BMW Group CHRYSLER Ford GM HONDA Mercedes-Benz NISSAN TOYOTA

January 23, 2012

Re: 2012 Amendments to the California ZEV Regulations

Dear Chairman Nichols and Members of the Board:

Further to the letter sent to the Board Members on January 23, 2012, the Large Volume Manufacturers[1] (LVM) are submitting specific comments regarding details of the proposed regulation.

1.) Pg. A-1-15, Section 1962.1(c)(7)(C)
"The vehicle must be delivered for sale and placed in service in the same state (i.e. California) in order to earn the total credit amount."

It is our understanding that a vehicle must be placed in a S177 state to get credit, but it is overly restrictive to require that the vehicle be placed in the same state as the vehicle was delivered, especially considering the geography and dealer trades in the Northeast. The proposal should be revised to allow credit for a vehicle that is placed in service in a state that has adopted the ZEV regulation, even if it is not the same state in which the vehicle was produced and delivered for sale.

2.) Pg. A-1-17, Section 1962.1(c)(7)(E)
It is proposed that the "Travel Provisions" be limited to "Manufacturers with a ZEV requirement producing ZEVs". Our understanding is that a manufacturer not subject to the ZEV mandate (e.g. small volume manufacturer (SVM)) would not be allowed the "travel" credits. If the SVM provides that credit to an LVM, then the LVM would decide whether to "travel" that credit. However, the regulatory language is not very clear and should be clarified. Suggested language is provided below.

a. Large Volume Manufacturers and Intermediate Volume Manufacturers with credits earned from ZEVs, excluding NEVs and Type 0 ZEVs, that are either certified to the California ZEV standards or approved as part of an advanced technology demonstration program and are placed in service in a section 177 state, may be counted towards compliance with the California percentage ZEV requirements in ~~section~~subdivision 1962.1(b), including the requirements in ~~section~~subdivision 1962.1(b)(2)(B), as if they were delivered for sale and placed in service in California.

b. Large Volume Manufacturers and Intermediate Volume Manufacturers with credits earned from ZEVs, excluding NEVs and Type 0 ZEVs, that are either certified to the California ZEV standards or approved as part of an advanced technology demonstration program and are placed in service in California may be counted towards compliance with the percentage ZEV requirements of any section 177 state,

[1] The Large Volume Manufacturers are BMW of North America, LLC (transitioning LVM), Chrysler LLC, Ford Motor Company, General Motors Corporation, Honda Motor Company, Inc., Mercedes Benz (transitioning LVM), Nissan North America, Inc., and Toyota Motor North America, Inc.

based on subdivision 1962.1(b), including requirements based on ~~section~~subdivision 1962.1(b)(2)(B).

3.) Pg. A-1-20, Section 1962.1(g)(2)(A) and (B)
It is our understanding that credits are calculated by subtracting the ZEV requirement from the ZEV credits that a manufacturer has earned for vehicle produced and delivered for sale. We believe the language needs to be clarified. Suggested language is provided below.

(2) *ZEV Credit Calculations.*

(A) *Credits from ZEVs.* For model years 2009 through 2014, ~~T~~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 plus the number of credits from ZEVs placed in service in that model year calculated according to subdivisions 1962.1(d) and (f) less the portion of the ZEV credit requirement as specified in subdivision 1962.1(b) that the manufacturer satisfies with the ZEV credits, while meeting the minimum ZEV floor and total ZEV percent requirement specified in subdivision 1962.2(b)~~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~~, or LDT2s as applicable,~~ for that model year. For model years 2015 through 2017, the amount of credits earned by a manufacturer in a given model year from ZEVs shall be expressed in units of credits.

(B) *Credits from PZEVs.* For model years 2009 through 2014, ~~T~~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 credits from PZEVs produced and delivered for sale in California calculated according to subdivisions 1962.1(c) and (f) less the portion of the ZEV credit requirement as specified in subdivision 1962.1(b) that the manufacturer satisfies with PZEV credits, while not exceeding the PZEVs, AT PZEVs, and TZEVs, Type 0s or NEVs percent specified in subdivision 1962.1(b), as applicable.~~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~~, or LDT2s as applicable,~~ for that model year. For model years 2015 through 2017, the amount of credits earned by a manufacturer in a given model year from PZEVs shall be expressed in units of credits.

4.) Pg. A-1-20, Section 1962.1(g)(2)
We believe that an LDT2 ZEV offsets the air quality benefit of the LDT2 fleet average NMOG; therefore, it is appropriate that the LDT2 fleet average NMOG be used in the ZEV NMOG credit calculation.

Because light duty trucks are larger and heavier than passenger cars, additional energy storage is needed on these vehicles to achieve the same range. Using the higher LDT2 fleet average to calculate credit based on range, will help equalize the cost per credit for heavier light duty trucks compared to passenger vehicles. This could encourage manufacturers to design zero emission technology into a broader range of vehicles.

Furthermore, we do not believe that CARB should be making changes retroactively (2009 – 2014MY) and should provide lead time. Manufacturers plan for compliance years ahead, and changes that negatively impact those plans should allow for adequate lead time for manufacturers to adjust their plans, which may require new supplier agreements, increasing capacity constraints, or even new vehicles.

5.) Pg. A-1-20, Section 1962.1(g)(2)(D)
"Conventional rounding" should be defined. U.S. EPA and other sections of the California Code of Regulations, reference the rounding-off method specified in ASTM E29, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications. We recommend that the same rounding convention be used in the ZEV regulation.

6.) Pg. A-1-21, Section 1962.1(g)(2)(F)
The proposal includes a reduced discount rate of 75% vs. 93.25% for PZEVs and a lower requirement for IVMs in the 2015 – 2017MYs (12% vs. 14%), in order to prepare IVMs for the transition into LVM status starting in 2018MY. The same accommodation should be made for LVMs to prepare for the strong ramp up of ZEV volumes beginning in 2018MY.

7.) Pg. A-3-1, Section 1962.2(a)
The proposal should be revised to clarify that "or greenhouse gas" does not include air conditioning emissions or upstream emissions. The LVMs believe that the previous definition of a zero emission vehicle based on criteria emissions was sufficient to distinguish a vehicle with emissions from a vehicle without emissions. However, we understand the ARB's desire to change the definition to focus of the program on greenhouse gas emissions. However, this has other consequences. The greenhouse gas regulations include air conditioning and upstream emissions. The intent of the ZEV is not to have zero emission air conditioning systems or zero emission vehicles offered without air conditioning systems. Likewise, the greenhouse gas regulations include upstream emissions from producing the zero emission energy. The goal of the ZEV regulations is to commercialize zero emission vehicles, not to control the upstream emissions. Adding greenhouse gas to the ZEV Emission Standard, could be interpreted as including upstream emissions. Because greenhouse gases can be so broad, that there could be other consequences that are not highlighted here, which could result in the implementation being tied up in litigation due to different interpretations. The LVMs recommend retaining the current ZEV Emission Standard definition or, at a minimum, the proposal should be revised to exclude air conditioning and upstream greenhouse gas emissions.

8.) Pg. A-3-2, Section 1962.2(b)(1)(B)3.
We believe that the proposed criteria for applying to the Executive Officer to use the current model year method are too stringent. For example:

- A 40% decline in sales is worse than what was evidenced in the recent recession, when it was clearly recognized that relief was needed.
- What happens if there is a 20% decline one year and a 30% decline the next?
- If all LVMs but one qualify for current model year, and that LVM sales declined by 39%, this would create a competitive disadvantage for that LVM.

Please see the appendix for an analysis of historical volume changes and the LVM recommendation on regarding the previous versus current model year calculation.

9.) Pg. A-3-3, Section 1962.2(b)(1)(F)
We thought the intent was for the ZEV mandate to go away after 2025MY, because by that time the goal of commercialization would have been achieved. After the technology has become commercially available, other performance-based policy mechanisms should be used to further the ARB's air quality and greenhouse gas goals. A similar approach was taken when the ARB stated that PZEVs and AT PZEVs were commercial and can be removed from the ZEV regulation. The LVMs recommend that the ZEV program be sunset post-2025MY because the technology would be commercial and the emissions benefits are appropriately considered in the performance-based low emission vehicle and greenhouse gas regulations.

10.) Pg. A-3-6, Section 1962.2(c)(3)
The proposed credit for TZEVs is lower than previously proposed (e.g. 0.5 for $TZEV_{20}$ vs. 0.7), which greatly impacts the volumes mandated. The LVMs request that the 0.3 additive factor in the TZEV credit equation be changed to 0.5 to restore TZEV credit levels to be more in line with those previously proposed.

Thus, the LVMs recommend the following TZEV equation based on our comments in this item 10 and 11 below:

TZEV Credit = $[(0.01) * EAER_{udds} + 0.5]$

Plus 0.2 additional credit for 10 miles US06 all electric range capability

Minimum $EAER_{udds} \geq$ 10 miles (No AER_{udds} minimum)

Maximum credit = 1.1 at 80 miles or 1.3 including 0.2 US06 allowance

Where: $EAER_{udds} = ERF * Rcda_{udds}$
(Electric Range Fraction * Charge Depletion Range Actual on UDDS)

11.) Pg. A-3-6, Section 1962.2(c)(3)(A)
The proposed TZEV credit requires a minimum of 10 miles All Electric Range (AER) and is calculated using Charge Depletion Range (Rcda). We believe that the minimum 10 mile AER should be replaced by Equivalent All Electric Range (EAER) and that EAER should be used in the equation rather than Rcda. (See item 10 above.)

12.) Pg. A-3-9, Section 1962.2(g)(2)(A) and (B)
It is our understanding that credits are calculated by subtracting the ZEV requirement from the ZEV credits that a manufacturer has earned for vehicles produced and delivered for sale. We believe the language needs to be clarified. Suggested language is provided below.

(2) *ZEV Credit Calculations.*

(A) *Credits from ZEVs.* The amount of credits earned by a manufacturer in a given model year from ZEVs shall be expressed in units of credits, and shall be equal to the number of credits from ZEVs produced and delivered for sale in California calculated according to subdivision 1962.2(d) less the portion of the ZEV credit requirement as specified in subdivision 1962.2(b) that the manufacturer satisfies with ZEV credits, while

meeting the minimum ZEV floor and Total ZEV percent requirement specified in subdivision 1962.2(b) ~~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~~.

(B) ***Credits from TZEVs.*** The amount of credits earned by a manufacturer in a given model year from TZEVs shall be expressed in units of credits, and shall be equal to the total number of credits from TZEVs produced and delivered for sale in California calculated according to subdivision 1962.2(c) less the portion of the ZEV credit requirement as specified in subdivision 1962.2(b) that the manufacturer satisfies with TZEV credits, while not exceeding the TZEVs percent specified in 1962.2.(b) ~~that the manufacturer applies towards meeting its ZEV requirement for the model year subtracted from the total number of ZEV allowances from TZEVs produced and delivered for sale in California by the manufacturer in the model year~~.

Appendix
Calculating the Number of Vehicles to Which the Percentage ZEV Requirement Is Applied

The ISOR proposes three significant changes to the procedures that manufacturers use to calculate the number of vehicles to which the percentage ZEV requirement is applied, starting with the 2018 model year: (1) The prior-year average method will average production from the 2nd, 3rd, and 4th prior model year; (2) manufacturers will be constrained from using the same-year method unless a manufacturer's sales drop 40% as compared to the prior model year; and (3) manufacturers will be constrained from using the same-year method for more than two years in the 2018-2025 time period.

In the ISOR, staff proposes in the 2018 and later model year ZEV regulation, changes to the prior-year average method for calculating ZEV production requirements. In the past, the prior-year average method used a manufacturer's average production from the prior 4th, 5th, and 6th model years. Starting in 2018 model year, the prior-year average method will utilize the average of the prior 2nd, 3rd, and 4th model years.

This change provides two less years of lead-time to manufacturers for planning purposes. In fact, this modification will result in manufacturers not knowing their production requirements with certainty until after the beginning of the model year in which they must produce the ZEVs. The following timeline illustrates this concern.

Example: Compliance Requirement for 2018MY
Prior-year average method uses the 2016, 2015, and 2014 model years
January 2, 2017: The 2018 MY begins
March 31, 2017: The "final" production volumes for 2016MY are determined; 2018MY ZEV production requirements can be finalized.

Of greater concern is the 2018 model year change that constrains the use of the same-year method for determining ZEV production requirements. Under current regulation and in the ISOR through the 2017 model year, manufacturers can use either the prior-year average or same-year methods at their discretion. This discretion buffers manufacturers from excessive ZEV production requirements in years where significant sales drops occur.[2] Beginning in the 2018 model year, the ISOR limits use of the same-year method to manufacturers which experience a 40% decline in sales vs. the prior model year.

As shown in the table below, the 40% threshold proposed by staff is too high. Historical Corporate Average Fuel Economy data[3] shows that even in one of the most severe industry downturns (2009 MY), only two manufacturers (Chrysler and Ford) experienced sales decline of 40% or greater.

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[2] Because the ZEV production requirement is otherwise based on the average of several prior model years' total production, when manufacturers experience significant sales drops, the actual percentage ZEV requirement rises exponentially. For example, if the prior-year average is 100 vehicles and the ZEV regulatory requirement is 10%, and a market decline of 10% occurs, the actual production requirement is 11.1% (100 x 10% / 90). Similarly, a 30% market decline would yield a ZEV production requirement of 14.3%.

[3] National Highway Traffic Safety Administration "Summary of Fuel Economy Performance" (October 28, 2011). Available at http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/October_2011_Public.pdf (last accessed January 17, 2012). Conclusions are based on this publicly available 50-state data, but are expected to also be supportable with state-specific data available from private sources or in confidential reports submitted to ARB.

Manufacturer	2009MY vs. 2008MY (% Change)	2010 MY vs. 2009 MY (% Change)	2010 MY vs. 2008 MY (% Change)
All Manufacturers	-32.4%	18.9%	-19.6%
BMW	-37.5%	-22.7%	-51.7%
Chrysler	-50.8%	42.2%	-30.0%
Daimler	-38.3%	27.6%	-21.3%
Ford	-52.2%	73.2%	-17.2%
General Motors	-39.6%	-8.3%	-44.6%
Honda	-24.1%	7.5%	-18.3%
Nissan	-17.9%	1.6%	-16.5%
Toyota	-20.6%	25.6%	-0.3%

Also problematic is the constraint that qualification must be based on comparison to the prior model year. Under these rules, a manufacturer such as General Motors would not have qualified in the 2009 model year (sales decline under 40% in 2009 vs. 2008), nor would it qualify in the 2010 model year even though General Motors' overall sales decline from 2008 to 2010 was well over 40%.

The large volume manufacturers recommend that the threshold to qualify for the same-year method either be removed (as in current regulation) or, if needed to limit use of this flexibility, that the threshold be set at a 15% sales decline as compared to the production determined under the prior-year average method. Arguably, the 2009 model year experienced one of the most severe market declines of the past 30 years. The data above suggests that a threshold of 15% would have allowed all large volume manufacturers to qualify for this needed flexibility in the 2009 model year. Comparing same-year results to prior-year average results corrects the concern noted in which a manufacturer experiences a multi-year decline exceeding the threshold, but would not otherwise qualify if the same-year production was only compared to the single prior year.

The large volume manufacturers concedes that some of the production requirement increases caused by the prior-year average method in a declining market are offset in the future when the prior-year average method utilizes the years with significantly lower sales. However, we make note that staff is also proposing to limit credit carry-back to a single year, making those future requirement reductions useless for generating surplus credits to cover the earlier deficit.

The large volume manufacturers are also concerned about staff's proposed limitation to the use of "current year" method to a maximum of two years in the 2018-2025 model year timeframe. Manufacturers have no control over the length, frequency, or timing of economic downturns which impact our ability to sell vehicles. Artificially limiting the use of this flexibility to only two years fails to consider that both ZEV and conventional vehicle sales are limited by market conditions, which cannot be materially significantly altered by manufacturers. The large volume manufacturers recommend that this restriction be removed.

Finally, the requirement to apply to the Executive Officer before using the same-year method interjects a subjective decision into what would otherwise be an objective, data driven, process. The large volume manufacturers recommend that this restriction be removed.

The following changes to the regulatory text are suggested to capture the above concepts:

> A manufacturer may ~~apply to the Executive Officer to be permitted to~~ base its ZEV obligation on the number of PCs and LDTs, produced by the manufacturer and delivered for sale in California that same model year (i.e., same model-year calculation method) as an alternative to the three-year averaging of prior year production described above~~, for up to two model years, total, between model year 2018 and model year 2025~~. For the

same model-year calculation method to be allowed, a manufacturer~~'s application to the Executive Officer~~ must show that their volume of PCs and LDTs produced and delivered for sale in California ~~has decreased by 40~~ is at least 15 percent lower than the value calculated using the three-year averaging of prior year production described above.~~from the previous year due to circumstances that were unforeseeable and beyond their control.~~ A manufacturer may apply to the Executive Officer to base its ZEV obligation on the same model-year calculation method, if the majority of manufacturers have qualified for the same model-year method, even if the 15 percent threshold is not exceeded.