California Environmental Protection Agency
AIR RESOURCES BOARD

Part 3

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2018 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES

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Note: The proposed amendments to this document are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as last amended, May 30, 2014. Existing intervening text that is not amended in this rulemaking is indicated by "* * * * *".

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B. Definitions and Terminology.

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1. Definitions.

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In addition to the following, these test procedures incorporate by reference the definitions and abbreviations set forth in the Title 40 Code of Federal Regulations (CFR) §86.1803-01, the definitions and abbreviations set forth in the LDV/MDV TPs, and the definitions set forth in section 1900, title 13, CCR.

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"**Automotive-Related Global Revenue**" means global net revenues in U.S. dollars derived from the sale of passenger cars, light-duty trucks, and medium-duty vehicles, as reported in the most recently available audited annual consolidated financial statements or reports. If these financial statements or reports are published using a currency other than U.S. dollars, the value of net revenues is to be converted to U.S. dollars using the average foreign exchange (FX) rate during the corresponding fiscal year as reported by USForex.

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"Transitional Zero Emission Vehicle" or "TZEV" means a ~~PZEV~~vehicle that meets all the criteria of subdivision C.3.2 and qualifies for ~~has~~ an allowance in subdivision C.3.3(a) or (e)~~of 1.0 or greater, and makes use of a ZEV fuel~~.

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C. Zero-Emission Vehicle Standards.

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2. Percentage ZEV Requirements

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2.7 Changes in Small Volume, Independent Low Volume, and Intermediate Volume Manufacturer Status in 2018 and subsequent model years.

(a) *Increases in California Production Volume.* ~~In~~For 2018 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 (i.e., total production volume exceeds 13,500 vehicles in a three-year period), for three consecutive averages, the manufacturer shall no longer be treated as a small volume manufacturer, and must comply with the ZEV requirements for intermediate volume manufacturers beginning with the next model year after the last model year of the third consecutive average. For example, if (a small volume) Manufacturer A exceeds 4,500 PCs, LDTs, and MDVs for their 2018 – 2020, 2019 – 2021, and 2020 – 2022 model year averages, Manufacturer A would be subject to intermediate volume requirements starting in 2023 model year.

If an intermediate volume manufacturer’s average California production volume exceeds 20,000 units of new PCs, LDTs, and MDVs in five consecutive model years based on the average number of vehicles produced and delivered for sale ~~for~~ in the ~~three~~ five~~previous consecutive~~ associated sets of three model ~~years~~year averages that begin no sooner than the 2018 model year associated with the 2015 through 2017 three-year average (i.e., total production volume exceeds 60,000 vehicles in ~~a~~ each of five consecutive three-year periods), ~~for three consecutive averages,~~ the manufacturer shall no longer be treated as an intermediate volume manufacturer and shall comply with the ZEV requirements for large volume manufacturers beginning with the next model year after the ~~last~~ model year ~~of~~corresponding to the ~~third~~fifth consecutive three-year average. For example, if (an intermediate volume) Manufacturer B exceeds 20,000 PCs, LDTs, and MDVs for its 2016 - 2018, 2017 - 2019, 2018 – 2020, 2019 – 2021, and 2020 – 2022 averages, as evidenced by its 2019 through 2023 model year reports, Manufacturer B would be subject to large volume manufacturer requirements starting in the ~~2023~~2024 model year.

If an intermediate volume manufacturer’s average annual automotive-related global revenues for the 2018, 2019, or 2020 fiscal year, based upon the immediately prior and consecutive three fiscal years, is no greater than 40 billion dollars, then the three-model-year production volume average corresponding to that fiscal year will not apply to the five consecutive three-model-year production volume averages necessary for transition to large volume manufacturer requirements conditional upon the manufacturer submitting to the Executive Officer, in writing, a report that demonstrates the types and numbers of ZEVs and TZEVs the manufacturer will deliver to California subsequent to the 2020 fiscal year to meet the requirements specified in subdivision C 2.1(a). For example, assuming the production volumes described for Manufacturer B at the end of the preceding paragraph, and assuming Manufacturer B had automotive-related global revenue of 39 billion dollars in fiscal year 2019 and 41 billion dollars in fiscal year 2020, the 2016-2018 production volume average associated with fiscal year 2019 would not apply, but the 2017-2019 production volume average associated with fiscal year 2020 would apply. Thus, Manufacturer B would be subject to large volume manufacturer requirements starting in the 2025 model year.

Any new requirement described in ~~the~~ this subdivision will begin with the next model year after the last model year of the third or fifth consecutive three-year average when a manufacturer ceases to be a small or intermediate volume manufacturer respectively in 2018 or subsequent years due to the aggregation requirements in majority ownership situations. The first of the consecutive three-year averages shall not precede the 2015 through 2017 three-year average.

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3. Transitional Zero Emission Vehicles (TZEV).

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3.3 Allowances for TZEVs.

(a) *Zero_Emission Vehicle Miles Traveled TZEV Allowance Calculation.* A vehicle that meets the requirements of subdivision C.3.2 and has zero-emission vehicle miles traveled (VMT), as defined by and calculated by this test procedure and measured as equivalent all electric range (EAER) capability will generate allowance according to the following equation:

UDDS Test Cycle Range (AER)	*Allowance*
<10 all electric miles	0.00
≥10 miles range	TZEV Credit = [(0.01) * EAER + 0.30]
>80 miles (credit cap)	1.10

(1) Allowance for US06 Capability. TZEVs with US06 all electric range capability (AER) of at least 10 miles shall earn an additional 0.2 allowance. US06 test cycle range capability shall be determined in accordance with section G.7.~~5~~3 of these test procedures.

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4. Qualification for ZEV Multipliers and Credits.

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4.5 Credits for 2018 and Subsequent Model Years.

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(e)

(1) ~~*Provisions for 2018 through 2025 Model Years*~~*Counting Specified ZEVs Placed in a Section 177 State and in California.* Large volume manufacturers and intermediate volume manufacturers with credits earned from hydrogen fuel cell vehicles that are certified to the California ZEV standards applicable for the ZEV's model year, delivered for sale and placed in service in California or in a Section 177 state, may be counted towards compliance in California and in all Section 177 states with the

percentage ZEV requirements in subdivision C.2. The credits earned are multiplied by the ratio of a manufacturer's applicable production volume for a model year, as specified in subdivision C.2.1(b), in the state receiving credit to the manufacturer's applicable production volume as specified in subdivision C.2.1(b), for the same model year in California (hereafter, "proportional value"). Credits generated from ZEV placement in a Section 177 state will be earned at the proportional value in the Section 177 state, and earned in California at the full value specified in subdivision C.4.5(a).

(~~1~~2) *Optional Section 177 State Compliance Path.*

(A) *Additional ZEV Requirements for Intermediate Volume Manufacturers.* Intermediate volume manufacturers that elect the optional Section 177 state compliance path must generate additional 2012 and subsequent model year ZEV credits, including no more than 50% Type 1.5x and Type IIx vehicle credits and excluding all TZEV, NEV, Type 0 ZEV credits, and transportation system credits, in each Section 177 state to fulfill the following percentage requirements of their sales volume determined under subdivision C.2.1(b):

Intermediate Volume Manufacturers

Model Years	*Additional Section 177 State ZEV Requirements*
Two model years prior to compliance with LVM requirements	0.75%
One model year prior to compliance with LVM requirements	1.50%

Subdivision C.4.5(e)(1) shall not apply to any ZEV credits used to meet an intermediate volume manufacturer's additional ZEV requirements for the appropriate model years as described in the table above under this subdivision C.4.5(e)(2)(A).

Intermediate volume manufacturers that choose to elect the optional Section 177 state compliance path must notify the Executive officer and each Section 177 state in writing no later than September 1, 2016.

(B) *ZEV and TZEV Percentages for Intermediate Volume Manufacturers*. Intermediate volume manufacturers that have fully complied with the optional Section 177 state compliance path requirements in subdivision 1962.1(d)(5)(E)3 or intend to comply or have fully complied with requirements in subdivision C.4.5(e)(2)(A) are allowed to meet their total ZEV percentage requirements specified in subdivision C.2 in each section 177 state by utilizing subdivisions C.4.5(e)(2)(B)i. and ii., below.

i. ***Trading and Transferring ZEV and TZEV Credits within West Region Pool and East Region Pool.*** Intermediate volume manufacturers may trade or transfer 2012 and subsequent model year ZEV and TZEV credits within the West Region pool to meet the requirements in subdivision C.4.5(e)(2)(A), and will incur no premium on their credit values. For example, for a manufacturer to make up a 2020 model year shortfall of 100 credits in State X, the manufacturer may transfer 100 (2018 through 2020 model year) ZEV credits from State Y, within the West Region pool. Intermediate volume manufacturers may trade or transfer 2012 and subsequent model year ZEV and TZEV credits within the East Region pool to meet the requirements in subdivision C.2, and will incur no premium on their credit values. For example, for a manufacturer to make up a 2020 model year shortfall of 100 credits in State W, the manufacturer may transfer 100 (2018 through 2020 model year) ZEV credits from State Z, within the East Region pool.

ii. *Trading and Transferring ZEV and TZEV Credits between the West Region Pool and East Region Pool*. Intermediate volume manufacturers may trade or transfer 2012 and subsequent model year ZEV and TZEV credits to meet the requirements in subdivision C.2. between the West Region pool and the East Region pool; however, any credits traded will incur a premium of 30% of their value. For example, in order for a manufacturer to make up a 2020 model year shortfall of 100 credits in the West Region Pool, the manufacturer may transfer 130 (2018 through 2020 model year) credits from the East Region Pool. No credits may be traded or transferred to the East Region pool or West Region pool from a manufacturer's California ZEV bank, or from the East Region pool or West Region pool to a manufacturer's California ZEV bank.

(C) *Reduced ZEV and TZEV Percentages for Large Volume Manufacturers.* Large volume manufacturers ~~and intermediate volume manufacturers~~ that have fully complied with the optional Section 177 state compliance path requirements in subdivision 1962.1(d)(5)(E)3. are allowed to meet ZEV percentage requirements and optional TZEV percentages reduced from the minimum ZEV floor percentages and TZEV percentages in subdivision C.2.2(e) in each Section 177 state equal to the following percentages of their sales volume determined under subdivision 1962.2(b)(1)(B):

ZEVs

Model Year	2018	2019	2020	2021
Existing Minimum ZEV Floor	2.00%	4.00%	6.00%	8.00%
Section 177 State Adjustment for Optional Compliance Path	62.5%	75%	87.5%	100%
Minimum Section 177 State ZEV Requirement	1.25%	3.00%	5.25%	8.00%

TZEVs

Model Year	2018	2019	2020	2021

Existing TZEV Percentage	2.50%	3.00%	3.50%	4.00%
Section 177 State Adjustment for Optional Compliance Path	90.00%	100%	100%	100%
New Section 177 State TZEV Percentage	2.25%	3.00%	3.50%	4.00%

Total Percent Requirement

Model Year	2018	2019	2020	2021
New Total Section 177 State Optional Requirements~~[1]~~	3.50%	6.00%	8.75%	12.00%

~~[1] Intermediate volume manufacturers may meet these new total Section 177 State optional requirements entirely with TZEV credits.~~

~~1~~i. *Trading and Transferring ZEV and TZEV Credits within West Region Pool and East Region Pool.* Manufacturers that have fully complied with the optional Section 177 state compliance path requirements in subdivision 1962.1(d)(5)(E)3. may trade or transfer 2012 and subsequent model year ZEV and TZEV credits within the West Region pool to meet the requirements in subdivision C.4.5(e)(~~1~~2)(~~A~~C) and will incur no premium on their credit values. For example, for a manufacturer to make up a 2019 model year shortfall of 100 credits in State X, the manufacturer may transfer 100 (2012 through 2019 model year) ZEV credits from State Y, within the West Region pool. Manufacturers that have fully complied with the optional Section 177 state compliance path requirements in subdivision 1962.1(d)(5)(E)3. may trade or transfer 2012 and subsequent model year ZEV and TZEV credits within the East Region pool to meet the ~~same model year~~ requirements in subdivision C.4.5(e)(~~1~~2)(~~A~~C), and will incur no premium on their credit values. For example, for a manufacturer to make up a 2019 model year shortfall of 100 credits in State W, the manufacturer may transfer 100 (2012 through 2019 model year) ZEV credits from State Z, within the East Region pool.

~~2~~ii. *Trading and Transferring ZEV and TZEV Credits between the West Region Pool and the East Region Pool.* Manufacturers that have fully complied with the optional Section 177 state compliance path requirements in subdivision 1962.1(d)(5)(E)3. may trade or transfer 2012 and subsequent model year ZEV and TZEV credits to meet the ~~same model year~~ requirements in subdivision C.4.5(e)(~~1~~2)(~~A~~C) between the West Region pool and the East Region pool; however, any credits traded will incur a premium of 30% of their value. For example, in order for a manufacturer to make up a 2019 model year shortfall of 100 credits in the West

Region Pool, the manufacturer may transfer 130 (2012 through 2019 model year) credits from the East Region Pool. No credits may be traded or transferred to the East Region pool or West Region pool from a manufacturer's California ZEV bank, or from the East Region pool or West Region pool to a manufacturer's California ZEV bank.

(~~B~~D) *Reporting Requirements.* On an annual basis, by May 1st of the calendar year following the close of a model year, each manufacturer that elects the optional Section 177 state compliance path under subdivision 1962.1(d)(5)(E)3. shall submit, in writing, to the Executive Officer and each Section 177 state a report, including an itemized list, that demonstrates the manufacturer has met the requirements of subdivisions C.4.5(e)(~~1~~2)(B) and (~~A~~C) within the East Region pool and within the West Region pool. The itemized list shall include the following:

1. The manufacturer's total applicable volume of PCs and LDTs delivered for sale in each Section 177 state within the regional pool, as determined under subdivision C.2.1(b).

2. Make, model, ~~,~~ credit earned, and Section 177 state where delivery for sale of TZEVs and ZEV occurred and to meet manufacturer's requirements under subdivision C.4.5(e)(~~1~~2)(A), (B), and (C).

(~~C~~E) *Right to Request Vehicle Identification Numbers.* Upon request by the Executive officer~~,~~ or a Section 177 state, each manufacturer that elects the optional Section 177 state compliance path under subdivision 1962.1(d)(5)(E)3. or subdivision C.4.5(e)(2) shall provide the vehicle identifications numbers in the report required by subdivision C.4.5(e)(3)(~~B~~D).

(~~D~~F) *Failure to Meet Optional Section 177 State Compliance Path Requirements.* A large volume manufacturer that elects the optional Section 177 state compliance path subdivision under 1962.1(d)(5)(E)3. and does not meet the modified percentages in subdivision C.4.5(e)(~~1~~2)(~~A~~C) in a model year or make up their deficit within the specified time and with the specified credits allowed by subdivision C.7.7(a) in all Section 177 states of the applicable pool, shall be treated as subject to the total ZEV percentage requirements in section C.2 for all future model years in each Section 177 state, and the pooling provisions in subdivision C.4.5(e)(~~1~~2)(~~A~~C) shall not apply. Any future transfers of ZEV or TZEV credits between Section 177 states will be prohibited.

An intermediate volume manufacturer that elects the optional Section 177 state compliance path under subdivision 1962.1(d)(5)(E)3. or subdivision C.4.5(e)(2) but delivers fewer ZEVs than required under subdivision C.4.5(e)(2)(A) shall make up the deficit by the end of the second model year in which the manufacturer is complying as an large volume manufacturer. For example, an intermediate volume manufacturer that becomes subject to large volume manufacturer requirements in 2019 model year must deliver the number of ZEVs required by subdivision C.4.5(e)(2)(A) by June 30, 2021. The pooling provisions in subdivision C.4.5(e)(2)(B)i. and ii. shall not apply to an intermediate volume manufacturer that fails to provide the required amount of ZEVs under subdivision C.4.5(e)(2)(A). In that case, any future transfers of ZEV or TZEV credits within or between Section 177 states will be prohibited.

Penalties shall be calculated separately by each Section 177 state where a manufacturer fails to make up the ZEV deficits within the specified time and with the credits allowed by subdivision C.7.7(a).

(~~E~~G) The provisions of section C shall apply to a manufacturer electing the optional Section 177 state compliance path, except as specifically modified by this subdivision C.4.5(e)(~~1~~2).

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7. Generation and Use of ZEV Credits; Calculation of Penalties

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7.7 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 next model year by submitting to the Executive Officer a commensurate amount of ZEV credits.~~ A manufacturer that produces and delivers for sale in California fewer ZEVs or TZEVs than required to meet its ZEV credit obligation in a given model year must make up the deficit by the next model year by submitting a commensurate amount of ZEV credits to the Executive Officer. An intermediate volume manufacturer may request, and the Executive Officer may grant, up to three consecutive model years to make up a credit deficit for a given model year provided that: (1) it has delivered for sale in California ZEVs or TZEVs within that model year, and (2) it submits a plan to the Executive Officer, as part of the request, demonstrating how it will make up the credit deficit within the requested time period. The amount of ZEV credits required to be submitted shall be calculated by [i] adding the number of credits from ZEVs produced and delivered for sale in California by the manufacturer for the model year to the number of credits from TZEVs produced and delivered for sale in California by the manufacturer for the model year (for a LVM, not to exceed that permitted under subdivision C.2.2), and [ii] subtracting that total from the number of credits required to be produced and delivered for sale in California by the manufacturer for the model year. BEVx, TZEV, NEV, or converted AT PZEV and PZEV credits are not allowed to be used to fulfill a manufacturer’s ZEV deficit; only credits from ZEVs may be used to fulfill a large volume manufacturer's ZEV deficit. Intermediate volume manufacturers may only use ZEV and TZEV credits to fulfill a manufacturer’s ZEV deficit.