State of California

AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR RULEMAKING

PROPOSED 2014 AMENDMENTS TO THE ZERO EMISSION VEHICLE REGULATION

Date of Release: **September 2, 2014**

Scheduled for Consideration: **October 23 and 24, 2014**

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EXECUTIVE SUMMARY

California is the nation's largest market for cars and light-duty trucks with over 25 million registered vehicles. Each day those vehicles drive hundreds of millions of miles and consume tens of millions of gallons of gasoline. In the process, they also contribute significantly to California's criteria pollutant and greenhouse gas emissions.

The result is that over 90 percent of Californians breathe unhealthy air at times. Health-based state and federal air quality standards for criteria pollutants continue to be exceeded in regions throughout California, with both the greater Los Angeles region and the San Joaquin Valley classified by the United States Environmental Protection Agency (U.S. EPA) as "extreme" ozone non-attainment areas.

Automakers have made extensive progress in controlling emissions from conventional internal combustion engines. However, the California Air Resources Board (ARB or the Board) has determined that only by reducing criteria pollutant and greenhouse gas emissions to near zero can California achieve its long term air quality and climate change goals. For example, pure zero emission vehicles (ZEV) will have to represent nearly 100 percent of new vehicle sales between 2040 and 2050 to achieve California's goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050.

Fortunately, thanks to the ZEV Regulation, California now has more zero- and near-zero-emission choices than ever before. As of July 2014, Californians can choose from more than 20 battery electric, fuel cell electric and plug-in hybrid electric vehicle models.

ARB first adopted the ZEV Regulation in 1990. It was, and still is, an ambitious program to dramatically reduce the environmental impact of light-duty vehicles through the gradual introduction of ZEVs into the California fleet as part of the Low Emission Vehicle regulations. The ZEV Regulation, which affects passenger cars and light-duty trucks, has been amended on several occasions since its inception (most recently in January 2012 and October 2013) to reflect the pace of ZEV development, the emergence of new ZEV and near-ZEV technologies, and the need to provide clarifying language.

In January 2012, in order to address the need to further reduce vehicle emissions and achieve California's goals of meeting ambient air quality standards and reducing climate changing greenhouse gas emissions (GHG), ARB approved the Advanced Clean Cars (ACC) program. The ACC program incorporated three elements that combine the control of smog-causing (criteria pollutant) emissions and GHG into a single coordinated package of requirements for model years 2015 through 2025, assuring the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect. These three elements included: the Low-Emission Vehicle III (LEV III) regulations, the Zero-Emission Vehicle (ZEV) regulations, and the Clean Fuels Outlet regulations. Ultimately, the Clean Fuels Outlet regulation update was not finalized by the Board because of the passage of legislation, Assembly Bill 8 (AB 8 - 2013), which included dedicated funding for hydrogen fueling

infrastructure to support the market launch of hydrogen fuel cell electric vehicles. The Board approved subsequent minor amendments to the remaining elements of the ACC program in November 2012, and a final U.S. EPA waiver was granted in January 2013.

Among the amendments to the ZEV element of the 2012 ACC rulemaking (hereinafter referred to as the 2012 amendments) approved by the Board was a change to the intermediate volume manufacturer (IVM) definition within Section 1900, title 13, California Code of Regulations (CCR). The ZEV Regulation previously defined an IVM as any manufacturer with California sales between 4,501 and 60,000 new light- and medium-duty vehicles. The 2012 amendments reduced the California sales upper bound to 20,000 vehicles per year beginning with the 2018 model year. They concurrently changed the IVMs' ZEV obligations from being able to meet the mandate with super clean conventional partial zero emission vehicles[1] (PZEV) to transitional ZEVs (TZEVs or plug in hybrids). At the hearing for the 2012 amendments, the Board directed staff to review how the regulation affects IVMs transitioning into large volume manufacturer (LVM) requirements in the 2018 model year and return to the Board by December 31, 2014, with a recommendation regarding more fair treatment of these manufacturers, ensuring all manufacturers are successful in commercializing ZEV technologies.

In October 2013, ARB staff proposed minor modifications to the ZEV Regulation. Those modifications included clarifying the Section 177 state optional compliance path provision, defining how caps apply to a manufacturer's ZEV requirement, and excluding battery swapping as a "fast refueling" technology. At the Board Hearing, the IVM5 – Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo – presented their proposal for changes to the ZEV regulation that would provide them with adjustments they felt necessary to allow them time to come into the advanced technology vehicle market. Their proposed changes included:

- very small demonstration quantities of ZEVs through 2025,
- large credit multipliers for any ZEVs produced,
- travel and pooling of both ZEV and TZEV credits in ZEV states,
- extended service credits for cars offered for sale or extended leases, and
- three years to make up ZEV credit deficits.

Subsequent to the hearing, staff continued their work with the IVMs to understand: (1) the significant differences between them and the LVMs that may have led to less favorable treatment under the regulation, and (2) how the components of the IVM proposal would provide them the flexibility needed to comply with the ZEV Regulation and whether there were better mechanisms available to assist the IVMs in bringing advanced technology vehicles to market.

[1] Typically, PZEVs are conventional gasoline, diesel, or natural gas vehicles that meet the most stringent standards for smog-forming emissions. They additionally have zero evaporative emissions and extended emission control warranties.

The most significant difference between the position of IVMs and LVMs regards the amount of revenue available to IVMs for research and development (R&D). The IVM5s' global revenue is approximately one-quarter to one-third that of those IVMs who are transitioning to LVM requirements based on California sales. It is an even smaller proportion of the revenues of current LVMs. Revenue constraints limit an IVM's ability to: (1) commit to the same level of R&D as an LVM, and (2) market ZEV products. In recognition of these revenue constraints, the ZEV Regulation was crafted to allow IVMs to meet their pre-2018 model year ZEV obligations solely with PZEVs. The PZEV provisions were intended to ease the burden on IVMs in comparison to LVMs since PZEVs are much easier to market, as compred to the ZEVs required under the ACC provisions for LVMs.

The ZEV Regulation then requires the IVMs, in 2018 and subsequent model years, to begin delivering ZEVs. However, again in recognition of the lesser R&D capabilities of IVMs in comparison with LVMs, the ZEV Regulation allows an IVM to meet its entire ZEV obligation with TZEVs. The TZEV provisions were intended to ease the burden on IVMs in comparison to LVMs but in effect, they make it extremely difficult for an IVM to meet its ZEV percentage requirements. For example, a typical LVM can meet its 2025 ZEV obligation with a combination of ZEVs and TZEVs representing approximately 22 percent of its sales. For an IVM to meet its 2025 ZEV obligation with TZEVs, the TZEVs would need to represent greater than 40 percent of its total product sales. 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 contrast LVM automakers offer, on average, 12 passenger car 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.

The second most significant difference between the position of IVMs and LVMs regards a number of provisions in the early years of the ZEV program that provided early incentives either to develop ZEV technologies ahead of requirements or to provide incentives for certain attributes of new ZEVs. For example, LVMs received early introduction multipliers for vehicles introduced in advance of requirements. They also received extended service credit for allowing consumers to either extend a lease or exercise a purchase option at the end of a lease.
IVMs now face the prospect of having to meet the high TZEV sales percentages possible under the 2018 and subsequent years ZEV Regulation obligations without: (1) the early incentive opportunities described here, or (2) the extensive credit banks established by the LVMs.

Based on these differences, staff believes that it is appropriate to introduce changes that improve competitiveness and provide IVMs the flexibility needed to successfully commercialize ZEV technologies. This rulemaking proposes a suite of amendments

that address the needed changes. Foremost among these amendments are proposals that:

(1) modify the IVM definition to provide additional production lead time,
(2) modify the IVM definition to add a global revenue test (with concomitant product plan reporting),
(3) lower the percent of ZEVs that IVMs must produce,
(4) provide a pathway for IVMs to pool compliance obligations in Section 177 states, and
(5) allow additional time to make up ZEV credit deficits (with a concomitant credit make up plan).

The proposed modifications to the ZEV Regulation have the potential to reduce California ZEV deliveries by less than two percent in the 2018 through 2025 timeframe. However, ARB does not anticipate any loss in emissions reductions because other ARB regulations would prevent backsliding. To illustrate, vehicles produced for the ZEV regulation are counted in the LEV III criteria and GHG fleet average standards. As such, any loss of emissions reductions resulting from changes to the ZEV Regulation are required to be made up through increased emission reductions from the LEV III fleet.

This proposed rulemaking also includes minor regulatory clean up changes as a follow up to the amendments that went into effect in July 2014 and other minor non-substantive changes to the ZEV regulation.

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Table of Acronyms

ACC .....Advanced Clean Car
ARB .....California Air Resources Board or The Board
BEV .....Battery Electric Vehicle
CEQA .....California Environmental Quality Act
EA.....Environmental Assessment
FCEV .....Fuel Cell Electric Vehicle
FSOR.....Final Statement of Reasons
GHG .....Greenhouse Gas
ISOR .....Initial Statement of Reasons
IVM .....Intermediate Vehicle Manufacturer
LDT.....Light-duty Trucks loaded vehicle weight up to 8500 pounds
LEV I .....First generation Low Emission Vehicle program, adopted in a 1990-1991 rulemaking, and generally applicable in the 1994-2003 model years
LEV II .....Second generation Low Emission Vehicle program, adopted in a 1998 -1999 rulemaking, and generally applicable in the 2004 and subsequent model years
LEV III.....Third generation Low Emission Vehicle program (criteria pollutant and greenhouse gas emission fleet standards), adopted in 2012, and generally applicable to 2015 and subsequent model years for Criteria Pollutants, and applicable to 2017 and subsequent model years for Greenhouse Gases
NMOG .....Non-Methane Organic Gases
NOx .....Oxides of Nitrogen
PC.....Passenger Car
PHEV .....Plug-in Hybrid-Electric Vehicle
PZEV .....Partial Zero Emission Allowance Vehicle, typically, a conventional gasoline, diesel, or natural gas vehicle that meets the most stringent standards for smog-forming emissions
Type III .....ZEV, range of 100 or more miles plus fast refueling, or 200 miles
Type IV .....ZEV, range of 200 or more miles plus fast refueling
Type V .....ZEV, range of 300 or more miles plus fast refueling
TZEV .....Transitional Zero Emission Vehicle, typically a plug-in hybrid electric vehicle
U.S. EPA.....United States Environmental Protection Agency
ZEV .....Zero Emission Vehicle

I. Introduction

A. Background

In 1990, the California Air Resources Board (ARB or the Board) adopted an ambitious program to dramatically reduce the environmental impact of light-duty vehicles through the gradual introduction of zero emission vehicles (ZEV) into the California fleet as part of the Low Emission Vehicle (LEV I) regulation. The ZEV Regulation, which affects passenger cars (PC) and light-duty trucks (LDT), has been adjusted seven times since its inception - in 1996, 1998, 2001, 2003, 2008, 2012, and 2013 to reflect the pace of ZEV development, the emergence of new ZEV and near-ZEV technologies, and the need to provide clarifying language. Throughout these adjustments the fundamental goal of the program, the commercialization of ZEV technologies, has not changed.

California's strong commitment to the ZEV program reflects the recognition that ZEV technology is indispensable in order to achieve the State's public health protection goals, including criteria pollutant and long-term climate change emission reductions. California is the nation's largest market for cars and light-duty trucks with over 25 million registered vehicles.[1] Each day those vehicles drive about 800 million miles and consume more than 37 million gallons of gasoline.[2] They are also responsible for more than 20 percent of smog-forming and greenhouse gas emissions.[3,4]

As a result, over 90 percent of Californians breathe unhealthy air at times. Health-based state and federal air quality standards for criteria pollutants continue to be exceeded in regions throughout California. Both the greater Los Angeles region and the San Joaquin Valley are classified by the United States Environmental Protection Agency (U.S. EPA) as "extreme" ozone non-attainment areas. As a measure of the severity of the air quality problems in California, oxides of nitrogen or NOx emissions from the regional light duty fleet in the San Joaquin Valley would have to be reduced to zero to attain federal ambient ozone standards.[5]

Conventional internal combustion engine emission control technology can only reduce greenhouse gas (GHG) emissions to a certain point. The ARB has determined that pure ZEVs will have to represent nearly 100 percent of new vehicle sales between

[1] ARB, 2011a. 2012 Proposed Amendments to the California Zero Emission Vehicle Program Regulations, California Air Resources Board, December 7, 2011. (http://www.arb.ca.gov/regact/2012/zev2012/zevisor.pdf)
[2] ARB, 2009. California's Zero Emission Vehicle Program tutorial. California Air Resources Board, June 2009. www.arb.ca.gov/msprog/zevprog/factsheets/zev_tutorial.pdf
[3] ARB, 2014a. California's Light-Duty Vehicle Control Program. A presentation by Paul Hughes to the India-California Air Pollution Mitigation Program. California Air Resources Board, October 21, 2013.
[4] UCS, 2013. Cars, Trucks, and Air Pollution. Union of Concerned Scientists, last revised September 3, 2013. http://www.ucsusa.org/clean_vehicles/why-clean-cars/air-pollution-and-health/cars-trucks-air-pollution.html
[5] Page 4 of ARB, 2011a. 2012 Proposed Amendments to the California Zero Emission Vehicle Program Regulations, California Air Resources Board, December 7, 2011. (http://www.arb.ca.gov/regact/2012/zev2012/zevisor.pdf).

2040 and 2050 to achieve California's goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050.[6]

Only by reducing criteria pollutant and greenhouse gas emissions to near zero can we achieve California's long-term air quality and climate change goals. Fortunately, the fleet of cars on California's roads is already undergoing a major transformation. As a result of ARB's ZEV program and Governor Brown's Executive Order B-16-12,[7] which calls for collective action to support ZEV commercialization in California, the State will see 1.5 million zero emission vehicles on the State's roads by 2025. Additionally, California's vehicle GHG standards—authorized by Assembly Bill (AB) 1493 (Pavley) in 2002, first approved in 2004, and extended in 2012— are delivering carbon dioxide (CO2) reductions. California's ZEV program has now been adopted by the states of Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island and Vermont. These states, known as the "Section 177 states," have chosen to adopt California's air quality standards in lieu of federal requirements as authorized under Section 177 of the federal Clean Air Act.[8] Additionally, California's GHG standards are now federal law.

The transition to a fleet of zero emission and lower-emitting, more-efficient vehicles in California will continue through vehicle model year 2025, and the benefits of California's policies will be realized nationwide, dramatically scaling up emission reductions.

Staff's proposed changes to the ZEV Regulation will help ensure a strong ZEV regulation remains in place in California and all Section 177 states, while allowing appropriate compliance flexibility where needed.

B. Current ZEV Requirements

In January 2012, in order to address the need to further reduce vehicle emissions and achieve California's goals of meeting ambient air quality standards and reducing climate changing greenhouse gas emissions (GHG), ARB approved the Advanced Clean Cars (ACC) program. The ACC program incorporated three elements that combine the control of smog-causing (criteria pollutant) emissions and GHG into a single coordinated package of requirements for model years 2015 through 2025, assuring the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect. These three elements included: the Low-Emission Vehicle III (LEV III) regulations, the Zero-Emission Vehicle (ZEV) regulations, and the Clean Fuels Outlet regulations. Ultimately, the Clean Fuels Outlet regulation update was not finalized by the Board because of the passage of legislation, Assembly Bill 8 (AB 8 - 2013), which included dedicated funding for hydrogen fueling

[6] Former California Governor Arnold Schwarzenegger issued Executive Order S-03-05 establishing California's initial GHG reduction plan. The full text for Executive Order S-03-05 can be accessed at the following website: http://gov.ca.gov/news.php?id=1861

[7] The full text for Executive Order B-16-2012 can be accessed at the following website: http://gov.ca.gov/news.php?id=17472

[8] Section 177 of the federal Clean Air Act (United States Code, title 42, section 7507) allows other states to adopt California motor vehicle emission standards including the ZEV regulation.

infrastructure to support the market launch of hydrogen fuel cell electric vehicles. The Board approved subsequent minor amendments to the remaining elements of the ACC program in November 2012, and a final U.S. EPA waiver was granted in January 2013.

In October 2013, the ARB adopted additional minor amendments to the ZEV regulation and associated test procedures. Those amendments: implemented the terms of an agreement between the Section 177 states and regulated manufacturers related to providing additional flexibility in implementation, added provisions to ensure ZEVs are delivered for sale in California every year, modified the fast refueling provisions to ensure that credits received from battery swapping are based on real-world use, and added conforming and clarifying language where needed.

The current ZEV requirements for 2018 and subsequent model years focus the program on ZEVs (battery electric vehicles or BEVs, and fuel cell electric vehicles or FCEVs) and transitional ZEVs (TZEV), which are typically plug-in hybrid electric vehicles (PHEV). By 2025, compliance with the requirements will likely result in more than 15 percent of new sales being ZEVs and TZEVs.[9]

Currently, Chrysler, Ford, General Motors, Honda, Nissan, and Toyota are classified as large volume manufacturers[10] (LVM), and are required to produce pure ZEVs for compliance. BMW, Hyundai, Kia, Mercedes-Benz, and Volkswagen are grouped with the LVMs because they are expected to transition to LVM ZEV requirements by the 2018 model year. Intermediate volume manufacturers[11] (IVM) – Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo – are also required to comply with the ZEV requirements, but are allowed to meet their obligation completely with TZEVs.

C. Public Process for ZEV Regulation Development

Beginning in March 2014, ARB staff conducted a series of meetings, conference calls, and a public workshop on July 14, 2014, to engage stakeholders and obtain input on the proposed regulatory amendments. These stakeholders included representatives from manufacturers, Section 177 states, and environmental advocates. The workshop was held at ARB offices in Sacramento and broadcast via webcast. The announcements and materials for this workshop were posted on ARB's website and distributed through a list serve that included over 14,500 recipients. In an effort to build consensus and minimize areas of disagreement, staff worked with the Section 177 states, environmental advocates, and manufacturers on the proposed changes presented at the workshop.

[9] ARB, 2013a. Graph 1 of the 2013 Minor Modifications to the California Zero Emission Vehicle Program Regulation, California Air Resources Board, September 4, 2013. (http://www.arb.ca.gov/regact/2013/zev2013/zev2013isor.pdf)

[10] As used in this staff report, LVM means any 2003 through 2017 model year manufacturer with California sales of 60,000 or more new light- and medium-duty vehicles and any 2018 and subsequent model year manufacturer with California sales of 20,000 or more new light- and medium-duty vehicles. Sales are based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification.

[11] As used in this staff report, IVM means any 2018 and subsequent model year manufacturer with California sales between 4,501 and 20,000 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.

The materials presented at the workshop are available on ARB's ZEV program website at http://www.arb.ca.gov/msprog/zevprog/zevprog.htm.

II. Statement of Reasons

Staff's proposal addresses seven components of the ZEV Regulation, providing flexibility and additional guidance while maintaining the Board's commitment to an effective ZEV regulation. In summary, the proposed amendments:

1) Establish a global revenue test, in addition to the existing California sales threshold, for IVMs transitioning to LVM status;
2) Provide IVMs transitioning to LVM status additional time before having to deliver advanced technology vehicles;
3) Decrease the ZEV credit percentage requirement for IVMs so that their advanced technology vehicle deliveries, as a percentage of sales, are similar to that of LVMs;
4) Provide IVMs the ability to pool ZEV compliance in Section 177 states;
5) Adjust the ZEV credit deficit provisions to provide manufacturers three years to make up the deficit;
6) Clarify the fast refueling definition; and,
7) Correct grammatical errors.

The current proposed modifications, as discussed below, make corrections and additions in keeping with the Board's direction as provided at the January 2012 and October 2013 hearings.[12]

III. Summary of Proposed Action

The following sections describe each of the proposed amendments including the associated rationale. Additional minor proposed amendments and the related rationale may be found in Section VII of this Staff Report. Section VI contains a description of the alternatives to the proposed amendments that were considered.

A. IVM Definition

In January 2012, the Board approved changes to the ZEV Regulation that modified the IVM definition within Section 1900, title 13, California Code of Regulations (CCR) to specify that, beginning with the 2018 model year, an IVM was any manufacturer with California sales between 4,501 and 20,000 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. Concurrently, the Board directed staff to

[12] ARB, 2013b. Board Resolution 13-41. California Air Resources Board, October 24, 2013. http://www.arb.ca.gov/regact/2013/zev2013/res13-41.pdf

review how the regulation affects IVMs transitioning into LVM requirements in the 2018 model year and return to the Board by December 31, 2014, with a recommendation regarding more equitable treatment of these manufacturers, ensuring all manufacturers are successful in commercializing ZEV technologies.

ARB staff subsequently determined that the vehicle sales threshold, in and of itself, is not sufficiently useful in assessing a manufacturer's ability to bring advanced technology vehicles to market. In consultation with manufacturers, we determined that a better indicator of this ability is robust global revenue in conjunction with the established manufacturer sales threshold. As can be seen in Table 1, global revenue varies greatly amongst the automakers and the IVMs have significantly less revenue than the LVMs.

Thus, we are proposing a global revenue threshold of 40 billion dollars, calculated from the average of the three consecutive fiscal years immediately preceding the determination. Automakers and the Section 177 states concur that this threshold, which is between that of existing IVMs and lesser revenue LVMs, is a much better indicator of an automaker's ability to bring advanced technology vehicles to market.

Table 1: 2012 Sales and Revenue

OEM		Sales[13,14,15]		Global Revenue[16] (billions)
		California	Global	
IVMs	JLR	7,246	413,752	$21.5
	Mazda	34,111	1,095,056	$24.7
	Mitsubishi	8,053	554,406	$22.0
	Subaru	21,184	369,601	$16.9
	Volvo	8,269	421,951	$19.1
LVMs as of 2018	BMW	57,983	1,367,617	$94.7
	Daimler	57,904	1,118,817	$81.6
	Hyundai	113,967	4,945,704	$81.4
	Kia[17]	47,695	2,709,000	$45.5

[13] ARB, 2012a. Large and Intermediate Volume Manufacturer 2012 Vehicles Production Delivered for Sale in California. California Air Resources Board, April 22, 2014. http://www.arb.ca.gov/msprog/zevprog/zevcredits/2012zevcredits.htm

[14] Wards, 2013. World Car Sales by Company Group and Country, 2012 (minus Kia). Wards Auto Group, 2013.

[15] Kia, 2013. 2012 Global Sales (Kia). Kia Motors Annual Report, 2013.

[16] ARB, 2014b. Compilation of 2012 Annual Reports from Jaguar Land Rover, Mazda, Mitsubishi, Subaru, Volvo, BMW, Daimler, Hyundai, and Kia. 2012.

[17] Hyundai and Kia's volumes are combined for purposes of determining manufacturer size under the ZEV Regulation because of their ownership arrangement per title 13, section 1900, CCR. They are listed separately in this table because they report sales and revenue separately.

The global revenue test is only available to IVMs for the 2018 through 2020 model years. Beginning in the 2021 model year, a manufacturer exceeding the 20,000 vehicle threshold will need to prepare to bring ZEVs to market per the LVM requirements; the ARB expects most IVMs will make ZEVs available for sale by the 2026 model year.

As part of the proposed regulatory amendments, the IVMs will be required to report revenue based on auto sales using a new supplemental ZEV reporting form. Reported revenue will be verified by the ARB using a combination of sources such as annual reports and third party analyst reports. In addition to submitting a revenue reporting form, IVMs that qualify and choose to participate in the global revenue test in the 2018 through 2020 model years will also be required to submit a product plan demonstrating how they plan to meet their pending ZEV credit obligations.

B. Lead Time Provisions

Under the current ZEV regulation, and IVM that might grow to become an LVM is given lead time before it is required to satisfy the LVM ZEV requirements. The existing regulatory language could provide an IVM as few as 3 years before that IVM would be subject to the LVM requirements.[18] This is significantly shorter than the product development timeline manufacturers typically follow. To allow for a smoother transition ARB staff is proposing to extend the lead time to 5 three-year averages commencing once the first three-year average exceeds 20,000 vehicles. This provides IVMs a minimum of 5 years and a maximum of 7 years to bring a vehicle to market. This lead time is similar to the lead time provisions established for IVMs that transitioned to LVM status prior to 2018 in ZEV regulation versions prior to the 2012 amendments.

C. Reduced ZEV Percentage Requirement

The current ZEV Regulation establishes a minimum ZEV credit percentage requirement for manufacturers for the 2018 through 2025 and subsequent model years. This requirement represents the percentage of passenger cars and light duty trucks produced by a manufacturer and delivered for sale in California that must be ZEVs (credit-weighted based on the advanced vehicle technology chosen).

The current ZEV Regulation allows an IVM to meet its pre-2018 model year ZEV obligation solely with partial zero emission allowance vehicles[19] (PZEV). The regulation requires an IVM to begin delivering ZEVs in 2018 and subsequent model years. However in recognition of the lower number of vehicle models offered by the typical IVM (each of the IVM5 manufacturers offers 3 to 4 passenger car models while the LVMs offer an average of 12 passenger car models[20]) and their lesser R&D capabilities in

[18] Under the current regulation, LVM status is calculated based on 3 consecutive three-year averages once the first three year average exceeds 20,000 vehicles.

[19] Typically, PZEVs are conventional gasoline, diesel, or natural gas vehicles that meet the most stringent standards for smog-forming emissions. They additionally have zero evaporative emissions and extended emission control warranties.

[20] Wards, 2012. 2012 Model U.S. Car Specifications and Prices. Wards Auto Group, 2012.

comparison with LVMs, the ZEV Regulation allows an IVM to meet its entire ZEV obligation with TZEVs.

The pre-2018 model year PZEV provisions were intended to ease the burden on IVMs in comparison to LVMs since PZEVs are much easier to market as compared to the ZEVs required for LVMs. While the intention was to decrease the burden on IVMs, the existing regulation has the practical effect of establishing a double hurdle for IVMs starting in 2018. First, an LVM has had several years to develop ZEV offerings and accrue credits from placement of those ZEVs. For example, LVMs received early introduction multipliers for vehicles introduced in advance of requirements. LVMs also received extended service credit for allowing consumers to either extend a lease or exercise a purchase option at the end of a lease. Neither of these opportunities exists for IVMs under the current regulation. In comparison, the IVMs face the comparatively difficult technological challenge of transitioning from compliance solely with PZEVs to compliance with TZEVs. Second, without the R&D and economic means that LVM have to concurrently develop both TZEVs and greater credit ZEVs, an IVM must plan to offer a significantly greater portion of its sales (potentially in excess of 40 percent in 2025[21]) as TZEVs to meet its obligation. At a time when conventional hybrid market share in California is around 7 percent,[22] this rate of participation in the advanced clean car market does not appear to be realistic for IVMs.

To address this issue ARB staff is proposing to adjust downward the total ZEV credit obligation for IVMs in the 2018 through 2025 model years. Specifically, the proposed obligation would be set at a credit level equivalent to the entire LVM optional (maximum) TZEV obligation plus one-fifth of the LVM pure ZEV obligation. This results in an IVM having an advanced technology vehicle sales percentage (based on a likely compliance scenario) more closely aligned to that of the LVMs. Table 2 shows the minimum ZEV, maximum TZEV, and total credit percentage requirements for an LVM followed by the proposed ZEV credit percentage requirements for an IVM, which may be met entirely with TZEVs during 2018 and subsequent model years.

[21] 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)

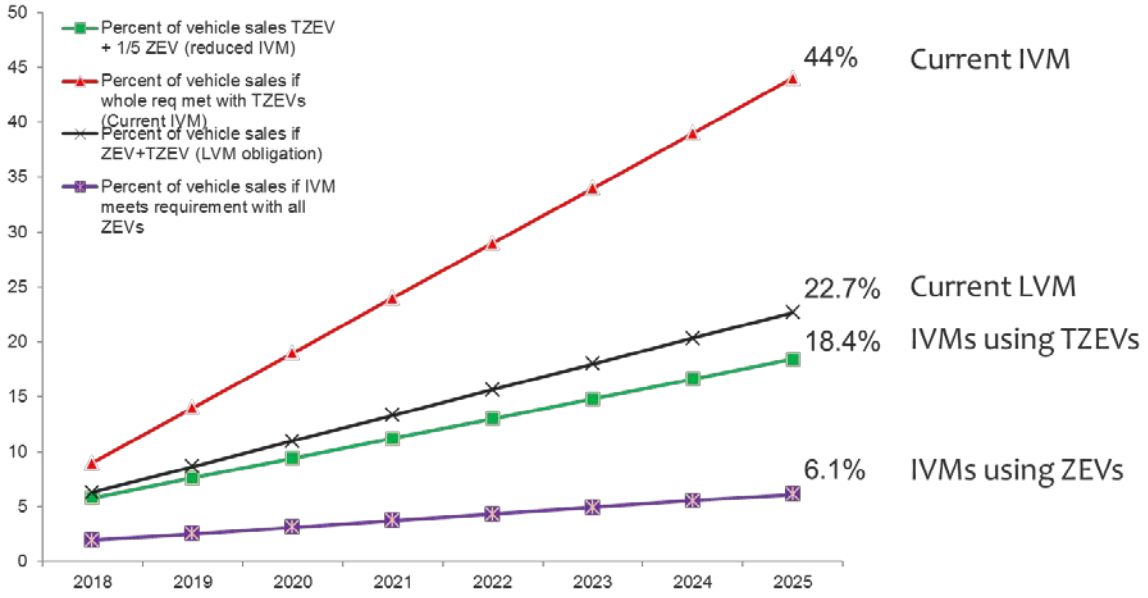
[22] CNCDA, 2014. California Auto Outlook Volume 10, Number 1. California New Car Dealers Association, February 2014. (http://www.theicct.org/sites/default/files/California%20hybrid%20share%202013%20CNCDA.pdf)

Table 2: Reduced ZEV Credit Percentage Requirement for IVMs

Size	Credit Type	Model Years 2018-2026 and Subsequent								
		'18	**'19**	**'20**	**'21**	**'22**	**'23**	**'24**	**'25**	**'26+**
LVM	ZEV minimum	2	4	6	8	10	12	14	16	16
	TZEV maximum	2.5	3	3.5	4	4.5	5	5.5	6	6
	Total	4.5	7	9.5	12	14.5	17	19.5	22	22
IVM	TZEV + 1/5 ZEV	2.9	3.8	4.7	5.6	6.5	7.4	8.3	9.2	22

For example with this proposed change, in 2018 an LVM would need to produce at least 2 percent ZEV credits plus a maximum of 2.5 percent TZEV credits for a total ZEV credit of 4.5 percent. In the same year, an IVM would be required to meet the same TZEV credit percent (2.5) plus one fifth or twenty percent of the LVM ZEV credit percentage (0.4) for a total 2018 IVM credit percentage of 2.9 percent. In 2026 and subsequent model years, IVMs would be required to meet the same 22 percent total ZEV credit percentage that applies to LVMs. These requirements may be satisfied entirely by TZEV credits, but an IVM may meet its requirement with ZEV credits. Figure 1 below illustrates 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.

Figure 1:
Likely Compliance Scenario Comparison of Percentage of New Car Sales



ARB staff performed calculations to estimate the 2018 through 2025 sales volume change that could result from the lesser ZEV percentage requirement which potentially can be fully met with TZEVs. The expected numbers for each model year are enumerated in Table 3 below. These numbers are based on future sales projections from ARB's Emissions Inventory Model, (EMFAC) 2011[23]. As can be seen in Table 3 below, under a likely compliance scenario California could see about 26,000 fewer ZEVs and TZEVs delivered in the 2018 through 2025 model years than would be delivered under the existing regulation. To put this reduction in perspective, the ARB expects manufacturers to place slightly more than 1,400,000 ZEVs and TZEVs in California in the same 2018 through 2025 time period under the current regulation.[24] Thus, total deliveries could be less than two percent lower than would otherwise be expected.

[23] ARB, 2011b. Emission Inventory Model, EMFAC 2011. California Air Resources Board, January 2013. http://www.arb.ca.gov/msei/msei.htm

[24] Table 3.6 of ARB, 2011a. 2012 Proposed Amendments to the California Zero Emission Vehicle Program Regulations, California Air Resources Board, December 7, 2011. (http://www.arb.ca.gov/regact/2012/zev2012/zevisor.pdf)

Table 3: Number of IVM5[25] Vehicles Expected Annually – MY 2018 through 2025 (Expected Compliance Scenario – Rounded to Nearest 10)

	2018	2019	2020	2021	2022	2023	2024	2025	Total
Existing[26] ZEV	570	1,130	1,620	2,060	2,480	2,910	3,320	3,650	17,740
Existing TZEV	3,470	4,720	5,960	7,120	8,420	9,750	11,170	12,530	63,140
Proposed[27] ZEV	0	0	0	0	0	0	0	0	0
Proposed TZEV	3,250	4,280	5,290	6,240	7,310	8,400	9,580	10,690	55,040
Change ZEV	-570	-1,130	-1,620	-2,060	-2,480	-2,910	-3,320	-3,650	-17,740
Change TZEV	-220	-440	-670	-880	-1,110	-1,350	-1,590	-1,840	-8,100
Total Change (ZEV + TZEV)	**-790**	**-1,570**	**-2,290**	**-2,940**	**-3,590**	**-4,260**	**-4,910**	**-5,490**	**-25,840**

D. Section 177 State Pooling

Section 177 of the federal Clean Air Act[28] allows other states to adopt California motor vehicle emission standards including the ZEV Regulation. Currently, nine states (hereinafter referred to as the Section 177 states) have adopted the California ZEV Regulation: Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont.

In 2012, the Board adopted changes to the ZEV Regulation establishing a new optional Section 177 State compliance path. Those provisions allow manufacturers to place extra ZEVs in the Section 177 states one and two years prior to the 2018 model year. In exchange for early placement of these extra ZEVs, manufacturers gain the ability to pool credits across state lines within and between two regional pools.[29] They also earn a reduced TZEV obligation in exchange for early ZEV placement.

Currently, only one IVM has a ZEV product or plans to bring a ZEV to market prior to the 2018 model year, so in practice only LVMs have been able to make use of these provisions. The IVMs have stated that they need this same ability to pool ZEV and TZEV credits across state lines because some of them have few dealers in some of the Section 177 States. Accordingly, staff is proposing to change the Section 177 State optional compliance path to provide additional flexibility for IVMs. Specifically, it is proposed that the IVMs may place extra ZEVs in Section 177 States in the two model

[25] Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo constitute the IVM5.
[26] "Existing" assumes no regulatory changes; that is, two IVM5 members would be subject to the LVM requirements.
[27] "Proposed" shows the numbers expected under the proposed regulatory changes. "Proposed" assumes manufacturer obligations will be met entirely with TZEVs.
[28] United States Code, title 42, section 7507
[29] Two Regional pools were created for the purpose of this provision: the West Region pool and East Region Pool. States west of the Mississippi River, excluding California, make up the West Region pool, and states east of the Mississippi River make up the East Region pool.

years prior to the start of their LVM requirements should they transition into LVM status, but the IVMs may take an additional two years to place these extra ZEVs. The IVMs will also be allowed to pool TZEV credits to meet total annual percentage obligations in each Section 177 State. They will not be allowed a reduced TZEV obligation.

E. ZEV Deficit Provisions

Beginning in 2018, the ZEV Regulation requires automakers to make up a ZEV credit deficit by the next model year. The one-year credit recovery period reflects ARB's desire to preclude manufacturers from developing sizeable or insurmountable deficits.

However, IVMs point out that manufacturers traditionally begin model year sales prior to the beginning of the calendar year. Compliance reporting for a given model year takes place in the second quarter following the calendar year. It is possible for the sales of the model year following the deficit to be nearly complete before the deficit is realized, thus not allowing sufficient time to make up the deficit in that model year. IVMs state that the existing one-year period does not provide sufficient time to address a potentially underperforming advanced technology vehicle model. Additionally, for making up deficits IVMs have fewer compliance options than LVMs which are in a more advanced stage of development having already placed products in the market and in many cases, having banked ZEV credits that provide them additional compliance flexibility.

The IVMs have asked for a three-year credit recovery period consistent with other mobile source regulations. For example, within the ACC Program ARB allows manufacturers three years to make up any shortfall in NMOG credits.[30] Additionally, the U.S. EPA's federal GHG program allows three years to cover a deficit. Accordingly, staff is proposing to extend the make-up period for IVMs to three years. In recognition of the fact that a longer deficit period may allow an automaker to accrue an even larger deficit, ARB staff is proposing that automakers with a credit deficit provide ARB an action plan, to be approved by ARB's Executive Officer (EO) of the ARB illustrating how the automaker will achieve compliance. This action plan would need to be submitted along with an annual report showing a credit deficit. The EO may provide an automaker up to three years to make up a deficit in the case of a delivered ZEV that is underperforming in the market. In the case where a manufacturer with a credit deficit has not produced and delivered a ZEV for sale in California, the EO will only approve a credit recovery period of one year.

Currently, a manufacturer must fulfill a ZEV credit deficit with credits earned solely from ZEVs. To provide additional flexibility for IVMs, ARB staff is also proposing to allow IVMs to fulfill a ZEV credit deficit with TZEV credits. This flexibility is consistent with existing regulatory provisions as IVMs may meet their entire ZEV credit percentage requirement with credits from TZEVs.

[30] ARB, 2012b. Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles. California Air Resources Board, December 6, 2012. http://www.arb.ca.gov/msprog/levprog/cleandoc/ldtps_2015+%20cp%20or%202017+%20ghg%20my_lev%20iii_clean%20complete_12-12.pdf

F. Fast Refueling Definition

The Board approved amendments to the ZEV Regulation in 2001 establishing the Type III and Type IV ZEV definitions and the Type V ZEV definition was added in 2008. These definitions provide more credit for ZEVs that have the ability to refuel to 95 percent of full capacity within 15 minutes or less. Table 4 below shows the credits each of these types earn in the pre-2018 model years.

Table 4: Credit Level by ZEV Type

	Definition	2012-2014 Credit Level	2015-2017 Credit Level
Type III ZEV	100+ mile range and fast refueling capable or 200 mile range	4	4
Type IV ZEV	200+ mile range and fast refueling capable	5	5
Type V ZEV	300+ mile range and fast refueling capable	7	9

Prior to the amendments that went into effect in July 2014, some BEVs qualified under the fast refueling definition because of their potential for battery exchanges. However, it was not evident that battery exchanges were actually taking place. Accordingly, ARB amended the ZEV Regulation in 2014 to require a showing of actual fast refueling events (e.g., actual battery exchanges) for such credits and require that manufacturers seeking to earn fast refueling credits submit the number of fast refueling events that occur over a 12-month period for all otherwise eligible vehicles in the vehicle fleet. No more than 25 fast refueling events can be attributed to a single vehicle; the number of fast refueling events cannot exceed the total number of vehicles in the vehicle fleet and the fast refueling events must be within the first year of placement. The data submission requirement does not apply to manufacturers of fuel cell electric vehicles (FCEV), because all miles are attributed to fast refueling hydrogen fueling stations.

Comments received both before and after the October 2013 Board Hearing reflected concerns that vehicles placed in the latter part of a model year would not be able to count fast refueling events after the calendar year had ended. Under the scenario proposed by the manufacturers, a 2015 model year BEV placed in service on October 31, 2015 would only be able to count those fast refueling events that occurred between October 31 and December 31, 2015. This was not staff's intent, and so staff is now proposing to clarify that fast refueling events occurring during the initial 12-month period following the vehicle's placement in California would qualify for the fast refueling credit. For example, a 2015 model year BEV placed in service on October 31, 2015 would be able to count all fast refueling events occurring during the period from October 31, 2015 through October 30, 2016.

IV. Environmental Analysis

A. Introduction

ARB's regulatory program that involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA) (14 CCR § 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. ARB as a lead agency, prepares a substitute environmental document (referred to as an Environmental Analysis or EA) as part of the Staff Report to comply with CEQA. (17 CCR §§ 60000-60008). This section serves as a substitute document equivalent to an addendum to the 2012 Advanced Clean Cars (ACC) Program Environmental Analysis (ACC EA) prepared under ARB's certified regulatory program to document ARB's determination that no subsequent or supplemental environmental analysis is required for the proposed amendments to the ZEV Regulation.

ARB staff has determined that the proposed amendments do not involve any changes that result in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the EA prepared for the ZEV Regulation when it was approved as part of the ACC Program in 2012. Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent environmental review. The ACC EA adequately addresses the implementation of the ZEV Regulation as modified by the proposed amendments and no additional environmental analysis is required.

B. Prior Environmental Analysis

When the ZEV Regulation was proposed as part of the package of regulations referred to as the ACC Program in December 2011, the Staff Reports: Initial Statement of Reasons (ISORs) prepared for each of those regulations included as an appendix an environmental analysis prepared under ARB's certified regulatory program (ACC EA). The ACC EA provided a programmatic level of analysis of the potential environmental impacts associated with the ACC Program, including the ZEV Regulation. Comments received on the ACC EA were responded to in writing in a document entitled *Response to Comments on the ACC EA* released on March 12, 2012. At its hearing on March 22, 2012, the Board adopted Resolution 12-21 certifying the ACC EA, approving the written responses to comments on the ACC EA, and adopting the findings and statement of overriding considerations. A Notice of Decision was filed with the Secretary of the Natural Resources Agency for public inspection and posted on ARB's website on March 27, 2012. These documents are available at http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm.

The ACC EA was based on the reasonably foreseeable compliance responses of the regulated entities covered by the ACC Program. The ACC EA concluded that the compliance responses to the proposed ACC Program would result in beneficial impacts to air quality through reductions in emissions, including GHGs, criteria air pollutants and precursors, and toxic air contaminants. It further concluded that the proposed ACC Program would result in less-than-significant impacts to agricultural and forest resources, GHGs, land use, minerals, population and housing, public services, and recreation.

The ACC EA also concluded that there could be potentially significant adverse impacts to aesthetics, air quality, and noise (both related to construction), biological resources, cultural resources, geology/soils, hazards/hazardous materials (related to accidental releases), hydrology/water quality, traffic and utilities due to construction and operation of new battery manufacturing facilities, as needed to achieve compliance with the ZEV Regulation.

The ACC EA determined that construction and operation of new manufacturing plants for producing propulsion batteries and fuel cells, though likely to occur in areas with consistent zoning, could result in potentially significant adverse impacts to the ten resource areas listed above. The ACC EA identified mitigation measures to reduce these potentially significant impacts to a less-than-significant level; however, it was determined that the authority to determine project-level impacts and require project-level mitigation lies with the local lead agency for individual projects, which is beyond ARB's authority. Since the ACC EA programmatic analysis could not determine project-specific details of mitigation, there is an inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Therefore, the ACC EA took a conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to these resource areas resulting from the construction and operation of new manufacturing plants may be significant and unavoidable.

C. Proposed Modifications

As previously described in Section III of this Staff Report, the proposed amendments to the ZEV Regulation would:

- Establish a global revenue test for intermediate volume manufacturers (IVM) transitioning to large volume manufacturer (LVM) status;
- Provide additional time to IVMs transitioning to LVM status before they have to deliver advanced technology vehicles;
- Decrease the ZEV credit percentage requirement for IVMs so that their advanced technology vehicle deliveries, as a percentage of sales, are similar to that of LVMs;
- Provide IVMs the ability to pool ZEV compliance in Section 177 States;
- Adjust the ZEV credit deficit provisions to provide manufacturers three years to make up the deficit;

- Clarify the fast refueling definition; and
- Make regulatory changes that are administrative in nature.

D. Analysis

1. Legal Standards

Under its certified regulatory program, ARB prepares the required CEQA documentation as part of the Staff Report for the proposed action (17 CCR §§ 60000-60008). When the equivalent of an EIR or negative declaration has been prepared for a rule, regulation, order, standard or plan, ARB looks to Public Resources Code section 21166 and CEQA Guidelines section 15162 for guidance on the triggers for further environmental review when considering changes to that project. When an EIR for a project has been certified, that EIR is conclusively presumed valid unless a lawsuit challenging the EIR is timely filed (Pub. Resources Code § 21167.2). This presumption precludes reopening the prior CEQA process unless one of the events triggering additional review as specified in Public Resources Code section 21166 and CEQA Guidelines section 15162 has occurred.

CEQA Guidelines section 15162 states:

(a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

If a subsequent or supplemental EIR or negative declaration is not required, the lead agency may document its decision and supporting evidence in an addendum (14 CCR § 15164 (e)). The addendum and lead agency's findings should include a brief explanation of the decision not to prepare a subsequent or supplemental EIR or negative declaration (14 CCR § 15164(e)). An addendum need not be circulated for public review, but must be considered by the lead agency prior to making a decision on the project (14 CCR § 15164(c), (d)).

2. Basis for Determination

A brief explanation is provided below of staffs' determination that none of the conditions requiring further environmental review are triggered by the proposed modifications.

a) There are no substantial changes to the regulation previously analyzed in the Environmental Analysis which require major revisions to the Environmental Analysis involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

The proposed amendments make changes to improve administration of the program, improve competitiveness, and provide IVMs the flexibility needed to successfully commercialize ZEV technologies. These changes to the ZEV Regulation do not substantially change the reasonably foreseeable compliance responses of the regulated entities covered by the ACC Program used as the basis for the impacts analysis in the ACC EA. As explained above under 'Prior Environmental Analysis', the ACC EA determined that potentially significant adverse indirect impacts to ten resource areas could result from the construction and operation of new manufacturing plants for producing propulsion batteries and fuel cells. The proposed amendments do not alter these compliance responses, do not modify the in-place fleet average emission standards, or lead to any new compliance responses that involve new significant environmental effects or a substantial increase in the severity of previously identified effects.

Air Quality Benefits

As described in Section III.C., under a likely compliance scenario, the proposed modifications could result in about 26,000 fewer ZEVs and TZEVs being delivered to California from 2018 through 2025 compared to the existing regulation. This represents a decrease in total deliveries of fewer than two percent versus what would be expected under the existing regulation. There could be a similar reduction in projected future emission benefits associated with these modifications to the ZEV Regulation. However, the ZEV Regulation resides within the LEV III Regulation as discussed in Section I.B., and the LEV III Regulation establishes fleet average requirements for automakers. Under these requirements, fleet-average emission standards apply to the average emission rates of the various vehicle models marketed by a manufacturer, weighted by the number of vehicles sold or leased by the manufacturer in each vehicle class. In meeting the fleet-average standards, manufacturers may certify their vehicles to any of the applicable emission standards as long as the fleet-average emissions of their new vehicles meet the fleet-average emission requirements for that model year. This flexibility enables a manufacturer to sell some higher-emitting vehicle models as long as enough lower-emitting vehicle models are sold to achieve the applicable fleet-average emission standards for the particular vehicle type and model year. The fleet average requirements ensure that air quality benefits do not suffer as a result of an automaker producing fewer ZEVs. Therefore, although the proposed amendments could lead to fewer ZEVs and TZEVs being delivered to California from 2018 to 2025, since the amendments do not modify the in-place fleet average emission standards, the air quality benefits of the ACC Program as analyzed in 2011 in the ACC EA will still be realized.

b) There are no substantial changes with respect to the circumstances under which the regulation is being undertaken which require major revisions to the previous Environmental Analysis involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

There are no substantial changes to the environmental setting or circumstances in which the amendments to the ZEV Regulation are being implemented compared to that analyzed in the ACC EA. As explained above, the amendments do not modify the in-place fleet average emission standards and do not alter the compliance responses of the regulated entities or result in any changes that significantly affect the physical environment.

c) There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous Environmental Analysis was certified as complete, that changes the conclusions of the Environmental Analysis with regard to impacts, mitigation measures, or alternatives;

No new information of substantial importance has become available to ARB staff since the ACC EA was certified. Therefore, the conclusions found in the ACC EA about the compliance responses for the ZEV Regulation or potential environmental impacts to any resource areas have not changed.

E. Conclusion

The ACC EA certified in 2012 covered the ZEV Regulation. No supplemental or subsequent environmental analysis is required for the proposed amendments to the ZEV Regulation because, as described above, the proposed changes do not result in any new environmental impacts or in a substantial increase in the severity of the impacts previously disclosed for the ZEV Regulation in the ACC EA. Further, there are no changes in circumstances or new information that would otherwise warrant any additional environmental review.

V. ENVIRONMENTAL JUSTICE

"Environmental Justice" is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code §65040.12(c)).

Staff does not believe that this proposal will have any adverse environmental justice impacts. The amendments have the potential to reduce the number of ZEVs delivered to California in the 2018 through 2025 timeframe by less than two percent. However, because vehicles produced for the ZEV regulation are counted in the LEV III GHG fleet average standard, any decrease in emission benefits from vehicles placed under the ZEV Regulation must be countered by an equal increase in emission benefits from vehicles placed under the LEV III Regulation. At the same time, the proposed amendments provide the IVMs additional flexibility in bringing pure ZEVs to market in the 2018 model year and beyond, but possibly earlier. As IVMs currently have no obligation to produce ZEVs prior to the 2018 model year and can currently meet their 2018 and subsequent model year obligations solely with TZEVs, and as IVMs must meet the LEV III GHG fleet average standards, there will be no increase in criteria pollutants or greenhouse gases in California due to this additional flexibility.

VI. ECONOMIC IMPACTS ANALYSIS/ASSESSMENT

A. Legal Requirement

Sections 11346.3 and 11346.5 of the Government Code require state agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment shall include consideration of the impact of the proposed regulation on California jobs, business expansion, elimination, or creation, and the ability of California businesses to compete. State agencies are also required to estimate the cost or savings to any state or local agency and school districts in accordance with instruction adopted by the Department of Finance. This estimate is to include any nondiscretionary

costs or savings to local agencies and the costs or savings in federal funding to the state.

B. Major Regulations

For a major regulation proposed on or after January 1, 2014, a standardized regulatory impact analysis is required. (A major regulation is one "that will have an economic impact on California business enterprises and individuals in an amount exceeding fifty million dollars ($50,000,000), as estimated by the agency." (Govt. Code Section 11342.548) – Note: Health and Safety Code Section 57005(b). These amendments result in cost savings not exceeding $50 million in any 12-month period between the date the major regulation is filed with the Secretary of State through 12 months after the major regulation is estimated to be fully implemented.

For purposes of subdivision (a) of Section 11346.3 of the Government Code, "major regulation" means any regulation that will have an economic impact on the state's business enterprises in an amount exceeding ten million dollars ($10,000,000), as estimated by the board, department, or office within the agency proposing to adopt the regulation in the assessment. These amendments only result in cost savings.

C. Potential Impacts on Affected Businesses

At present, there are no OEMs headquartered in California with sales volumes high enough to make them subject to the existing ZEV requirements or the proposed amendments for IVMs. Tesla Motor Company is a California-based business that operates manufacturing and assembly facilities in the San Francisco Bay Area. It will become subject to the ZEV Regulation in the 2018 model year. However, Tesla Motor Company only manufactures advanced technology vehicles so the ZEV Regulation and these amendments pose no burden on them.

Outside of California, OEMs subject to the ZEV Regulation are directly affected by the proposed amendments. Numerous flexibilities exist in the ZEV Regulation and are continued and expanded in this rulemaking. It is difficult to predict how each IVM will use the flexibilities provided via the existing ZEV Regulation and the amendments proposed in this rulemaking. The proposal allows more time for those smaller IVMs that have exceeded 20,000 annual California sales to develop and market ZEVs, which will provide compliance savings relative to the existing regulation. The reduced ZEV percent requirement included in these amendments means that IVMs can comply with lower production volumes. In total, IVMs may produce nearly 26,000 fewer ZEVs and TZEVs in the 2018 through 2025 timeframe (see Section III. C.), thereby creating less financial impact than the existing requirement.

The incremental cost savings of the proposed amendments can be shown using the cost assumptions made in the 2012 Staff Report.[31] Table 5 shows the estimates determined by staff for model years 2020 and 2025. The analysis indicates an

[31] ARB 2011. California Air Resources Board. 2012 ZEV ISOR. (http://www.arb.ca.gov/regact/2012/zev2012/zevisor.pdf)

incremental cost savings of $33.5 million in 2020 and $39.2 million in 2025. Based upon an estimated average cost savings of $35 million per year, lifetime cost savings from 2018 through 2025 would be approximately $280 million.

Table 5: Estimated Annual IVM Compliance Costs for 2020 and 2025

	2020			2025		
	Estimated Sales (vehicles)	**Average Incremental Per-Vehicle Price Change ($)**	**Total Cost (millions)**	**Estimated Sales (vehicles)**	**Average Incremental Per-Vehicle Price Change ($)**	**Total Cost (millions)**
Existing						
BEV	1,200	12,900	$15.5	1,500	9,500	$14.3
FCEV	400	12,400	$5.0	2,200	9,300	$20.5
TZEV	6,000	10,900	$65.4	11,200	8,900	$99.7
Total	7,600		$85.8	14,900		$134.4
Proposed						
BEV	0	12,900	0	0	9,500	0
FCEV	0	12,400	0	0	9,300	0
TZEV	5,300	10,900	$52.3	10,700	8,900	$95.2
Total	5,300		$52.3	10,700		
Total Incremental Cost Benefit			**$33.5**			**$39.2**

The modifications related to the Section 177 State optional compliance path (the pooling requirements) only specify how automakers can move and pool ZEV credits within those states to achieve compliance with the ZEV credit obligations of those states. They do not affect California.

D. Potential Impacts on Jobs

These amendments do not impact California businesses; thus, they are not anticipated to have an effect on the creation or elimination of jobs within the State of California.

E. Potential Impacts to Individuals

These amendments are not expected to change vehicle prices in a way that would alter vehicle purchase decisions. However, requirements for IVMs to produce ZEVs would be less stringent since they would not have to produce as many vehicles and could comply entirely with TZEVs. The above analysis for directly affected businesses indicated the amendments would result in incremental cost savings to IVMs. Thus, the proposed amendments to the regulation would have little to no impact on consumers.

The amendments also are not expected to affect the benefits of the regulation to the health and welfare of California residents, worker safety, and the State's environment because no change in emissions is expected since manufacturers still have to meet LEV III requirements.

F. Potential Impact on Business Competitiveness

It can be argued that the lower ZEV Percentage Requirement and longer lead times afforded by these proposed amendments to IVMs as they first become LVMs gives them an advantage over established LVMs. However, it can also be argued that IVMs are already at a significant competitive disadvantage to LVMs in two important respects – product attributes and credit-building opportunities.

Product-wise, IVMs produce significantly fewer vehicle models than LVMs and thus, the ZEV models needed to comply with the ZEV Regulation constitute a greater proportion of their model offerings. IVMs have significantly lower global revenue than LVMs, even those IVMs with global vehicle sales similar to LVMs. This lesser revenue stream makes it difficult for IVMs to commit to the same level of R&D as LVMs. Whereas an LVM may have multiple ZEV and transitional ZEV (plug-in hybrid) offerings, no IVM has more than one in California.

In addition to having fewer resources, IVMs have had fewer opportunities to establish a robust credit bank and while LVMs were marketing early hybrids, battery electric vehicles and plug in hybrids, IVMs were producing nearly 50 percent PZEVs. Earlier iterations of the ZEV Regulation provided LVMs with the ability to earn early introduction multipliers for vehicles introduced in advance of requirements. LVMs were able to take advantage of extended service credit for allowing consumers to either extend a lease or exercise a purchase option at the end of a lease. Neither of these opportunities exists for IVMs transitioning to LVM status in the current regulation.

The proposed amendments provide some of the compliance flexibility to IVMs that the LVMs have enjoyed. Thus, ARB staff believes there are no significant adverse potential impacts to business competitiveness because of the amendments.

G. Potential Impact on Business Creation, Elimination, or Expansion

There are no significant adverse potential impacts to business creation, elimination, or expansion expected from this regulatory action because the proposed amendments, only reduced near-term manufacturer R&D expenditures.

H. Potential Costs to Local and State Agencies

There are no significant fiscal impacts to local or state agencies expected from the proposed amendments, either in terms of tax revenue or personnel requirements. The inclusion of an extended deficit provision does not substantially increase the volume of data to review or the enforcement burden to the ARB that would justify hiring additional staff. Costs to the State to implement revisions to the ZEV reporting database are expected to be around $100,000.

I. Alternatives Considered

1. Alternatives Considered and Reasons for Rejecting Them. Two alternatives were evaluated while developing this regulatory proposal. The first alternative focused on the suite of changes proposed by IVMs at the October 2013 Board hearing.[32] The second focused on keeping the ZEV Regulation as-is (no action). Each alternative is presented below and evaluated in the context of the primary objective to provide flexibility to manufacturers transitioning to LVM status while ensuring that they deliver advanced technology vehicles in the 2018 through 2025 time period.

   No alternative considered by the agency would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective or less burdensome to affected private persons than the proposed regulation.

No Action

Staff considered not making the proposed changes to the current ZEV regulation. Under the No Action alternative, IVMs would have to produce a higher number of TZEVs and some would transition to LVM status and be required to produce ZEVs in 2018 or soon thereafter. They would have less flexibility when participating in the Section 177 State alternative compliance path and would receive less time to address credit deficits. Finally, the existing fast refueling definition does not clearly provide OEMs the full 12-month accumulation period agreed upon in negotiations. This alternative was rejected because it did not provide the IVMs the flexibility needed when transitioning to LVM status.

Adoption of IVM Proposal

In the fall of 2013, the IVMs presented a suite of changes that they believed would provide the flexibility necessary to transition to LVM status. The IVM-proposed changes would have allowed the IVMs to:

(1) produce vehicles in very small demonstration quantities through 2025,
(2) receive large credit multipliers for any ZEVs produced,
(3) travel and pool both ZEVs and TZEVs in ZEV states,
(4) earn Extended Service Credits for cars offered for sale or extended leases, and
(5) have three years to make up ZEV credit deficits.

This alternative was analyzed and subsequently rejected for two reasons. First, it would have added significantly to the regulation's complexity. Second, after extensive discussion, vehicle manufacturers and Section 177 states concurred that the changes proposed in this rulemaking – reducing their total ZEV percentage obligation, adding a global revenue test to the LVM transition, providing additional transition lead time, and allowing pooling without advance ZEV/TZEV deliveries – provided the same degree of feasibility and compliance flexibility to the IVMs as the

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

staff's proposal. Additionally, this alternative would not be as effective in carrying out the purpose for which the regulation is proposed or would be more burdensome to affected private persons than the proposed regulation.

2. Description of reasonable alternatives considered that would lessen impact on small business.

   No alternatives were considered to lessen the impact on small business because small businesses are not subject to the ZEV regulations and would not be impacted by these proposed amendments

3. Evidence relied upon to support initial determination in the notice that the regulation will not have a significant adverse economic impact on business and individuals.

   The proposed amendments will not significantly affect businesses and individuals in California, since vehicle purchase price and model availability will not be adversely impacted. Numerous flexibilities exist in the ZEV regulation, and are continued in this rulemaking. It is difficult to predict how each regulated manufacturer will respond to the various flexibilities being modified in staff's proposal given continuing changes in the ZEV marketplace. However, in the aggregate, and based on discussions with stakeholders, staff does not expect that these changes would significantly alter the number of ZEVs delivered to California in any model year as described in Section III C. As a result, staff does not expect these amendments to have any ripple effect on the California economy.

4. Justification for adoption of regulations different from federal regulations contained in the Code of Federal Regulations

   Currently, there are no comparable federal regulations mandating auto manufacturers to produce TZEVs and/or ZEVs. California has authority to set its own standards to reduce emissions further to meet federal and state ambient air quality standards and climate change requirements and goals, and to require additional and separate reporting. The differing state requirements proposed are necessary to achieve additional benefits for human health, public welfare, and the environment as envisioned by authorizing legislation.

VII. SUMMARY AND RATIONALE FOR PROPOSED REGULATIONS

The need and rationale for the proposed amendments were detailed and discussed extensively in Section III. In this section, staff seeks to give a clear and simple description of the proposed amendments to the ZEV regulation.

Pursuant to Government Code sections 11346.2(b)(1) and 11349.1, and title 1, CCR, section 10, staff is providing a brief summary below that identifies each section in the regulation where amendments are proposed and describes the rationale for each

proposed amendment. Rationale is not provided for the lists of changes described below to the two test procedures documents that correspond with Sections 1962.1 and 1962.2 because those changes only reflect: (1) changes to Sections 1962.1 and 1962.2 for which rationale has already been provided, (2) changes to the effective periods of test procedures documents, or (3) the bifurcation of test procedures documents into two documents based on effective periods. Additionally, proposed modifications to the regulations that merely correct errors in the text or are editorial in nature are not summarized below.

Section 1962.1 Zero-Emission Vehicle Standards for 2009 through 2017 Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Summary of subdivision (d)(5)(B)
The purpose of this subdivision is to define "fast refueling capability", which is a requirement for vehicles to earn Type III, IV, and V ZEV credit.

Rationale for changes to subdivision (d)(5)(B)
Staff added language to this subdivision to clarify that the time period in question is the 12 months immediately subsequent to vehicle placement. This language was added because automakers had expressed concerns that vehicles placed in the latter part of a model year would not be able to count fast refueling events after the calendar year had ended and this was not staff's intent.

Section 1962.2 Zero-Emission Vehicle Standards for 2018 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Summary of subdivision (b)(1)(A)
This subdivision describes the percentage ZEV requirements that manufacturers must meet.

Rationale for changes to subdivision (b)(1)(A)
Staff adjusted the total ZEV credit obligation language in this subdivision downward because IVMs: (1) have not had the same opportunities under the existing regulatory provisions to bank ZEV credits, and (2) would otherwise have to offer an unreasonably high proportion of their sales as TZEVs due to the IVMs' lack of sufficient economic means to develop both TZEVs and ZEVs concurrently.
Summary of subdivision (b)(7)(A)
This subdivision describes the sales threshold that initiates transition from IVM to LVM status and the lead time provided to IVMs who make this transition.

Rationale for changes to subdivision (b)(7)(A)
Staff added global revenue test language to this subdivision because robust global revenue is, when combined with the existing vehicle sales threshold, a better indicator of an IVM's ability to bring advanced technology vehicles to market. Staff also modified the lead time provisions in this subdivision to provide those IVMs expected to transition to LVM requirements in 2018 and subsequent model years more lead time to bring

vehicle models to market. The lead time was increased because: (1) the existing lead time requirements are significantly shorter than typical product development timelines, and (2) the proposed extended lead time would be similar to the lead time provisions established for IVMs that transitioned to LVM status prior to 2018 in ZEV regulation versions predating the 2012 amendments.

Summary of subdivision (d)(5)(E)3
This subdivision specifies the requirements for manufacturers wishing to elect the optional Section 177 state compliance path, which allows manufacturers to pool credits across state lines within and between two regional pools in exchange for early additional ZEVs.

Rationale for changes to subdivision (d)(5)(E)3
Staff modified this subdivision to allow IVMs to place early ZEVs as late as the model year in which the IVM achieves LVM status and one subsequent year. This modification is needed because IVMs have few dealers in some of the Section 177 States and need the same ability as LVMs to pool ZEV and TZEV credits across state lines.

Summary of subdivision (g)(7)(A)
This subdivision describes the time period provided to IVMs to make up ZEV credit deficits.

Rationale for changes to subdivision (g)(7)(A)
Staff modified the language in this subdivision to provide IVMs additional time to make up deficits because: (1) the existing one year period may not provide sufficient time to address a potentially underperforming advanced technology vehicle model, and (2) IVMs have fewer compliance options than LVMs that, based on their more advanced stage of development, have placed products and banked ZEV credits. Staff also modified the language in this subdivision to allow IVMs to fulfill a ZEV credit deficit with TZEV credits because IVMs are only required to produce TZEVs and not ZEVs.

List of Changes to "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles in the Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicle Classes"

The list of titles of documents containing the additional requirements necessary to complete an application for certification of zero-emission vehicles and hybrid electric vehicles has been updated to reflect changes to the effective periods of some of those documents.

Section A. Applicability

This section has been updated to reflect changes to the effective periods of test procedures referenced within the Applicability section.

Section C. Zero Emission Vehicle Standards

The amendments made to section 1962.1 have been duplicated in this section of the test procedure.

Section F. Test Procedures for 2012 through 2017 Model Zero-Emission Vehicles (including Fuel Cell Electric Vehicles and Hybrid Fuel Cell Electric Vehicles) and All 2012 through 2017 Model Hybrid-Electric Vehicles, Except Off-Vehicle Charge Capable Hybrid Electric Vehicles.

This section has been updated to reflect a bifurcation of the GHG test procedures into two documents based on effective periods.

Section G. Test Procedures for 2012 through 2017 Model Off-Vehicle Charge Capable Hybrid Electric Vehicles.

This section has been updated to reflect: (1) a bifurcation of the GHG test procedures into two documents based on effective periods, and (2) an alternative to the test procedures.

Section G.8. 50^{o}F and 20^{o}F Test Provision for Off-Vehicle Charge Capable Hybrid Electric Vehicles.

This section has been updated to reflect a bifurcation of the criteria pollutant and GHG test procedures into two documents based on effective periods.

Section J. Test Procedures for 2009 through 2011 Model Zero-Emission Vehicles and Hybrid-Electric Vehicles.

This section has been updated to reflect the addition of the GHG emissions standards and test procedures document and a bifurcation of the two test procedures documents based on effective periods.

List of Changes to "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles in the Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicle Classes"

Section C. Zero Emission Vehicle Standards

The amendments made throughout section 1962.2 have been duplicated in this section of the test procedure.

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