October 20, 2014

Mary Nichols, Chairman
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Staff Report: Initial Statement of Reasons for Rulemaking, Proposed 2014 Amendments to the Zero Emission Vehicle Regulation

Dear Chairman Nichols and Members of the Board:

Thank you for the opportunity to comment on the staff's proposed revisions to the Intermediate Volume Manufacturers (IVM) requirements under the Zero Emission Vehicle (ZEV) Program. We appreciate staff's stakeholder outreach efforts and communications over the past several months. We have had opportunities to ask questions and propose matters for staff's consideration and have participated in public workshops and private meetings. We have also talked with representatives from the IVM companies and with NESCAUM, and have appreciated the open dialogue.

While we support some aspects of the staff proposal, we respectfully oppose several key provisions due to their negative effects on the ZEV Program in model years 2018-2025 and beyond. When the Board strengthened the ZEV Program as part of the Advanced Clean Cars adoption in January 2012, California demonstrated it was on track to meet the original vision for the ZEV Program. However, the IVM proposal – and the ARB staff proposal that has since resulted – would slow progress toward the ZEV program goals and goes too far.

This letter outlines our primary areas of agreement, opposition, and proposed modifications to staff's proposal that could resolve our organizations' concerns.

I. Areas of Agreement and Support:

We support the amended definition of IVM status to add a metric based on global revenues to complement the existing California fleet sales metric. This choice is consistent with the Board's direction in 2012 and 13, and is consistent with the preferences expressed by the IVMs in their October 2013 letter to the Board.

The Board specifically directed staff to explore additional metrics to identify automakers that are IVM. Staff has chosen to add a metric based on global revenues to complement the existing California fleet sales metric, after considering a number of factors that separates IVMs from large volume manufacturers (LVM) in terms of ZEV production. This choice is consistent with the Board's direction and the preferences expressed by the IVMs in the October 2013 letter to the Board: "Comparing worldwide sales, revenue, profitability, R&D budgets, and dealer network size, these affected manufacturers share far more similarity with the remaining IVMs than any of the LVMs."[1]

[1] ARB, 2013c. IVM Joint Comments Letter. California Air Resources Board, October 24, 2013. (http://www.arb.ca.gov/lists/com-attach/8-zev2013-B2FTPFwzUGIKYAhX.pdf)

We also support staff's proposal to provide more flexibility for pooling in Section 177 ZEV states. We see this change as affording IVMs similar flexibilities to those granted the LVMs in 2012, and is consistent with the Board's direction in 2012 and 2013.

II. Primary Concerns:

Staff's proposal goes beyond the Board's original direction in 2012 and furthers the "death by a thousand cuts" stigma that surrounded the ZEV Program in the late 1990s and early 2000s.

In 2012, the Board asked staff to review the criteria for becoming an IVM and to review the IVMs' concerns about compliance in the Section 177 states. At the time, staff indicated they were working with the IVMs and other states, and the Board commended them for their inclusive approach.

Staff's proposal goes beyond refining the IVM definition and addressing their concerns regarding additional flexibility in the Section 177 states. It significantly reduces the ZEV credit requirement for IVMs and therefore the number of vehicles the ZEV Program will deliver. The proposed modifications also raise policy and analytical questions that should not be up for consideration at this time and that are properly housed as part of the agreed-upon Midterm Review.

Now is not the time to make a change of this magnitude. The ZEV Program is set for a formal review in 2016-17, as part of the agreed-upon Midterm Review of the Advanced Clean Cars Program. The Midterm Review's deliberative, data-driven process will ensure any regulatory changes are informed by a strong technical and analytical foundation. Handling IVM issues now amounts to a piecemeal change that is both unnecessary and harmful to the goals of the program. Moreover, delaying decision on this proposed change will not fundamentally alter the IVMs' current vehicle development efforts because the difference between the current standard and proposed reduction is small prior to 2020.

In addition, other automakers are now proposing that ARB move the historic compliance credit approach to an entirely new system, based on electric-powered vehicle miles traveled, which could significantly increase credits for plug-in hybrids (TZEVs). The combined effects of switching IVMs to a TZEV-only pathway, together with reducing their stringency, and the potential for further increases in credits for TZEVs represent large, major changes to the program.

Furthermore, ARB should allow adequate time IVMs to make ZEV and TZEV model introductions and to collect data before making major changes so soon after the 2012 Board vote. Given there have been no additional IVM model offerings in the U.S., beyond the Mitsubishi i-MiEV that was already for sale, it seems premature to have major adjustments to stringency levels.

For example, initial IVM introductions of plug-in hybrids in Europe and Japan have been successful, as discussed more in the next section. Some IVMs have already begun partnering with larger automakers around production of pure ZEVs or have been purchased by larger companies that have existing electric

vehicle programs.[2] Other automakers have also announced plans to deploy fuel cell vehicles, which receive higher ZEV credit multipliers, in the next several years. Weakening the ZEV program now, before these new model and technology offerings, will have a chilling effect.

ARB should allow "breathing room" to allow initial model offerings, technology partnerships, and marketing in key markets and states to develop and occur before making major amendments to the ZEV program.

The staff proposal results in a significant loss in the number of ZEVs placed in California. Although there are different analyses on the exact number of vehicles that would not be produced and delivered for sale in California as a result of the staff proposal, the range of numbers presents a degree of uncertainty that is troubling. However, any loss of ZEVs in California is concerning and requires solid justification.

Staff's likely compliance scenario shows roughly 25,800 fewer ZEVs produced and delivered for sale in California by 2025. Staff's analysis relies on sales data and projections from the EMFAC 2011 model, which underrepresents current sales from the proposed IVM firms. An analysis prepared by Tesla using more current industry sales data and technology projections indicates the staff proposal would result in roughly 36,000 fewer vehicles in California by 2025. A loss of 36,000 ZEVs in California is greater than the number of ZEVs sold in the state through August 31 of this year.[3] This is not an insignificant loss to the advanced vehicle market. Even larger volumes of ZEVs would be lost if California and the Section 177 ZEV states are included in the analysis.

While the exact reduction in the number of vehicles is uncertain, a reduction in the credit requirement will either reduce the number of vehicles produced or the capability of the vehicles produced. The ISOR does not analyze the impact of a reduction in ZEV vehicle production (or a reduction in the capabilities of the vehicles) on the ZEV R&D, suppliers, and the utilization of ZEV infrastructure. A reduction in ZEV requirements could also reduce the choice of ZEV models available to consumers in California.

The staff proposal fails to provide sufficient ramp-up to ensure IVM success in the ZEV market in 2026 and beyond. ARB's own technical analysis of the 2030 and 2050 greenhouse gas (GHG) reduction targets – and separate independent studies conducted by other researchers – demonstrate ZEV sales must increase rapidly in 2026 and beyond to meet both GHG emission reduction targets and air quality requirements.[4] By cutting the stringency and therefore the number of vehicles required, the proposal will make it difficult if not impossible for IVMs to meet the ZEV target after 2025. In particular, because the proposed percentages are calculated as a fraction of the pure ZEV requirement, the gap between the IVM and LVM requirements grows over time. In 2025, the proposed IVM credit requirement is 9.2

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[2] http://autoweek.com/article/car-news/detroit-electric-geely-develop-fleet-evs-china; http://insideevs.com/volvo-team-geely-electric-vehicles/; http://www.reuters.com/article/2013/11/05/renaultnissan-mitsubishi-cooperation-idUSL3N0IQ27O20131105; http://insideevs.com/peugeot-unveils-electric-partner-van/

[3] 76,799 ZEV sold in U.S. (http://insideevs.com/monthly-plug-in-sales-scorecard/). California has accounted for 41% of ZEV sales for 2011 through mid-2014 (http://www.cncda.org/Auto_Outlook.asp).

[4] http://www.arb.ca.gov/msprog/zevprog/2009zevreview/attachment_b_2050ghg.pdf; http://www.arb.ca.gov/planning/vision/vision.htm;
Also see J.H. Williams et al (2012) "The technology path to deep greenhouse gas emissions cuts by 2050: the pivotal role of electricity," *Science*, 335, 53-59.

percent, or less than half the LVM credit requirement of 22 percent. In 2026, IVMs would face a very steep transition from 9.2 percent to 22 percent. We believe staff's proposal fails to provide the needed transition path, and instead invites an impossibly steep ramp post-2025 for IVMs.

This proposal sets a bad precedent of creating lax standards for one segment of the industry. ARB has a history of applying its regulations in a manner that is fair to all regulated parties. On numerous occasions, staff and Board members have noted the importance of all automakers participating in the ZEV program and doing their part. Full participation is necessary for ZEVs to transition from a demonstration market to a sustainable market.

The staff proposal for IVMs is estimated to result in only 12,700 plug-in hybrid sales in California and the Section 177 states for model year (MY) 2020, growing to about 25,700 in sales for MY 2025 from the five manufacturers. This works out to nominally 5,200 vehicles per manufacturer by MY2025 across all ZEV states including California. These are lax requirements, as we show below based on current market performance in Europe by some of these automakers. Consider the following:

- Mitsubishi, which is already selling a ZEV model here, has been offering the plug-in hybrid Outlander SUV in Europe and Japan for roughly 14 months. Sales of the Outlander have topped 26,000 vehicles in the first 14 months.[5] *This number is roughly equivalent to staff's proposed model year (MY) 2025 requirements for all five IVMs combined in California and Sec. 177 states*. Comparisons between the ZEV states and the European markets are informative, largely because the cumulative sales since 2011 have been largely similar between these markets.
- Mitsubishi Outlander remains ahead or on par with Nissan LEAF sales in both Europe and Japan. In Europe, the Outlander is the number one seller among PEVs in Europe, with over 9,000 vehicles sold through the first half of 2014 alone, as shown in Figure 1 below, putting them on pace to sell 18,000 nominally over the full calendar year in the market. In addition, Volvo sold 3,400 plug-in hybrid cross-overs (V60), in the first half of 2014 in Europe (H1 2014).[6]
- As Figure 2 shows, the European market for PEVs is roughly on par with combined California and Section 177 states. These ZEV states attracted approximately 60 percent of the North American PEV market since 2011.
- As Figure 3 shows, comparing 2013 and 2014 (estimated) calendar year sales for just two IVM models shows that – if they had similar success in launches in the ZEV states in the 2016 timeframe – their sales would be enough to meet the proposed requirements for all IVMs in MY2025. The IVMs do have the capacity to be successful in meeting ZEV requirements.
- Subaru, which has been one of the fastest-growing brands in the United States over the past five years, has already introduced hybrid technologies to its portfolio, with the Crosstrek Hybrid.[7]

[5] http://insideevs.com/mitsubishi-outlander-phev-global-sales-reach-26000/

[6] http://green.autoblog.com/2014/07/30/mitsubishi-outlander-phev-sales-reach-33000-worldwide/; http://c-zero.info/cz/mitsubishi-outlander-phev-is-europes-best-selling-ev-plugin-vehicle-phev/

[7] Automotive News, May 12, 2014. In 2013, Subaru's sales jumped 26 percent to 424,683, marking the sixth straight year of rising sales and the fifth year of record results. U.S. sales soared 22 percent to 152,471 through April, while the overall market edged up 3 percent.

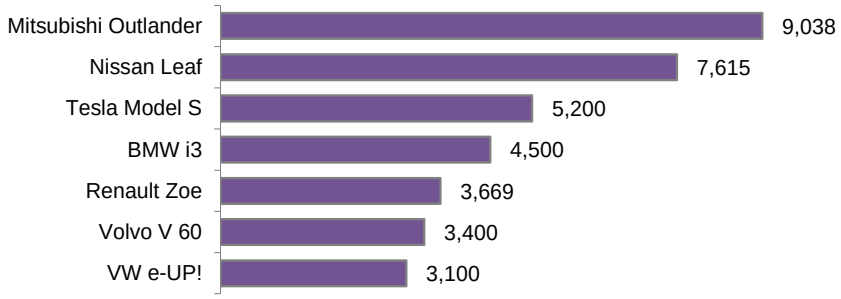


Figure 1: European sales (first half of 2014) of electric-drive vehicles. (Source: Bloomberg New Energy Finance)

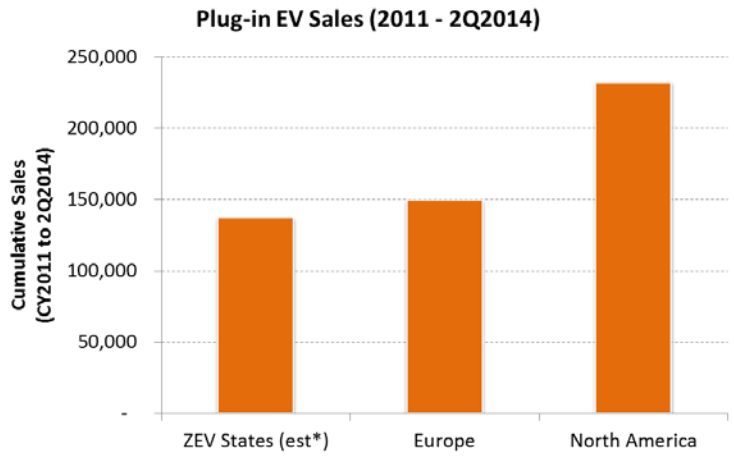


Figure 2: Cumulative PEV sales from 2011 to 2Q2014. (Sources: Bloomberg New Energy Finance for first half 2014; Transport & Environment (2014), "Electric Vehicles in 2013: a Progress Report". The fraction of sales in ZEV states was estimated through Polk data for part of the time period together with Navigant ZEV State:North America ratios based on Polk data for part of the time period together with data from Navigant (2014), "Electric Vehicle Market Forecast."

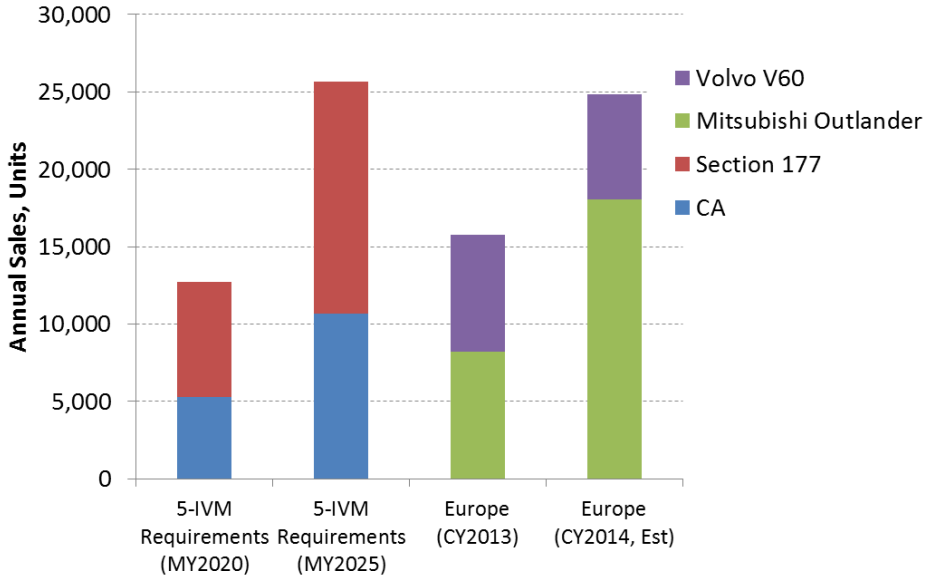


Figure 3: Comparison of current IVM sales of plug-in hybrid models in Europe versus the proposed compliance requirements in California and Section 177 states.

Intermediate Volume Manufacturers have flexibilities in the program that allow a variety of approaches to overcome technology and resource hurdles

We acknowledge that, as automotive companies, IVMs are not as large as LVMs. For this reason, we support the definition changes that ensure their status remains as IVMs. However, the IVMs have been aware of the program and its requirements for years and were put on notice with the Board's 2012 vote that they should begin planning to meet the same requirements as their larger competitors, albeit on their separate schedule.

Arguments made in the ISOR that LVMs originally had the transition path that IVMs are being now offered may have been relevant for the 1990s and early 2000s, but the technology progress and readiness, market dynamics, environmental necessity, and goals of the state – as directed by the Governor and the legislature – are tremendously different today. There is little justification to assume that IVMs need to have all the flexibilities afforded in earlier days of the ZEV program.

The IVMs, despite being smaller, still remain multi-billion dollar companies, and have the ability to integrate plug-in technologies into existing and future platforms; develop ground-up battery, plug-in hybrid, or fuel cell vehicles; enter into technology partnerships with other manufacturers to do such; or purchase ZEV credits. Other LVMs have already followed either one of these paths or a combination of these paths and some IVMs are doing this already.

We recognize that IVMs who are choosing to produce only plug-in hybrids (TZEVs) – a flexibility provision provided to them as an IVM – may result in production of more vehicles than LVMs who produce a combination of pure ZEVs. We agree that this result deserves consideration by ARB, but believe firmly that such consideration is best done as a comprehensive look at the program within the Midterm Review and not part of a process meant to evaluate the IVM definition status.

Purchasing ZEV credits is a flexibility mechanism to help address timing and investment issues

We agree with staff that purchasing ZEV credits should not become the main compliance path, however we note that this is a flexibility and "market" provision that can and should be utilized to help address timing and investment issues. At the end of September 2013 there were already enough banked credits available to comply with the standard through MY2017 for the entire industry.[8] The latest banked credit data, ending September 2014, shows a 26% increase in banked credits, suggesting the industry could even comply into the MY2018 period without producing vehicles absent strong standards from MY2018 through MY2025.[9] Just a small portion of these credits could go a long way to helping meet any timing issues among IVMs.

The ZEV credits allow the ZEV market leaders to lead, with the expectation that not every single manufacturer will ultimately want to invest initially, or be as aggressive, and that there may be hiccups in product launches. The ZEV credit market also results in more vehicles on the road today than would have otherwise resulted.

Given the above while recognizing the Board's earlier direction:

III. We strongly oppose early changes to the ZEV sales requirement.

The ISOR does not provide proper justification for the decision to lower the ZEV credit requirement nor does it provide a rationale for the level of reductions proposed. The staff proposal makes significant changes to the fundamental sales-based credit requirement of the ZEV Program. In order to determine that the IVM requirement cannot be complied with (either by ZEV sales or credit acquisition), analysis must be completed to show a negative change in vehicle technology or availability in the time since the adoption of the 2012 Advanced Clean Car Regulations.

While some evidence is offered in the ISOR, we have serious concerns over the reasons given. The ISOR cites the current moderate level (about *6 percent) of conventional hybrid adoption as evidence of the inability of IVMs to comply with ZEV regulation in 2018-2025.* The argument contradicts the purpose of the ZEV Program, which is to require expansion of ZEV sales and vehicle models, and ignores the fact that incentives for early deployment are strong in California. In addition, sales of conventional hybrid vehicles are likely being impacted by the current increases in the sales of plug-in electric vehicles. For the first six months of 2014, over 9 percent of new vehicles sold in California have an electric motor (either conventional hybrid or plug-in electric vehicle).[10] Finally, the link between the current sales rate of conventional hybrids and the future ability of IVMs to comply with the ZEV regulation is unclear.

We also have concerns about the use of Figure 1 in the 2014 ISOR as justification for the reduction in credit requirements. This chart is used both as justification that the current IVM credit requirement is too high and that the proposed changes result in compliance similar to the LVM requirement. However, the chart is inconsistent with previous analysis of ZEV credits and also the calculations provided by ARB staff. The lines shown in the ISOR figure assume a TZEV credit of 0.5 and pure ZEV credit of 1.5. The ZEV

[8] http://switchboard.nrdc.org/blogs/smui/auto_industry_exceeding_califo.html
[9] This includes net banked credits for all automakers for ZEV, NEV, and TZEVs. http://www.arb.ca.gov/msprog/zevprog/zevcredits/2013zevcredits.htm
[10] California New Car Dealers Association, "California Auto Outlook", vol. 10(3), 2014 http://www.cncda.org/CMS/Pubs/Cal_Covering_2Q_14.pdf

calculator posted by staff to calculate the change in vehicle production, however, uses a TZEV credit of 0.7 and ZEV credit that increases from 1.7 to 2.5.

The proposed changes to the IVM ZEV credit requirement produce a significant reduction in the stringency. In 2025, the credit requirement is reduced by 58 percent, as shown in Figure 4. This reduction will either result in fewer ZEVs and TZEVs delivered in the state or vehicles with much less electric-only range. In addition, the IVMs would face a very steep transition between the proposed 2025 credit requirement and the 2026 obligations.

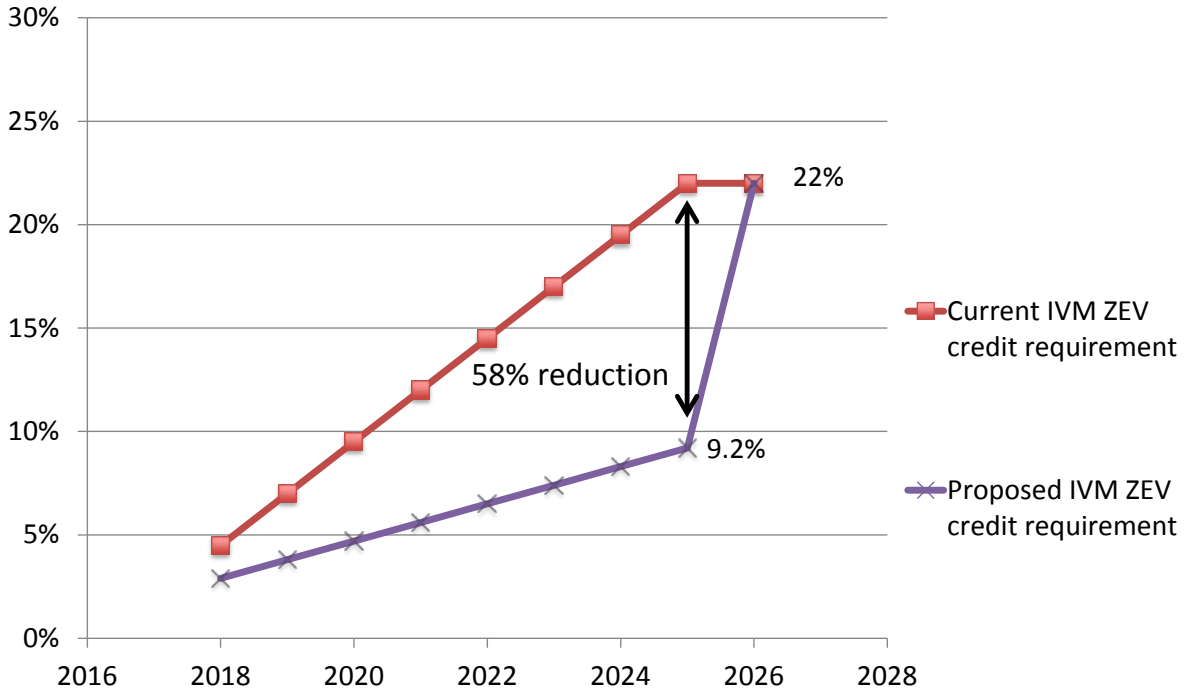


Figure 4: The proposed reduction in ZEV credit requirement for the IVMs results in a 58 percent reduction in 2025. Between 2025 and 2026, the credit requirement would more than double for IVMs.

Last, we note that the resulting "spread" in potential sales volumes is more a reflection of *historic flexibility* provided to automakers by ARB staff and the Board – allowing for transitional ZEV (i.e. plugin hybrids) to obtain credits and replace pure ZEVs. One of the primary goals of the ZEV program has always been to push for 100 percent zero tailpipe emissions vehicles that are necessary to meet air quality requirements and mid- and long-term GHG emission reduction targets.

<u>The ISOR likely underestimates the credit value of current and future vehicles, resulting in overestimates of the vehicle sales required</u>. The ISOR states that Figure 1 shows "how this amendment translates into percent of vehicles sales for LVMs and IVMs and shows that IVMs would be producing slightly fewer advanced technology vehicles (on a percent of new cars sales basis) compared to LVMs." Using the ARB likely compliance scenario credit values, this is no longer true. Even these curves likely overestimate the percentages, as 0.7 credits represents a 20-mile UDDS range PHEV with all-electric US06 drive cycle capability. As electric drive technology (particularly battery energy density and cost) improves, the

average 2025 PHEV will likely exceed 20 mile range. Currently two of the IVMs are already selling PHEVs in Europe that have an all-electric range greater than 30 miles. If the proposed changes are adopted and the average PHEV range increases such that the average TZEV credit approaches 1.0, IVMs could comply while producing less than 10 percent TZEV (and 0 percent ZEV) in 2025.

The number of vehicles needed to satisfy the ZEV credit requirement is highly dependent on the assumptions about the type and range of the vehicles produced. For a manufacturer producing 10,000 vehicles in 2025, compliance with only TZEVs could vary from 708 vehicles in the case of 80-mile electric range to 2,300 vehicles for a 10 mile electric range vehicle. As shown in Figure 5, if ZEVs are produced, fewer than 400 could satisfy the requirement. Because of the strong dependence of vehicle numbers on the vehicle credit assumptions, no change in the ZEV credit requirement should be made without an updated analysis of the likely vehicle credit scenarios.

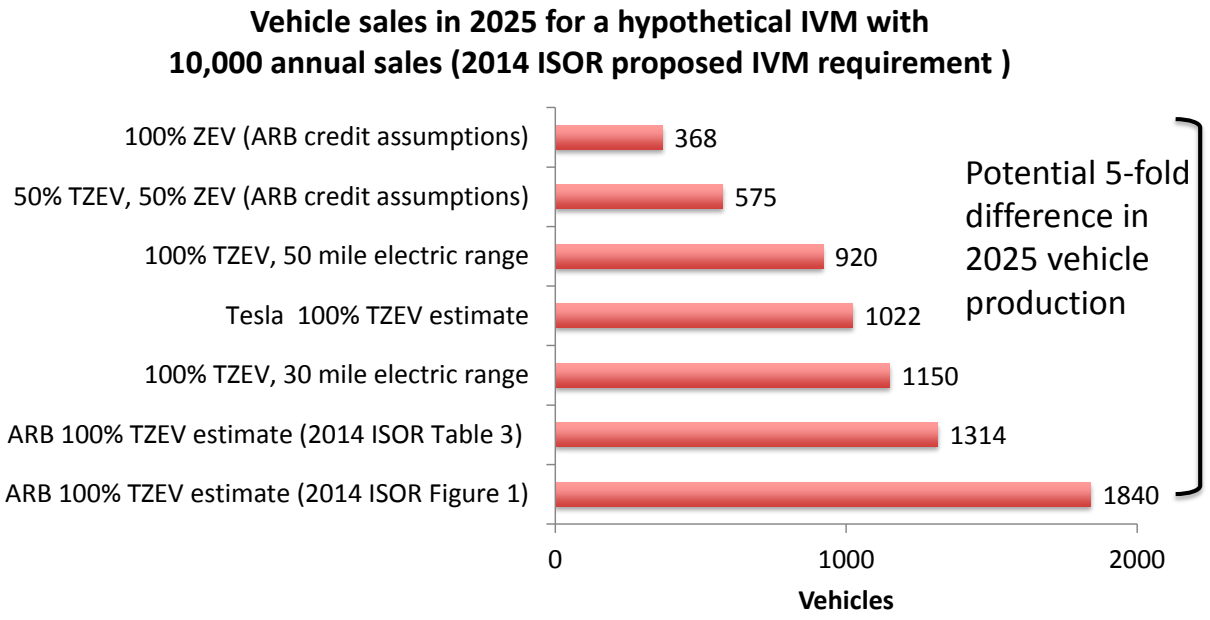


Figure 5. Number of vehicles needed to satisfy the proposed 2025 IVM ZEV requirement for a manufacturer selling 10,000 per year under different vehicle type and range assumptions. Two IVMs currently sell TZEVs in Europe with greater than 30 mile electric range.

The ISOR also justifies a lower credit requirement by citing the lower number of models currently offered by each IVM:

> "An IVM with sufficient revenue could offer both a ZEV and a TZEV model to decrease the percent of sales that would have to be met with advanced technology vehicles, but being that each of the IVM5 automakers offers only 3 to 4 passenger car models that means a greater percentage of their vehicle offerings would have to be higher-cost advanced technology models"
>
> "In other words, under the existing regulation the IVMs' ZEV models needed to comply with the ZEV Regulation would constitute a greater proportion of the IVM's total model offerings."

We disagree with both the number of models available and the presumption that model number would increase the difficulty of compliance. Table 1 summarizes the number of models currently offered on the

IVM websites. All IVMs currently offer more than four light-duty models. These IVMs also produce other vehicle models in markets outside the United States.

Table 1. Models currently available from IVMs

Manufacturer	Models Available
Mazda	7
Volvo	6
Mitsubishi	5 (including 1 ZEV)
Jaguar/Land Rover	9
Subaru	7

The ZEV credit requirement is based on sales, not number of models. All manufacturers have flexibility to decide to how many ZEV models are needed to meet the credit requirement. For example, an automaker could meet its ZEV obligation with one model that sells in sufficient volume or by offering a ZEV drivetrain option on all models sold. Currently, about half of ZEV vehicles currently sold in California are a drivetrain variant of a gasoline or hybrid model, showing that adding a ZEV drivetrain option to vehicle model is a reasonable compliance strategy. The number of models offered by a manufacturer would not limit compliance using this approach.

Because these proposed changes require significant technical analysis to determine feasibility and the impact on reaching ZEV goals, the Board should delay any change to the ZEV credit requirements until a full review is completed as part of the 2016-2017 Midterm Review. As stated previously, this review is the appropriate venue for consideration of substantive changes to the ZEV standard. Because the difference between the proposed reduced requirement and the existing IVM standard is low prior to 2020, delay in a decision on the changes should not fundamentally alter current ZEV R&D or partnership efforts at the IVMs.

We disagree with the statements in the ISOR that reductions in the ZEV program will result in no loss of air quality benefits. While we agree that the provisions do not modify current fleet-average emission standards which serve as a "floor" or minimum for automaker's fleets, it is technology-forcing standards like the ZEV program that have enabled the levels established in subsequent fleet-average emission standards. The ISOR does not take into account the dynamic nature of technology-forcing standards and subsequent standard setting processes which underlies some of ARB's most important achievements to date. For example, the ZEV program has helped to drive PZEV technologies to be developed and more widely deployed, such that SULEV standards have largely become implemented in the latest LEV III standards. One could likely demonstrate that, absent the ZEV program, technologies utilized to meet the LEV III fleet emission standards would not have been as readily available or deployed. The ISOR also fails to note other analysis by ARB and the air districts that have shown that ZEVs will be a prerequisite to meet federal air quality standards and GHG emission targets. Fleet-wide emission standards are complementary with ZEV, but insufficient to achieve and deploy ZEV technologies at a level and scale needed to meet these federal and state goals.

In addition, given that automakers will generally over-comply (or have a cushion) in meeting fleet-average standards with gasoline vehicles, the ZEV program may, in some cases, allow automakers to have even greater over-compliance. Thus, the absence of ZEVs may result in that over-compliance

cushion becoming smaller in practice. Third, despite improvements in on-board diagnostics and emission control systems for internal combustion engine vehicles, the very real problem of internal combustion vehicles that become "gross emitters" due to modification to or failure of emission control systems are largely avoided by the deployment of pure ZEVs. Finally, while air quality is a regional issue, direct exposure to tailpipe pollution has direct health risks to local populations, particularly to disadvantaged communities near freeways and areas of heavy traffic. More ZEVs on the road results in reduced local exposure, greater technical capacity for tighter standards going forward, a greater ability to exceed fleet-average standards, and increases the likelihood that air quality and GHG emission targets will be met.

IV. We oppose extension of the transition time from IVM to LVM (3 to 5 years)

Given that ARB is proposing to modify the definition around IVMs to include global revenue as a threshold, even greater certainty will be afforded to those IVMs. Providing a longer transition time is unnecessary. Particularly for some of the rapidly growing IVMs, sales and revenue could quickly exceed that of current or transitioning LVMs under some scenarios.

V. We oppose staff's proposal to extend the deficit "make-up" period from one year to three years for IVMs and LVMs.

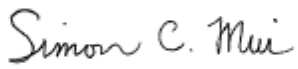
Modifications to the LVM requirements were not in the scope of the Board's request to analyze the IVM-related issues. The proposed changes are harmful to the program's goals and could have the following effects:

(1) Making compliance requirements "soft" by allowing, for example, a MY2021 requirement to be paid back by MY2024 without penalty.
(2) Setting some automakers up for a "slow start, crash finish" by creating an even more heavily back-loaded compliance option.
(3) Weakening the ZEV credit value for automakers and creating an unfair playing field for those automakers that comply on time, over-comply as first-movers in the ZEV space, or have credits available that could readily meet the shortfall.
(4) Unnecessarily expands the provisions to LVMs, where the potential for further delay are even more significant.
(5) Risks providing some OEMs the signal to slow down intended, or stated, deployment levels of fuel cell vehicles. An OEM may decide to deploy fewer fuel cell vehicles, or push back scale-up plans, if additional opportunities to back-load compliance are allowed if some good-faith, but minimum, effort is demonstrated.

We ask the Board to reject the extension of the ZEV make-up period and maintain the current provisions.

Thank you for the opportunity to comment on these proposed changes to the ZEV Program. Your efforts on this program are critical to bringing the needed technologies to California to meet air quality and global warming emissions goals.

Sincerely,



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