average NMOG Calculations.* ~~Vehicles certified as ZEVs and as full ZEV allowance vehicles shall be counted as ZEVs~~ ~~f~~For ~~the~~ purposes of calculating a manufacturer's fleet average NMOG value and NMOG credits under sections 1961(b) and (c), a vehicle certified as a ZEV or as an extended range HEV is counted as one ZEV, and a ~~Partial ZEV allowance vehicles shall be~~ PZEV is counted as one SULEV~~s~~ certified to the 150,000 mile standards ~~for the purpose of calculating a manufacturer's fleet average NMOG value and NMOG credits under sections 1961(b) and (c)~~, regardless of any ZEV or PZEV multipliers.

~~(3)~~(4) *Implementation Prior to 2003 Model Year.* Prior to the 2003 model year, a manufacturer that voluntarily produces vehicles meeting the ZEV emission standards applicable to 2003 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 1961(b) and (c), and for calculating ZEV credits as set forth in section 1962~~(d)~~(g).

~~(4)~~(5) *Changes in Small Volume, Independent Low Volume, and Intermediate Volume Manufacturer Status.* In 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 ~~35,000~~ 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 ~~fourth~~ sixth model year after the last of the three consecutive model years. If a manufacturer's average California production volume falls below 4,500, 10,000 or ~~35,000~~ 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.

(c) *Partial ~~and Full~~ ZEV Allowance Vehicles (PZEVs).*

(1) *Introduction.* This section 1962(c) sets forth the criteria for identifying vehicles delivered for sale in California as ~~partial or full ZEV allowance vehicles~~ PZEVs. A ~~partial ZEV allowance vehicle~~ PZEV is a vehicle that ~~is delivered for sale in California and that~~ cannot be certified as a ZEV but qualifies for a ~~partial~~ PZEV allowance of at least 0.2 ~~but less than 1.0. A full ZEV allowance vehicle is a vehicle that is delivered for sale in California and that qualifies for a ZEV allowance of 1.0.~~ An extended range HEV is not treated as a PZEV, and is instead subject to the ZEV multipliers in section 1962(d).

(2) *Baseline ~~Partial~~ PZEV Allowance.* In order for a vehicle to be eligible to receive a ~~partial or full~~ PZEV allowance, the manufacturer must demonstrate compliance with all of the following requirements. A qualifying vehicle will receive a baseline ~~partial~~ 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 compliance standards shall apply to all PZEVs);

(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 all HEVs, the battery must be included as a warranty item.

Commentary: *Subsection headings are added here and later in the document for clarity. The added language under Extended Warranty makes clear staff's intent that the 150,000-mile warranty applies to the batteries used in HEVs.*

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

(A) *Equation.* A vehicle that meets the requirements of section 1962(c)(2) and has zero-emission vehicle miles traveled ("VMT") capability will generate an additional PZEV allowance, not to exceed 0.6, according to the following equation:

Zero-Emission VMT ~~Partial~~ PZEV Allowance = 0.6 x Zero-Emission VMT Factor

where zero-emission VMT factor is the ratio of the zero-emission miles the vehicle travels to the total miles traveled per trip.

(B) *Calculation of Zero Emission VMT Factor.* The zero-emission VMT factor in the above equation is to be calculated as follows, with the urban all-electric range (AER) 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~~(e)~~(h):

Urban All-Electric Range	*Zero-emission VMT Factors~~:~~*
< 20 miles	0.0
20 miles to < ~~100~~ 50 miles	(~~30~~ 5 + [0.5 x Urban AER])/~~80~~ 30
~~100~~ 50 miles	1.0

(C) *Alternative Procedures.* As an alternative to determining the zero-emission VMT factor in accordance with the preceding section 1962(c)(3)(B), 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 factor of 0.5. Upon approval of the alternative procedure, the Executive Officer shall assign a zero-emission VMT factor not to exceed 1.0.

(D) *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 greater than 20 miles 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. In no event, however, may the total zero-emission VMT ZEV allowance for an HEV under section 1962(c)(3) exceed 0.6.

(4) ~~*Partial*~~ *PZEV Allowance for Advanced ZEV Componentry*. A vehicle that does not qualify for any zero-emission VMT ~~partial~~ PZEV allowance under section 1962(c)(3) shall qualify for an advanced componentry ~~partial~~ PZEV allowance of ~~0.1~~ 0.25, 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.

(5) ~~*Partial*~~ *PZEV Allowance for Low Fuel-Cycle Emissions.* A vehicle that uses fuel(s) with very low fuel-cycle emissions shall receive a ~~partial~~ PZEV allowance not to exceed 0.2. In order to receive the fuel-cycle ~~partial~~ 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 ~~partial~~ PZEV allowance is calculated according to the following formula:

> ~~Partial~~ PZEV Fuel Cycle Allowance = 0.2 x [(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 ~~partial~~ 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.

> ***Commentary:*** *The nonsubstantive modifications make the terminology consistent.*

(6) *Calculation of Combined PZEV 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 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).

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

(B) *Zero Emission VMT PZEV Allowance.* The zero-emission VMT PZEV allowance, if any, determined in accordance with section 1962(c)(3), not to exceed 0.6;

(C) *Advanced ZEV Componentry PZEV Allowance.* The advanced ZEV componentry PZEV allowance, if any, determined in accordance with section 1962(c)(4), not to exceed ~~0.1~~ 0.25; and

(D) *Fuel-cycle Emissions PZEV Allowance.* The fuel-cycle emissions PZEV allowance, if any, determined in accordance with section 1962(c)(5), not to exceed 0.2.

(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 qualifies for a PZEV introduction phase-in multiplier as follows:

	MY 2000-2003	*MY 2004*	*MY 2005*
Multiplier	4.0	2.0	1.33

(B) *PZEV High-Efficiency Multiplier.* A PZEV qualifies for a full high-efficiency multiplier in accordance with section 1962(e) starting with the 2005 model year.

~~(d) *Generation and Use of ZEV Credits; Calculation of Penalties.* A manufacturer that produces and delivers for sale in California ZEVs, full ZEV allowance vehicles, or partial ZEV allowance vehicles 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(d).~~

~~(1)~~(d) *Qualification for ZEV Multipliers.*

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

~~1.~~(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:

ZEV Multiplier	*Vehicle Range (miles)*	
	Model Years 1996 and 1997	*Model Year 1998*
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).

~~2.~~(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:

ZEV Multiplier	*Specific Energy of Battery (w-hr/kg)*
2	any
3	>40

~~3.~~(C) *Election of Multiplier.* A 1996-1998 model-year ZEV may qualify for a ZEV multiplier according to section 1962(d)(1)(A)~~1.~~ or section 1962(d)(1)~~(A)~~2.(B), but not both. ~~For purposes of calculating a manufacturer's fleet average NMOG value under section 1960.1(g)(2), each ZEV that qualifies for a ZEV multiplier shall be counted as one vehicle.~~

~~(B)~~(2) *1999-~~2007~~ ~~2000~~ Model-Year ZEV Multiplier Calculation for Extended Electric Range Vehicles.* ~~1.~~ Each ZEV ~~and full ZEV allowance vehicle~~ that is produced and delivered for sale in California in the 1999 ~~to -~~ ~~2007~~ ~~2000~~ model year~~s~~ and that has an extended electric range shall qualify for a ZEV multiplier as follows:

All-electric range	*MY 1999-~~2000~~*	*~~MY 2001-2002~~*	*~~MY 2003-2005~~*	*~~MY 2006-2007~~*
100-175	6-10	~~4-6~~	~~2-4~~	~~1-2~~

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 ~~S~~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~~(e)~~(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~~-2002~~ 2000 model year~~s~~ in accordance with the following equation:

ZEV multiplier = (~~minimum allowable ZEV multiplier per above table for a model year~~ 6) x (AER equivalent to a 10 minute recharge/100) x 0.5.

~~(b) For purposes of calculating a manufacturer's fleet average NMOG value under sections 1960.1(g)(2) and 1961(b) and (c), title 13, CCR, each extended electric range ZEV shall be counted as one vehicle.~~

(3) *ZEV Multipliers for ~~2001~~ 2000 and Subsequent Model Years.*

(A) *ZEV Phase-In Multiplier.* Each ~~2001~~ 2000 to 2005 model-year ZEV and extended range HEV that is placed in service in California qualifies for a ZEV phase-in multiplier as follows:

	MY 2000~~2001~~-2002	*MY 2003-2005*
Multiplier	4.0	1.25

Commentary: *Under the original staff proposal, ZEVs introduced in model years 1999 and 2000 earn credit according to the preexisting regulation, and ZEVs introduced in model years 2001 and beyond earn credit according to the new provisions. Due to the operation of the credit calculation mechanisms, this would result in ZEVs introduced in model year 2000 earning fewer credits than identical vehicles introduced in either model year 1999 or model year 2001. This would occur because under the existing regulation model year 1999 vehicles benefit from a large NMOG multiplier, which is reduced for model year 2000. To correct this disparity, and have the credits earned by vehicles in the various early introduction years be roughly comparable, the modifications make the staff proposal credit mechanism retroactive to model year 2000 placements. This also is consistent with the treatment of the PZEV phase-in multiplier, which is retroactive to model year 2000 placements.*

(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:

	MY 2004 - MY 2005	*MYs 2006 and Subsequent*
Discount Multiplier	0.5	0.15

(C) *ZEV Extended Electric Range Multiplier.*

1. *Basic Multiplier Schedule.* Each ~~2001~~2000 and subsequent model-year ZEV and extended range HEV 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:

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

To determine the applicable ZEV range for an extended range HEV, the tested urban all-electric range shall be multiplied by a factor of 3.5.

Commentary: *See the preceding commentary.*

2. *Fast refueling.*

a. *Full Fueling in 10 Minutes or Less.* A 2008 and earlier 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 model-year ZEV with the demonstrated capacity to accept fuel or electric charge equivalent to at least 60 miles of UDDS 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.

Commentary: *The original staff proposal provided permanent additional credits for fast refueling. Upon further consideration staff concluded that while these provisions are appropriate in the early years, in later years they would result in too few vehicles being required under compliance scenarios that rely on hydrogen fuel cell vehicles.*

3. *Multiplier Phase Down.* Starting with the 2005 model year, the ZEV extended electric range multiplier is phased down to ~~one half~~four tenths of its value in accordance with section 1962(e)(4).

Commentary: *This change conforms the language in this section to the changes described in section 1962(e)(4) below.*

(D) *Combined ZEV Multiplier.* Starting with the 2001 model year, the combined ZEV

multiplier for each ZEV and extended range HEV 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. The extended electric range multiplier if any as set forth in section 1962(d)(3)(C)~~; and 4~~. plus ~~T~~the high efficiency multiplier if any as set forth in section 1962~~(f)~~(e).

Commentary: *The change to the calculation method corrects a mistake in the method used to calculate the combined effect of the range and efficiency multipliers. Under the original staff proposal these two factors were multiplied together. Because the value of the efficiency multiplier is low in 2005 and 2006 as it first phases in, this resulted in combined credit values in those years that were lower than intended. Under the revised language these factors are added together and then the sum is multiplied times the other applicable multipliers. This results in more appropriate credit scores.*

Adding the word "times" makes the originally intended effect clearer. The change to the section citation corrects an inaccurate cross-reference.

~~(2)~~(E) *Effect of ZEV Multipliers.* In calculating the number of ZEVs and ~~full ZEV allowance vehicles~~ extended range HEVs produced and delivered for sale in California by a manufacturer in a model year and the ZEV credits from such vehicles, the number of ZEVs and ~~full ZEV allowance vehicles~~ extended range HEVs qualifying for a particular ZEV multiplier shall be multiplied by the combined ZEV multiplier.

(e) *ZEV and Advanced Technology PZEV High Efficiency Multipliers*

(1) *Eligibility.* Beginning with the 2005 model year, both ZEVs and advanced technology PZEVs are eligible for a high efficiency multiplier. A NEV ~~or other vehicle unable to maintain the speed and time tolerances contained in 40 CFR 86.115-00 (b)(1)and (2) (as effective July 1, 2000) for at least one cycle of both the UDDS and HFEDS~~ 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~~e)(3) will be treated as having an efficiency multiplier of 1.

Commentary: *The modifications reflect staff's original intent that the efficiency multiplier applies to ZEVs and AT PZEVs only. In addition, staff's intent is that the efficiency multiplier be available to City EVs. The deleted language would have prevented City EVs from qualifying.*

(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 <20 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 >20 mile zero emission range, CMPEG = [33,705 AC whr/gal / (.55 (AC whr/mile UDDS) + .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) For vehicles operating on an alternative fuel, including CNG, alcohol, or hydrogen, 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.

(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) *Determining the high-efficiency multiplier*. A high efficiency multiplier is determined based on the following table.~~

~~*Vehicle Type*~~	~~*Efficiency Multiplier*~~
~~PCs or LDTs 0-3750 lbs. loaded vehicle weight And fewer than 4 designated passenger seats~~	~~E = CMPEG/ (1.6 * 27.5)~~
~~PCs or LDTs 0-3750 lbs. loaded vehicle weight And with 4 or more designated passenger seats~~	~~E = CMPEG/ (1.4 * 27.5)~~
~~LDTs 3751-5750 lbs. loaded vehicle weight And fewer than 4 designated passenger seats~~	~~E = CMPEG/ (1.25 * 27.5)~~
~~LDTs 3751-5750 lbs. loaded vehicle weight And with 4 or more designated passenger seats~~	~~E = CMPEG/ (1.05 * 27.5)~~
~~LDTs and LEV I MDVs 5751 lbs. loaded vehicle weight to 8500 lbs. gross vehicle weight~~	~~E = CMPEG/ (0.75 * 27.5)~~

(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.

Vehicle Class	*Class Description*
Subcompact PC	Interior volume up to 99 ft^3
Compact PC	Interior volume 100-109 ft^3
Midsize PC	Interior volume 110- 119 ft^3
Large PC	Interior volume over 120 ft^3
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 2005-2006 model years.* For model years 2005-2006, the efficiency multiplier for each vehicle class is determined according to the following table:

Vehicle Class	*Efficiency Multiplier MY 2005-2006*
Subcompact PC	CMPEG/ (1.5 * 30.6)
Compact PC	CMPEG/ (1.5 30.4)
Midsize PC	CMPEG/ (1.5 x 27.0)
Large PC	CMPEG/ (1.5 x 25.6)
Small Truck	CMPEG/ (1.5 x 25.0)
Medium Truck	CMPEG/ (1.5 x 21.4)
Large Truck	CMPEG/ (1.5 x 18.2)

(5) *High efficiency multipliers for the 2007-2014 model years.* For model years 2007-2014, the efficiency multiplier for each vehicle class is determined in accordance with the following equation:

Efficiency multiplier = CMPEG / (1.5 * Baseline Fuel Economy)

Where: *Baseline Fuel Economy* for model years 2007-2010 is the model year 2004 unadjusted-combined federal sales-weighted fuel economy for the vehicle class as determined by U.S. EPA.

Baseline Fuel Economy for Model Years 2011-2014 is the model year 2008 unadjusted-combined federal sales-weighted fuel economy for the vehicle class as determined by U.S. EPA.

Commentary: *The revised language redefines the vehicle categories and baseline efficiency benchmarks used to calculate the efficiency credit. The modified proposal is based on vehicle categories used in U.S. EPA fuel economy labeling. These categories are more familiar to manufacturers and the public, and provide for somewhat finer differentiation across vehicle types. The mileage figures used in the model year 2005-2006 calculations are based on U.S. EPA's unadjusted-combined sales-weighted fuel economy values for MY 2000. The modified proposal also uses benchmarks based upon a 50 percent improvement over the sales-weighted fuel economy of vehicles in each category. This is a more consistent and easily understood approach.*

These modifications are intended to improve the calculation methodology, but not significantly affect the resulting scores. Because the passenger car group is split into four categories under the modified proposal, as opposed to the two original categories, there would be a greater spread of benchmark values for passenger cars. As a result, the benchmarks for small passenger cars ("subcompact" and "compact" using the revised categories) are higher here than under the original staff proposal. Such vehicles therefore receive somewhat lower efficiency scores under the modified proposal.

As is shown in the following table, however, the estimated efficiency scores obtained under the modified method in general are similar to those obtained under the original staff proposal:

Vehicle	*CMPEG*	*Class*	*Class MPG*	*Efficiency Multiplier (revised)*	*Efficiency Multiplier (original)*
Insight	*76.5*	*Subcompact*	*30.6*	*1.67*	*1.74*
Prius	*57.7*	*Compact*	*30.4*	*1.27*	*1.5*
Escape	*41.2*	*Medium Truck*	*21.4*	*1.28*	*1.43*
eCom	*127.4*	*Subcompact*	*30.6*	*2.78*	*2.90*
RAV4 EV	*102.6*	*Small Truck*	*25.0*	*2.74*	*2.68*
2000 Altra	*121.9*	*Large*	*25.6*	*2.86*	*2.85*

(4) *Phasing in the High Efficiency Multiplier for ZEVs.* For ZEVs and extended range HEVs, the high efficiency multiplier is phased in, and the extended electric range multiplier is phased down to ~~one-half~~ four-tenths of its initial value, by multiplying the multipliers by the values in the following schedule:

	MY 2004	*MY 2005*	*MY 2006*	*MY 2007*	*MYs 2008 and Subsequent*
Range Multiplier	1.0	~~0.875~~ 0.85	~~0.75~~ 0.7	~~0.625~~ 0.55	~~0.5~~ 0.4
Efficiency Multiplier	0.0	.25	.5	.75	1.0

Commentary: *Under the original staff proposal the final phase-out value of the range multiplier was set at 0.5. The intent in choosing this level was to keep the number of required vehicles roughly equivalent both before and after the introduction of the efficiency multiplier. The 0.5 level was selected because the value of the efficiency scores appeared to be about one-half of the range scores. Staff has determined that typical efficiency scores in fact will be somewhat greater than one-half of the range scores. This means that under the original staff proposal, on average, the combined range plus efficiency scores would be higher after the introduction of the efficiency multiplier than before, resulting in fewer required vehicles. Therefore in order to "calibrate" the efficiency phase-in mechanism we needed to further discount the final value of the range multiplier. Using the value of 0.4 results in "before and after" scores that on average are more nearly equal. The results for specific vehicles will of course depend on their individual range and efficiency characteristics.*

(f) *In-Service Warranty Multiplier for ZEVs and PZEVs With ≥20 Mile Zero Emission Range.* Except in the case of a NEV, an additional ZEV or PZEV-multiplier will be earned by a ZEV or a PZEV with ≥20 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 is registered for operation on public roads in California. Manufacturers will receive 0.1 times the original ZEV credit earned by the vehicle (including

multipliers other than the ZEV phase-in multiplier in section 1962(d)(3)(A) and the PZEV introduction phase-in multiplier in section 1962(c)(7)) on a year-by-year basis beginning in the fourth year. The warranty multiplier is reported and earned in the year following each continuous year of service.

Commentary: *Staff will review in-use battery performance in future years and propose adjustments to this credit as appropriate.*

(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).

~~(3)~~(2) *ZEV Credit Calculations.*

(A) *Credits from ZEVs and ~~Full ZEV Allowance Vehicles~~ Extended Range HEVs.* An ~~full ZEV allowance vehicle~~ extended range HEV ~~shall be~~ is treated as a ZEV in calculating and applying ZEV credits. The amount of 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 ZEVs produced and delivered for sale in California that the manufacturer applies towards meeting the ZEV requirements for the model year ~~(at least 40% of the ZEV requirement for a large volume manufacturer)~~ 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 ~~Partial ZEV Allowance Vehicles~~ PZEVs.* The amount of ZEV credits from ~~partial ZEV allowance vehicles~~ 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 PZEV allowances from ~~partial ZEV allowance vehicles~~ PZEVs produced and delivered for sale in California that the manufacturer applies towards meeting its ZEV requirement for the model year ~~(a number not to exceed 60% of the ZEV requirement for large volume manufacturers)~~ subtracted from the total number of PZEV allowances from ~~partial ZEV allowance vehicles~~ 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 and ~~full ZEV allowance vehicles~~ extended range HEVs, [ii] advanced technology PZEVs, and [iii] all other PZEVs shall each be maintained separately ~~from the number of credits from the manufacturer's partial ZEV allowance vehicles~~.

~~(4)~~(3) *ZEV Credits for MDVs and LDTs other than LDT1s.* ZEVs, extended range HEVs 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~~(d)~~(g) if the manufacturer so designates.

(4) *ZEV Credits for Advanced Technology Demonstration Programs.* A vehicle 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, prior to certification, that the vehicles will be regularly used in applications appropriate to evaluate issues related to safety, infrastructure, fuel specifications or public education. Such a vehicle is eligible to receive the same allowances and credits that it would have earned if placed in service.

(5) *ZEV Credits for Transportation Systems.* A ZEV or extended range HEV placed as part of a transportation system may earn additional ZEV credits, which may used in the same manner as credits from advanced technology PZEVs. To earn such credits, the manufacturer must demonstrate to the reasonable satisfaction of the Executive Officer, prior to certification, that the vehicle will be used as a part of an innovative transportation system that will effectively link homes, transit systems and jobs (e.g. a station car). Such systems are to be designed to evaluate the benefits and issues related to the shared use of ZEVs, and the application of new technologies such as reservation management, card systems, depot management, location management, charge billing and real-time wireless information systems. The additional ZEV credit may not exceed the original ZEV credit earned by the vehicle, including multipliers other than the ZEV phase-in multiplier in section 1962(d)(3)(A).

~~(5)~~(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 ZEV credits consistent with section 1962(b). These credits may be earned previously by the manufacturer or acquired from another manufacturer. The amount of ZEV credits required to be submitted shall be calculated according to the criteria set forth in this section 1962~~(d)~~(g).

~~(6)~~(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 ZEV credits, except that credits generated from PZEVs may be used to offset deficits for two model years. The amount of ZEV credits required to be submitted shall be calculated by ~~(A)~~ [i] adding the number of ZEVs and extended range HEVs 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 manufacturer for the model year (~~not to exceed 60% of~~ for a large volume manufacturer~~'s ZEV requirement~~, not to exceed that permitted under section 1962(b)(2)), ~~(B)~~ [ii] 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 ~~(C)~~ [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.

~~(7)~~(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 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 ~~no more than 60%~~ 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):

> (No. of ZEVs required to be produced and delivered for sale in California for the model year) - (No. of ZEVs produced and delivered for sale in California for the model year) - (No. of ZEV allowances from partial ZEV allowance vehicles produced and delivered for sale in California for the model year) - [(Amount of ZEV credits submitted for the model year) / (the fleet average requirement for PCs and LDT1s for the model-year)].

~~(e)~~(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 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 [Insert date of amendment] , which is incorporated herein by reference.

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

(1) "Advanced technology PZEV" means any PZEV with an allowance of 0.4 or higher (before the application of any multipliers).

(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) "Extended range HEV" means an HEV that meets the criteria in section 1962(c)(2) for a PZEV allowance of 0.2 and has a minimum urban zero-emissions range of at least 20 miles attributable to off-vehicle recharging.

(4) "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.

(5) "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.

~~(f)~~(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.
"HFDES" 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.
"MDV" means medium-duty vehicle.
"Non-Methane Organic Gases" or "NMOG" means the total mass of oxygenated and non-oxygenated hydrocarbon emissions.
"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.

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.

Amend title 13, CCR, section 1900 to read as follows:

§1900. Definitions.

[Subsections (a)(1) through (17) -- No change]

(18) "Intermediate volume manufacturer" means any pre-2001 model year manufacturer with California sales between 3,001 and ~~35,000~~ 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 ~~35,000~~ 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 ~~35,000~~ 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.

(19) "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 manufacturer.

(20) "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(a)(20). 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. 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.

Amend section 1960.1(k), Title 13, California Code of Regulation, to read as follows:

(k) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1981 through 1987 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," adopted by the state board on November 23, 1976, as last amended May 20, 1987, and in "California Exhaust Emission Standards and Test Procedures for 1988 through 2000 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," adopted by the state board on May 20, 1987 as last amended August 5, 1999, both which are incorporated herein by reference, and in "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as incorporated by reference in section 1961(d). The test procedures for determining the compliance of 2001 through 2006 model-year hybrid electric vehicles with the standards set forth in this section are set forth in "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~~(e)~~(h).

* * * *

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.

Amend section 1961(a)(8)(B) and 1961(d), title 13, California Code of Regulations, to read as follows:

(8) *Requirements for Vehicles Certified to the Optional 150,000 Mile Standards.*

(A) *Requirement to Generate Additional Fleet Average NMOG Credit.* A vehicle that is certified to the 150,000 mile standards in section 1961(a) shall generate additional NMOG fleet average credit as set forth in 1961(b)(1) or additional vehicle equivalent credits as set forth in 1961(b)(2) provided that the manufacturer extends the warranty on high cost parts to 8 years or 100,000 miles, whichever occurs first, and agrees to extend the limit on high mileage in-use testing to 105,000 miles.

(B) *Requirement to Generate a Partial ZEV Allowance.* A vehicle that is certified to the 150,000 mile SULEV standards shall also generate a partial ZEV allocation according to the criteria set forth in section C.3 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~~(e)(h)~~."

* * * *

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model

Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," adopted on August 5, 1999, which is incorporated herein by reference. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in 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~~(e)~~(h).

* * * *

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.

PROPOSED AMENDMENTS TO
"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"

* * * *

C. Zero-Emission Vehicle Standards.

[Incorporate all modifications suggested for title 13, California Code of Regulations, section 1962, "Zero-Emission Vehicle Standards for New 2003 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles."]

* * * *

E. Test Procedures

*** * * ***

3. All-Electric Range Test. *[No amendments or modifications to first paragraph]*

*** * * ***

~~(1)~~ 3.1 **Cold soak**. The vehicle shall be stored at an ambient temperature not less than 68°F (20°C) and not more than 86°F (30°C) for 12 to 36 hours. During this time, the vehicle's battery shall be charged to a full state-of-charge.

~~(2)~~ 3.2 **Driving schedule.**

~~(a)~~ 3.2.1 **Determination of All-Electric Range-Urban.**

(a) At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through successive Urban Dynamometer Driving Schedules (UDDS), 40 CFR, Part 86, Appendix I, which is incorporated herein by reference~~, until the vehicle is no longer able to maintain the speed or time tolerances contained in 40 CFR § 86.115-00(b)(1) and (2)~~. A 10-minute soak shall follow each UDDS cycle.

(b) For vehicles with a maximum speed greater than or equal to the maximum speed on the UDDS cycle, t~~T~~his test sequence shall be repeated until the vehicle is no longer able to maintain either the speed or time tolerances in 40 CFR § 86.115-00 (b)(1) and (2), or the manufacturer determines that the test should be terminated for safety reasons, e.g. excessively high battery temperature, abnormally low battery voltage, etc. For off-vehicle charge capable hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(c) For vehicles with a maximum speed less than the maximum speed on the UDDS cycle, the vehicle shall be operated at maximum available power (or full throttle) when the vehicle cannot achieve the speed trace within the speed and time tolerances specified in 40 CFR § 86.115-00(b)(1) and (2). The test shall be terminated when the vehicle speed when operated at maximum available power (or full throttle) falls below 95 percent of the maximum speed initially achieved on the UDDS cycle or when the battery state-of-charge is depleted to the lowest level allowed by the manufacturer, or the manufacturer determines that the test should be terminated for safety reasons, e.g. excessively high battery temperature, abnormally low battery voltage, etc., whichever occurs first. For off-vehicle charge capable hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

Commentary: *Under the existing all electric range-urban test procedure, City EVs that cannot meet the high speed portion of the test requirement have the test terminated immediately and are assigned an inaccurately low range. The revised language would allow such vehicles to continue the test cycle and would result in more representative range test results.*

~~(b)~~ 3.2.2 **Determination of All-Electric Range-Highway.**

(a) At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through two successive Highway Fuel Economy Driving Schedules (HFEDS), ~~found in~~ 40 CFR, Part 600, Appendix I, which is incorporated herein by reference~~, the speed or time tolerances contained in 40 CFR 86.115-00(b)(1) and (2)~~. There shall be a 15 second zero speed with key on and brake depressed between two cycles and a 10-minute soak following the two HFEDS cycles.

(b) For vehicles with a maximum speed greater than or equal to the maximum speed on the HFEDS cycle, t~~T~~his test sequence shall be repeated until the vehicle is no longer able to maintain either the speed or time tolerances in 40 CFR § 86.115-00 (b)(1) and (2), or the manufacturer determines that the test should be terminated for safety reasons, e.g. excessively high battery temperature, abnormally low battery voltage, etc. For off-vehicle charge capable hybrid electric vehicles, this determination is optional and shall be performed without the use of the auxiliary power unit.

(c) For vehicles with a maximum speed less than the maximum speed on the HFEDS cycle, the vehicle shall be operated at maximum available power (or full throttle) when the vehicle cannot achieve the speed trace within the speed and time tolerances

specified in 40 CFR § 86.115-00(b)(1) and (2). The test shall be terminated when the vehicle speed when operated at maximum available power (or full throttle) falls below 95 percent of the maximum speed initially achieved on the HFEDS cycle or when the battery state-of-charge is depleted to the lowest level allowed by the manufacturer, or the manufacturer determines that the test should be terminated for safety reasons, e.g. excessively high battery temperature, abnormally low battery voltage, etc., whichever occurs first. For off-vehicle charge capable hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(d) NEVs are exempt from the all-electric range highway test.

Commentary: *See above. In addition, the exclusion for NEVs is added to the highway range test procedure because such vehicles will not be used on the highway.*

~~(3)~~ 3.2.3 **Recording requirements.** *[No other amendments]*

~~(4)~~ 3.2.4 **Regenerative braking.** *[No other amendments]*

* * * *