

Responses to Comments
on the
Advanced Clean Cars Environmental Analysis



Released March 12, 2012
to be considered at the
March 22, 2012 Board Hearing

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1.0 INTRODUCTION

To meet the requirements of the California Environmental Quality Act (CEQA) under ARB's Certified Regulatory Program, the California Air Resources Board (ARB) staff prepared and circulated for public review the Environmental Analysis (EA) for the Advanced Clean Cars (ACC) Program, which analyzed amendments to California's Low-Emission Vehicle Criteria Air Pollutant and Greenhouse Gas (LEV III), Zero Emission Vehicle (ZEV), and Clean Fuels Outlet (CFO) regulations. The ACC EA was released for public review on December 12, 2011 for a 45-day public review and comment period that concluded on January 27, 2012 at the Board Hearing. ARB received 12 comment letters addressing the EA.

Comment letters received are posted in the comment logs on the ARB website at: <http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=leviiighg2012>, <http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=zev2012>, and <http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=cfo2012>.

ARB also received a number of oral comments at the Board hearing held on January 26 and 27, 2012.

On February 22, staff posted three 15-day change notices of modified regulatory text, one for each regulation that provided modified regulatory language based on staff's further suggested modifications, as released at the Board hearing and the Board's overall direction. One additional comment related to the EA was submitted during that comment period, which closed on March 8, 2012.

Staff prepared the following responses to public comments that will be considered by the Board at the March 22, 2012 public meeting.

This document presents verbatim the comments received that raise significant environmental issues and ARB's written responses to those comments. All comments have been reviewed and considered by ARB staff in preparing these responses. In accordance with ARB's Certified Regulatory Program and CEQA, the Board will consider the written responses to comments on the EA for approval prior to taking final action on the regulations that comprise the ACC Program.

This document includes responses to comments on the EA only. Staff will also prepare written responses to all public comments, not just EA comments, for purposes of the Administrative Procedures Act. The complete written responses to all comments will be included in the Final Statement of Reasons (FSORs) prepared for the each rulemaking. Upon their completion, the FSORs will be made available in electronic form on the ARB rulemaking webpage at:

<http://www.arb.ca.gov/regact/2012/leviiighg2012/leviiighg2012.htm>,
<http://www.arb.ca.gov/regact/2012/zev2012/zev2012.htm>, and
<http://www.arb.ca.gov/regact/2012/cfo2012/cfo2012.htm>

1.1 Requirements for Responses to Comments

Responses to public comments are prepared in compliance with the California Environmental Quality Act (CEQA) and with ARB's certified regulatory program, which states:

Public Resources Code (PRC) section 60007. Response to Environmental Assessment

(a) If comments are received during the evaluation process which raise significant environmental issues associated with the proposed action, the staff shall summarize and respond to the comments either orally or in a supplemental written report. Prior to taking final action on any proposal which significant environmental issues have been raised, the decision maker shall approve a written response to each such issue.

In CEQA, PRC section 21091 also provides direction regarding the consideration and response to public comments. While the provisions refer to environmental impact reports, proposed negative declarations, and mitigated negative declarations, rather than a certified regulatory program document, this section of CEQA contains useful information for preparation of a thorough and meaningful response to comments.

PRC section 21091(d) states:

(1) The lead agency shall consider comments it receives ... if those comments are received within the public review period.

(2) (A) With respect to the consideration of comments received ..., the lead agency shall evaluate comments on environmental issues that are received from persons who have reviewed the draft and shall prepare a written response pursuant to subparagraph (B). The lead agency may also respond to comments that are received after the close of the public review period.

(B) The written response shall describe the disposition of each significant environmental issue that is raised by commenters. The responses shall be prepared consistent with section 15088 of Title 14 of the California Code of Regulations, as those regulations existed on June 1, 1993.

Title 14 of the California Code of Regulations (CCR) (State CEQA Guidelines) section 15088 contains useful information and guidance for preparation of a thorough and meaningful response to comments. It states, in relevant part, that specific comments and suggestions about the environmental analysis that are at variance from the lead agency's position must be addressed in detail with reasons why specific comments and suggestions were not accepted. Responses must reflect a good faith, reasoned analysis of the comments.

Title 14 CCR section 15088 (a – c) states:

(a) The lead agency shall evaluate comments on environmental issues received from persons who reviewed the draft EIR and shall prepare a written response. The Lead Agency shall respond to comments received during the noticed comment period and any extensions and may respond to late comments.

(b) The lead agency shall provide a written proposed response to a public agency on comments made by that public agency at least 10 days prior to certifying an environmental impact report.

(c) The written response shall describe the disposition of significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections). In particular, the major environmental issues raised when the Lead Agency's position is at variance with recommendations and objections raised in the comments must be addressed in detail giving reasons why specific comments and suggestions were not accepted. There must be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice.

1.2 Comments Requiring Substantive Responses

Substantive responses are limited to comments that “raise significant environmental issues associated with the proposed action,” as required by PRC section 60007(a). Therefore, responses specific to comments made on the EA prepared for the ACC Program are provided, consistent with the provisions of PRC section 60007. As explained above, other substantive comments are responded to in writing in the FSORs. Where a comment raises both an issue related to and issues not related to the EA, the EA-related comments are responded to in this document and the reader is referred to the non-EA-related responses in the FSORs. ARB conservatively included comments and responses in this document if the comment raises an environmental issue even if the comment does not directly pertain to the adequacy of the EA.

2.0 RESPONSES TO COMMENTS

ARB received 12 comment letters that included comments that raised environmental issues and several oral comments during the January Board Hearing. The list in Table 1 identifies the commenters that submitted environmental comments and commenter information. The specific EA-related written comments are reproduced here verbatim from the comment letters. The comment letters are provided below in hyperlinked text. The associated attachments to the comment letters are provided at:

<http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=leviiighg2012>,
<http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=zev2012>, and
<http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=cfo2012>.

Table 1. List of Commenters

| Comment Number on ARB website | Commenter/ Affiliation | Link |
|--|---------------------------------------|--|
| Low-Emission Vehicle Criteria Air Pollutant and Greenhouse Gas (LEV III) Regulation | | |
| LEV III - L9 | Loren Marz | http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=leviiighg2012&comment_num=16&virt_num=9 |
| LEV III - L10 | Klaus Land, Mercedes-Benz | www.arb.ca.gov/lists/leviiighg2012/17-klaus_land_testimony_1-26-2012.doc |
| LEV III - L11 | LEV III 15-Day - 11 | http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=leviiighg2012&comment_num=88&virt_num=11 |
| LEV III - L29 | Chris Bliley, Growth Energy | http://www.arb.ca.gov/lists/leviiighg2012/37-carb_comments_01252012.pdf |
| LEV III - L34 | Azita Khalili, BMW | http://www.arb.ca.gov/lists/leviiighg2012/44-20120125_bmw_comments_ghg_leviii_final.pdf |
| LEV III - L38 | Katherine Yehl, Volvo Car Corporation | www.arb.ca.gov/lists/leviiighg2012/49-carb_clean_cars_package_vcc_comments_final.pdf |
| Zero Emission Vehicle Regulation | | |
| ZEV - L2 | Dan Mars | http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=zev2012&comment_num=4&virt_num=2 |
| ZEV - L74 | Loren Marz | http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=zev2012&comment_num=97&virt_num=74 |
| Clean Fuels Outlet Regulation | | |
| CFO - L8 | John Braeutigam, Valero | www.arb.ca.gov/lists/cfo2012/10-valero_comments_2012_proposed_amendments_to_the_clean_fuels_outlet_regulation.pdf |
| CFO - L15 | Daniel Sinks, Conoco Phillips | www.arb.ca.gov/lists/cfo2012/21-conocophillips_comments_1_2012_cfo_hearing.pdf |

Table 1. List of Commenters

| Comment Number on ARB website | Commenter/ Affiliation | Link |
|--------------------------------------|---|--|
| CFO - L26 | Cathy Reheis-Boyd, Western States Petroleum Association | http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=cfo2012&comment_num=34&virt_num=26 |
| CFO - L27 | Miles Heller, British Petroleum | www.arb.ca.gov/lists/cfo2012/35-bp_comments_to_carb_for_clean_fuel_outlet_regulation_-_final_1-25-2012.pdf |
| Transcript | Edward Olson, Jay Bajaria | http://www.arb.ca.gov/board/mt/2012/mt012712.pdf |

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**BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.
COMMENT 9 FOR LOW EMISSION VEHICLES III (LEVIIIIGHG2012) - 45 DAY.**

First Name: Loren
Last Name: Marz
Email Address: lmarz@charter.net
Affiliation:

Subject: Comments on LEV III Proposed Regulation

Comment:

While fully supporting the spirit of the proposed LEV III Regulation, it doesn't appear that the impacts of a significant shift to "ZEV" technology such as electric vehicles (EV) have been fully considered.

According to a National Academies report (National Academies, "Hidden Costs of Energy: Unpriced Consequences of Energy Production

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and Use.")...

"...Electric vehicles and grid-dependent (plug-in) hybrid vehicles showed somewhat higher nonclimate damages than many other technologies for both 2005 and 2030. Operating these vehicles produces few or no emissions, but producing the electricity to power them currently relies heavily on fossil fuels; also, energy used in creating the battery and electric motor adds up to 20 percent to the manufacturing part of life-cycle damages...."

This is supported by the latest version of Argonne National Laboratory's GREET model (GREET1_2011 - <http://greet.es.anl.gov/>) which shows that WTW emissions of particulate matter (PM) in California are higher for EV technology than current "clean diesel" technology. Based on the default "mid-sized" vehicle assumed in GREET for the year 2020...

WTW PM10 (diesel) = 0.004 (Feedstock) + 0.009 (Fuel) + 0.030
(Vehicle Operation) = 0.043 g/mi

WTW PM10 (EV) = 0.060 (Feedstock) + 0.006 (Fuel) + 0.021 (Vehicle
Operations) = 0.087 g/mi

WTW PM2.5 (diesel) = 0.003 (Feedstock) + 0.005 (Fuel) + 0.016
(Vehicle Operations) = 0.024 g/mi

WTW PM2.5 (EV) = 0.015 (Feedstock) + 0.004 (Fuel) + 0.007 (Vehicle
Operations) = 0.026 g/mi

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Cont'd

LEVIII - 9 - Loren Marz

Comment Log Display

http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=leviiiighg2012&comment_num...

All of these values are based on the California electric generation mix assumed in GREET in 2020.

Exhaust PM from the diesel vehicle assumed in GREET = 0.009 g/mi (PM10); 0.0084 g/mi (PM2.5).

Furthermore, based on certified emissions of the 2003 VW Jetta TDI (example of an "old tech" diesel vehicle), exhaust PM emissions = 0.05 g/mi
(http://www.arb.ca.gov/msprog/onroad/cert/pcltdtmv/2003/volkswagen_pc_a00702)

$0.05 - 0.009 = 0.041$ g/mi more exhaust PM for the "old tech" diesel than that assumed for "clean diesel" in GREET.

0.043 g/mi + 0.041 g/mi = 0.084 g/mi WTW PM10 for the "old tech" diesel car, actually less than the 0.087 g/mi WTW PM10 calculated by GREET for EV in California for 2020.

"Old tech" diesel vehicles have been effectively banned for many years under LEV II regulations, to the Air Resources Board's credit, yet mandates are being proposed for vehicle technology (e.g., EV) which may actually increase PM emissions from a WTW perspective above "old tech" diesel engine technology. EPA acknowledges in the Draft RIA for the Proposed Rule to Extend the National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks - Docket ID No. EPA-HQ-OAR-2010-0799, that all PM2.5 is treated as equally potent in causing premature mortality regardless of source (page 6-35 of the Draft RIA), even

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Cont'd

LEVIII - 9 - Loren Marz

Comment Log Display

http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=leviiiighg2012&comment_num...

specifically mentioning PM2.5 from diesel engine sources. So there appears to be no valid reason from a public health perspective to displace the reduction in PM2.5 emissions from diesel engines with increased PM2.5 emissions from power plants to support EV/PHEV technology. The regulatory push for these "advanced technologies" defies logic from an emissions perspective.

A massive shift to EV/PHEV technology would potentially offset gains made from diesel PM emission reduction mandates. It appears superfluous to propose significant reductions in PM emissions from gasoline/diesel vehicles under LEV III to trivial levels (which I support) yet essentially mandate technology which not only doesn't decrease WTW PM emissions from current technology, it increases WTW PM emissions with respect to pre-2004 (Tier 1) diesel vehicles.

I would like to state unequivocally that I support EV/PHEV technology for certain niches (e.g., urban commuter travel), but upstream emissions of this technology really need to be taken into account.

As a disclaimer, I am in no way associated with the auto industry or any support industries to the auto industry, including diesel engine manufacturers.

Thank you for your consideration of these comments.

Respectfully submitted,

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Cont'd

LEVIII - 9 - Loren Marz

Comment Log Display

http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=leviiiighg2012&comment_num...

Loren Carl Marz, Certified Consulting Meteorologist (#591)

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2012-01-23 11:01:37

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Cont'd

If you have any questions or comments please contact [Clerk of the Board](#) at (916) 322-5594.

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LEV III – L9 Response

9-1 The commenter expresses that “While fully supporting the spirit of the proposed LEV III Regulation, it doesn’t appear that the impacts of a significant shift to “ZEV” technology such as electric vehicles (EV) have been fully considered.” According to a National Academies report (National Academies, "Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use.")...

"...Electric vehicles and grid-dependent (plug-in) hybrid vehicles showed somewhat higher nonclimate damages than many other technologies for both 2005 and 2030. Operating these vehicles produces few or no emissions, but producing the electricity to power them currently relies heavily on fossil fuels; also, energy used in creating the battery and electric motor adds up to 20 percent to the manufacturing part of life-cycle damages...."

ARB prepared an EA for the proposed ACC Program (Appendix B) in accordance with CEQA and its certified regulatory program. The EA analyzes the potential environmental impacts associated with the reasonably foreseeable compliance responses of the regulated community. Discussions related to increased electricity charging infrastructure and demand is located on pages 125 and 126 of Appendix B. ARB found that the charging of battery electric vehicles (BEVs) and transitional zero emission vehicles (TZEVs) has the potential for both positive and negative effects to the electric grid for which timing of charging is a key determining factor. For residential charging, the general case is that the vehicle will begin charging after it arrives at home and is plugged in, typically 5-6 p.m.; however, only about 12 percent of vehicles arrive home during this hour, leading to a distribution of charging onset times. This results in an effective peak charging load of about 700 watts per vehicle. Thus, while residential charging power levels vary from about 1.4 to 7.7 kilowatts, the average effect of a single vehicle on the electric system is far lower. There are significant efforts underway to alter the load shape generated by vehicle charging, whether by use of electricity pricing incentives, actively managed or smart charging, or onboard programming of charging times. These would have the effect of moving the load off the peak. At a system level, due to diversity, the electricity demand of these types of vehicles is relatively low, resulting in minimal effects to utility generation and transmission assets, particularly in the near term. According to the Electric Power Research Institute, the potential stresses on the electric grid can be avoided through asset management, system design practices, and managed charging to shift a significant amount of the load away from system peak (Electric Power Research Institute 2011). Please also refer to response LEV III – L34-1.

Klaus Land
Senior Manager, Certification, Environment and Regulatory Affairs
Mercedes-Benz

Testimony
California Air Recourses Board
Public Meeting
LEV III, CFO, ZEV

January 26th, 2012

Note: Actual speech may vary from this script

Madame Chair and Committee Members,

I am Klaus Land, representing Mercedes-Benz. It is an honor to be here today to comment on the proposed regulations that are before you. The state of California is a very important market for Mercedes-Benz, so it is critical that we pay close attention to the needs our customers in California and the other "177" states as we address the proposed regulations.

First, I would like to thank the ARB staff for their tireless effort to work with industry and Mercedes-Benz over the last two years to develop these regulations. It was a very challenging but also a very constructive manner which directly contributed to what we believe in challenging regulations that address the need for cleaner, more efficient vehicles with the realities of consumer demand and technology.

Second, I would like to make comments on 3 important topics:

First topic : US06 PM standard for PC.

There is only one issue in the LEV III criteria pollutant amendment that I would like to raise to the level of this Board.

ARB staff is proposing a new US06 PM Standard of approx. 90% reduction. Due to very short notice industry is still trying to determine the possibility to reach this extremely low standard. Where we and also independent research institutes have concerns is the effect this

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standard will have on new technologies, especially low-powered, downsized engine technologies and range extenders that will be necessary to meet the new Green House Gas standards. Recent vehicle testing has shown that **these PM standards are not achievable for vehicles with these new technologies.** We recommend a PM standard for passenger cars and light duty trucks of 25 mg/mi or as an alternative a SFTP standard of 10 mg/mi composite. This composite formula is also used for other limited criteria pollutants in the LEV III regulation. Real world data from EPA and industry show that US citizens don't drive like the US06 test cycle and therefore there is no negative impact on the environment if ARB will agree to this proposal.

On the other side the CO₂ benefit will be extremely high by bringing low powered vehicles into the US market as they are available in the European Union with more than 20 different models.

Second topic: Lack of public fueling hydrogen infrastructure.

Mercedes-Benz is commercializing green house gas reduction technologies including diesel, hybrid, plug-in hybrid, battery electric and fuel cell vehicles. Our concern is the lack of public fueling infrastructure. The Clean Fuels Outlet amendments will assure that ultra-clean fuels such as hydrogen are available to meet vehicle demands brought on by the commercialization of Fuel Cell Vehicles and proposed amendments to the ZEV regulation.

Mercedes-Benz has almost 20 years of Fuel Cell Development and more than 5 million miles of worldwide operation. More than 1,5 billion US dollars have been invested in technology development. We continue to invest at an annual rate of 30 million dollars into product engineering. 50 million dollars have been invested in starting small volume production of fuel cell stacks the first half of this year. A plan is in place for high volume production ramp up in the years 2015-2017.

Fuel Cell Vehicle Technology has reached a level of maturity and is ready to begin commercialization. Growth of Fuel Cell Vehicle market is highly dependent on area-wide availability of hydrogen refueling

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cont'd

stations. As in LEV III, Mercedes-Benz has only one request to the Board on how to improve the CFO – and that is to lower the regional activation trigger. Staff is proposing to add a 10,000 regional vehicle activation trigger that would apply to an air basin before the statewide trigger of 20,000 is reached. We propose a 2,000 regional vehicle trigger for an air basin. The lower trigger complements auto manufacturers' early commercialization plans to market Fuel Cell Vehicles in regional clusters and ensures infrastructure will be there when the vehicles are delivered.

Third and final topic: Zero Emission Vehicle Program.

Finally, the Zero Emission Vehicle Program, while very aggressive, offers flexibilities that we support including TZEV and BEVx. These vehicles use technologies and infrastructure that will advance the commercialization of Zero Emission Vehicles. No ZEV credit should be granted for National GHG over-compliance. This flexibility does not achieve the objective of the ZEV program, and will reduce the number of ZEVs on the roads in California. This will slow the deployment of the required vehicles and infrastructure.

Thank you for considering these important topics.

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LEV III – L10 Response

10-1 The commenter expresses that “ARB staff is proposing a new US06 PM Standard of approx. 90% reduction. Due to very short notice industry is still trying to determine the possibility to reach this extremely low standard. Where we and also independent research institutes have concerns is the effect this standard will have on new technologies, especially low-powered, downsized engine technologies and range extenders that will be necessary to meet the new Green House Gas standards. Recent vehicle testing has shown that these PM standards are not achievable for vehicles with these new technologies. We recommend a PM standard for passenger cars and light duty trucks of 25 mg/mi or as an alternative a SFTP standard of 10 mg/mi composite. This composite formula is also used for other limited criteria pollutants in the LEV III regulation. Real world data from EPA and industry show that US citizen don’t drive like the US06 test cycle and therefore there is no negative impact on the environment if ARB will agree to this proposal. On the other side the CO₂ benefit will be extremely high by bringing low powered vehicles into the US market as they are available in the European Union with more than 20 different models.”

Although this comment does not directly relate to the adequacy of the EA prepared for the proposed ACC Program, and therefore, no written response is required in accordance with ARB’s certified regulatory program at CCR section 60007, subdivision (a), this comment is responded to in this document because it mentions potential impacts on the environment.

The SFTP PM standards were based on testing of a wide range of vehicles, which showed that, even at high mileage on some older vehicles with gasoline direct injection (GDI), there is no evidence that manufacturers will have difficulty meeting the proposed 10 mg/mi standard. Although Mercedes-Benz has raised the concern that potential future vehicles with low power-to-weight ratios may not be able to meet the proposed standard, based on testing at ARB facilities and discussions with other manufacturers, staff firmly believes that with properly designed engines the 10 mg/mi standard is achievable, even considering power-to-weight ratios. Therefore, staff does not support Mercedes Benz’s recommended alternate standards which would loosen their stringency. Additionally, data shows that vehicles in the real world are sometimes driven in the aggressive manner accounted for by the US06 cycle. For this reason, staff believes that the US06 cycle is appropriate.



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March 8, 2012

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

Re: Alternative Phase-in Schedule for Particulate Standards

Dear Chairman Nichols and members of the Board,

The International Council on Clean Transportation submits this letter in response to your request for public comment given in your "Notice of Public Availability of Modified Text and Availability of Additional Documents and Information" posted February 22, 2012 as part of the process of adopting amendments to the Low Emission Vehicles Program (LEV III). We have reviewed the enclosures to the notice and have concerns regarding the proposed *alternative phase-in schedule for particulate standards* contained in Enclosure A.

In this notice, staff propose an alternative compliance pathway for manufacturers of passenger cars and light-duty trucks required to be 100 percent compliant with a 3 mg/mi standard in 2021 and a 1 mg/mi standard in 2028. It establishes a crediting scheme that awards automakers for more rapid introduction of vehicles that meet these new standards. While we are not opposed in principle to alternative compliance pathways, since they do provide useful flexibility to automakers, we do question the need for this alternative for meeting the particulate matter standards. There are currently multiple pathways for meeting a 3 mg/mi and 1 mg/mi standard using existing technology that includes gasoline port-fuel injection engines, center-mounted injection and improved injection timing for gasoline direct injection engines, after treatment using affordable wall-flow gasoline particulate filters, diesel vehicles fitted with diesel particulate filters, improved management of engine oil consumption, and introduction of alternative fuel vehicles including natural gas and electric. In our view, the proposed phase-in schedule for both the 3 mg/mi and the 1 mg/mi standards provides adequate flexibility that automakers are already well suited to meet. It is also our view that an alternative compliance scheme would be more appropriate in the 2017-2025 time period if credits were made applicable toward to the more stringent 1 mg/mi standard rather than the 3 mg/mi standard.

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Nonetheless if staff conclude after reviewing the above options that additional flexibility is necessary and that only an alternative compliance mechanism can provide this, we strongly urge a reconsideration of the proposed crediting scheme. Under the proposed scheme, a manufacturer would be permitted to introduce no more than 22% of new vehicles meeting a 3 mg/mi standard in the year 2020, as opposed to the 70% that would be required under the current phase-in schedule. In addition, an automaker may choose to meet this with essentially no change to existing vehicle or engine technology until 2021. Even more, an automaker would be permitted to introduce higher emitting vehicles in each of the five years leading up to 2021. These vehicles would be permitted to emit as much as 10 mg/mi, which some gasoline direct

Beijing

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injection engines could approach¹. In a worst-case scenario, the proposed alternative compliance scheme could result in a significant net increase in particulate emissions compared with the current phase-in schedule.

The language of the alternative compliance proposal makes clear that the intent is to provide flexibility to automakers "... as long as equivalent PM emission reductions are achieved ...". However, this intent is not borne out by the proposed crediting scheme. First, the proposed language does not make clear that 100% compliance is required in the years 2021 and 2028 with a 3 mg/mi and 1 mg/mi standard, respectively. It is not our belief that staff intends to eliminate this requirement. Language should be added to the proposal to make absolutely clear the requirement remains in place. Second, the crediting scheme considers only the share of vehicles that meet the revised standard when it should be based on the emissions themselves. Staff should reconsider their crediting scheme and restructure it such that changes in emissions are weighted rather than changes in fleet mix. These improvements are necessary to ensure that the alternative compliance mechanism achieves the same emission reductions as the current proposal.

In summary, the proposed alternative compliance mechanism for meeting the proposed LEV III particulate matter standards is flawed and should not be adopted in its current form. Staff should reconsider and revise their proposal such that (1) 100% compliance with a 3mg/mi and 1mg/mi standard is required in each of the years 2021 and 2028; and (2) either no alternative compliance pathway is provided, or a restructured alternative compliance pathway is provided that ensures no net increase in emissions relative to the original phase-in schedule.

We hope these comments provide productive feedback, and we are happy to respond to any follow-up questions you or your staff may have. Please communicate directly with Ray Minjares, Program Lead of the ICCT Climate and Health Program via email at ray@theicct.org or by phone at 415-202-5748. As always, we very much appreciate your efforts that have made California a leader in adopting the world's cleanest vehicles.

Best wishes,

Alan Lloyd,
President
International Council on Clean Transportation

Cc James Goldstene

¹ See Table 3 in <http://www.arb.ca.gov/regact/2012/leviiighg2012/levapp.pdf>

LEV III – 15-Day - L11 Response

- 11-1 The commenter expresses that “Under the proposed scheme, a manufacturer would be permitted to introduce no more than 22% of new vehicles meeting a 3 mg/mi standard in the year 2020, as opposed to the 70% that would be required under the current phase-in schedule. In addition, an automaker may choose to meet this with essentially no change to existing vehicle or engine technology until 2021. Even more, an automaker would be permitted to introduce higher emitting vehicles in each of the five years leading up to 2021. These vehicles would be permitted to emit as much as 10 mg/mi, which some gasoline direct injection engines could approach¹. In a worst-case scenario, the proposed alternative compliance scheme could result in a significant net increase in particulate emissions compared with the current phase-in schedule.

Although this comment does not relate directly to the adequacy of the EA or its impact analysis, this comment is being responded to in this document because the commenter asserts that there may be an increase in criteria pollutant emissions as a result of the Alternative Compliance Phase-in provision. The Alternative Compliance Phase-in is designed to provide equivalent emissions reductions, and an increase in emissions is highly unlikely. However, in fall of 2012, when a National greenhouse gas program is in place, ARB will revisit the Alternative Particulate Phase-in provision, and clarify that 100 percent compliance is required for the final year of phasing.

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777 North Capitol Street, NE, Suite 805, Washington, D.C. 20002
PHONE 202.545.4000 FAX 202.545.4001

GrowthEnergy.org

January 25, 2012

California Air Resources Board
1001 I Street
Sacramento, California 95812

Dear Chairwoman Nichols and Members of the Air Resources Board:

Growth Energy is the leading trade association for America's ethanol producers and supporters. Growth Energy promotes expanding the use of ethanol in gasoline, decreasing our dependence on foreign oil, and creating American jobs here at home. We are pleased to have this opportunity to provide comments at the public hearing to consider the "LEV III" amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emissions Standard and Test Procedures and to the On-Board Diagnostic System Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and to the Evaporative Exhaust Requirements for Heavy Duty Vehicles.

Our comments focus on two priorities:

First, we believe that by removing incentives to produce flexible fuel vehicles (FFVs) for the model year 2016 and later years, the proposed amendments will cause automakers to cease production of FFVs, and that any greenhouse gas benefits of the Federal Renewable Fuel Standard will be lost. We recommend projecting ethanol usage factors for FFVs, so that the automakers can incorporate the projected usage into their planning decisions for the future.

Second, CARB and the EPA have long recognized that vehicle technology and the fuel employed with that technology need to work in concert as an integrated "system" so that vehicles can operate efficiently and achieve the lowest technologically emission targets. We believe that CARB did not completely examine the impact of fuel parameter changes that could enable additional engine technologies to improve efficiency and ultimately improve emissions. Specifically, we are recommending one new fuel for vehicles model year 2017 and later (in addition to legacy FFVs) with an octane rating of 94 accomplished with a 30 percent blend of ethanol (E30). This new fuel used in conjunction with new engine technologies would provide even more clean air benefits than CARB is currently proposing. CARB is obligated by the California Government Code, the California Environmental Quality Act, and the California Health and Safety Code to propose and adopt only those regulations that maximize public benefits, minimize public and private costs, and afford maximum protection to the environment in a cost-effective manner. Those requirements can only be met by reducing vehicular emissions through new fuel standards.

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Attached you will find our basis and support for these recommendations, and we would urge you to consider our recommendations as you finalize your greenhouse gas and vehicle emission program. We would be happy to work with you and your staff to provide whatever information you may need as this program will have far reaching impact on both the automotive and fuel industries for years to come.

If you have any questions, please contact Chris Bliley, Growth Energy's Director of Regulatory Affairs, at 202-545-4000. Thank you in advance for your consideration.

Sincerely,



Tom Buis, CEO

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LEV III – L29 Response

29-1 The commenter expresses that "...CARB and the EPA have long recognized that vehicle technology and the fuel employed with that technology need to work in concert as an integrated "system" so that vehicles can operate efficiently and achieve the lowest technologic(ally) emission targets. We believe that CARB did not completely examine the impact of fuel parameter changes that could enable additional engine technologies to improve efficiency and ultimately improve engines. Specifically, we are recommending one new fuel for vehicles model year 2017 and later (in addition to legacy FFVs) with an octane rating of 94 accomplished with a 30 percent blend of ethanol (E30). This new fuel used in conjunction with new engine technologies would provide even more clean air benefits than CARB is currently proposing. CARB is obligated by the California Government Code, the California Environmental Quality Act, and the California Health and Safety Code to propose and adopt only those regulations that maximize public benefits, minimize public and private costs, and afford maximum protection to the environment in a cost-effective manner. Those requirements can only be met by reducing vehicular emissions through new fuel standards."

The commenter advocates a new fuel standard to reduce vehicular emissions that falls outside the scope of the proposed ACC Program analyzed in the EA. The EA was prepared for the ACC Program in accordance with ARB's certified regulatory program and CEQA. This comment and a response is included in this document because it mentions the California Environmental Quality Act. However, this comment does not directly relate to the adequacy of this EA prepared for the proposed ACC Program, therefore, no further written response is required in accordance with ARB's certified regulatory program at Title 17 CCR section 60007, subdivision (a). Please refer to the FSOR prepared for the LEV III regulation for staff response as to why this recommendation is rejected.

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BMW Group

January 25th 2012

Mr. James Goldstene
Executive Officer
California Air Resources Board
1001 I Street,
Sacramento, California 95814

Re: BMW Comments on the Proposed LEV III and GHG Emission Standards

Dear Mr. Goldstene,

On behalf of BMW AG, BMW of North America, LLC (BMW), BMW appreciates the opportunity to comment on the proposed amendments to the criteria and greenhouse gas regulations (LEV III & GHG). BMW comments and recommendations on the Zero Emission Vehicle (ZEV) and the Clean Fuel Outlet (CFO) regulations are addressed in a separate letter.

In keeping with our corporate commitment to reducing greenhouse gases, BMW commends ARB for listening and collaborating with automakers in their efforts toward developing this complex ISOR covering model years 2017 to 2025. Additionally, we commend both EPA and NHTSA for their collaboration with ARB toward a single national standard that includes their targets. This would also ensure wise financial and resource investments by the auto industry, as well as increased energy security for the nation.

1. General Comments

BMW strongly supports the continuation of a single national program with the EPA/NHTSA MY 2017-2025 rulemaking in order to avoid conflicting and counter-productive regulations. In July, 2011, we submitted a letter of commitment in support of the proposed framework.

To that end, we are very supportive of close cooperation between ARB and federal authorities to develop these standards nationwide. Any action taken in isolation should be avoided; as such an approach may lead to yet another patchwork situation. Therefore, we strongly recommend a single national standard or at least a one to one standard. Continuation of two different standards needs at least the possibility to choose between the standards.

We support fiscal incentives as an additional means to increase the market uptake of more fuel efficient vehicles and improve customer acceptance of fuel saving measures provided they do not distort the development of technology or the market, reward innovation in all market segments equally, and avoid a fragmentation of the US car market.

BMW supports the comments of the Alliance of Automobile Manufacturers addressing the LEV III and GHG regulation. In addition to those comments, BMW has identified some issues where we have major concerns. The following issues are of particular importance to us.

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2. Comments on GHG

• Upstream Emissions – Proper Allocation of Responsibilities

ARB's ISOR proposes the inclusion of upstream emissions in the compliance calculation of standards for automakers which seems to be in contradiction to the federal NPRM. The standards proposed in the ISOR seem to be very similar to the proposed federal standards, but there are fundamental structural differences in achieving these standards. BMW requests that CARB not only set standards comparable to the federal ones but also incorporate the same fundamental structure for achieving these standards. It is our understanding that a single national standard is built on almost complete harmonization of standards and procedures.

ARB's view is not justified, that within a national context there are expected to be significantly lower shares of electric and fuel cell vehicles than in California and higher national grid GHG emissions, and therefore, any non-zero upstream crediting serves as a lesser relative incentive for BEV and PHEV than the proposed ARB GHG crediting based on California's low-GHG grid. Manufacturers are not able to influence the grid mix and therefore differentiating between CARB States and the others in regard to upstream emissions should be avoided. Every such vehicle needs to be counted as zero upstream emissions. Any crediting above zero is a disincentive.

It is a principal question whether automakers are responsible for inclusion of upstream emissions in their compliance calculations or not, and this question is independent from the emission level of the electricity grid. BMW accepts the responsibility of car makers for the vehicle efficiency by which their products use energy – no matter which fuel or energy source. But manufacturers have no control over the carbon content of electricity generation and cannot be held responsible for energy mix decisions made decades ago.

While it is also acknowledged that the upstream impact of electricity generation needs to be addressed politically at the point of responsibility in order to ensure the credibility of a policy supporting the electrification of road transport, strategic decisions to be taken by car manufacturers for the decades to come should not be burdened by past decisions taken in other sectors: If upstream emissions would be allocated, the comparative advantage of electric vehicles dwindles. Clean Diesel in this case may achieve similar GHG emission reduction results at much lower costs. The attractiveness of electric vehicles for vehicle manufacturers would significantly decrease. Therefore, BMW continues to maintain that electric vehicles, on the merits of their own carbon use, should be counted as zero grams-per-mile vehicles in the greenhouse gas regulations for 2017-2025.

• Multiplier incentives for electric vehicles

ARB's ISOR does not include the multiplier incentives for electric vehicles as proposed in the federal NPRM. According to ARB, the proposed ZEV regulation sets sufficient incentives for their market penetration and therefore additional incentives through e.g. multipliers are not needed. This view is not shared by BMW.

Multiplier incentives were part of the proposed framework as announcement by President Obama at the end of July 2011. Depending on automakers strategy and product characteristics, electric

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vehicles and/or fuel cell vehicles will play a more or less important role in future standards compliance. Without multiplier incentives, standards compliance may be jeopardized due to the proposed very ambitious GHG standards for model years 2017-2025. The BMW commitment to the GHG rules, which has been shown with the signed letter by our CEO Dr. Reithofer and at the White House event in July 2011, has been clearly linked to a complete adoption of the proposal including all flexibilities, such as MAC credits, zero-gram upstream approach multipliers etc. Our calculation of technical ability under the existing market conditions for achieving these very ambitious goals was completely based on the introduction of these flexibilities.

BMW believes that any variation to the federal NPRM, such as different counting of upstream emissions or consideration of different flexibilities, is not goal-oriented towards achievement of single national standards.

- **N2O and CH4 provisions**

BMW supports the option to convert measured N2O and CH4 emissions that are above the applicable standards into CO2-equivalent emissions for compliance purposes. The calculation of emission debits on this basis allows them to be offset by other GHG reduction measures. While leading to the same overall GHG reduction impact, this option provides flexibility and still gives an incentive to further work on the reduction of N2O and CH4 emissions.

- **Continuing A/C credits approach is supported**

- o From our point of view, adequate availability of R123yf is highly questionable. Therefore, we greatly appreciate CARB's decision regarding the future adoption of this refrigerant. Currently, no one knows when the supply will be adequately established in the market.

- o Credit generation regarding direct (leakage) and indirect (fuel efficiency) emissions is generally supported. Details to be modified from our point of view are listed below. The aim is to ensure best objective methods as well as practicability and fairness.

- o Regarding leakage related credits, we would like CARB to reconsider the so called "HiLeakDisincentives". We feel that it must not be allowed to use any unintended fluid or refrigerant in any A/C system. If someone does so, then it would violate the law. So the effects of illegal refrigerant charge cannot be influenced by the manufacturer. Furthermore, this disincentive provokes discussions to use unintended refrigerants. We do not expect that vehicle manufacturers will shift to higher potential leakage rates when using R1234yf instead of R134a – BMW would definitely not do so and our focus will remain on best quality refrigerant circuit tightness for any given refrigerant.

- o Regarding fuel efficiency credits, we provide the following comments and recommend some specific changes.

- AC-idle:
We support the review of AC-idle judgment limits as a function of engine displacement. This supports implementing fuel efficient technologies also in smaller vehicles even

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when fuel consumption improvements – which definitely have positive effects during over all typical driving conditions – are not fully visible during small engines idling.

- AC17 test and evaluation:
 - We carried out our own AC17 tests after the NPRM publication.
 - In our opinion, the AC17 test conditions do not reflect typical average or moderately increased air conditioning loads. Especially the solar load is too high. E.g. according to a FAT study the average North American sun load is around 310 W/m² - already taking into account that driving time periods are variable during a day (e.g. less driving at night). We therefore would expect a maximum value of around 350 W/m² to 400 W/m² (instead of 850 W/m²) for AC17 test. Some of the powerful measures to lower all-the-year fuel consumption also can't be evaluated at the currently suggested AC17 test load – e.g. significant reduction of reheat.
 - Reliability of test data is expected to be not better but similar to AC-idle-test.
 - Definition of platforms or carlines could be adopted according to the Alliance proposal.
 - We are also concerned about determining fuel consumption improvements and credit calculations depending on baseline test results. The generation of baseline car results needs to be properly defined. BMW does not have baseline cars – especially focused on 2017 – they have to be designed and built up for this single test. Therefore, we propose to test a baseline car once for each platform – according to the Alliance carline definition – and the use of these baseline results should be allowed during the entire model year 2017 to 2025 timeframe.
- AC17 test procedure
 - During the 30 minute soak, it is quite difficult to control temperature and humidity properly. A wider tolerance range in this phase of the cycle would help. Even more critical for some modern full automatic test benches is the combination of engine off and 4 mph wind speed because this has significant impact on exhaust gas analysis measurement devices.

We would prefer a soak definition with a wider tolerance range of temperature and especially humidity and a speed definition of maximum 4 mph (instead of exactly 4 mph).
 - Solar load during MAC off phases causes extreme temperature exposure to test drivers. These working conditions are unacceptable and will lead to poor accuracy when trying to meet the given drive cycle requirements. We suggest running MAC off phases without solar load. As MAC is turned off, this has no impact on MAC off fuel consumption.
 - Drive cycle definitions should be fully equal to currently used cycles (e.g. some seconds time shift @ HWFET). This would help to keep accuracy and test quality high and to avoid mistakes.

3. Comments on LEV III

BMW strongly supports one of the primary goals in the LEV III regulation – harmonization of the federal and the California criteria emission program. In accordance with the Alliance of Automobile Manufacturers (Alliance) the following issues are of particular importance:

- Harmonization is needed for ARB and U.S. EPA test procedures, certification processes, phase-in requirements, vehicle standards, fleet averages, and certification fuels in order to establish a common set of vehicle criteria emission standards nationwide.

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- Stringent criteria emission requirements for LEV III and Tier 3 require the elimination of non-essential requirements and duplication of efforts (e.g. submission of certification data to the agencies, test procedures for PHEVs).
- Particulate Matter (PM) Standards:
 - o Technical feasibility of reaching the stringent SFTP single PM standard (10 mg/mile for PCs, 20 mg/mile for LDTs) do not appear to be achievable for all vehicles equipped with new technologies necessary to meet the GHG requirements.
 - o More flexibility in meeting the SFTP PM standard is essential for future development and leads to the following recommendation for the PM standard:
PM = 25 mg/mile for PCs and LDTs or 10 mg/mile composite as an alternative.
 - o Within the framework of a harmonized phase-in during 2017-2021, BMW believes it is possible to meet the FTP PM Standard 3 mg/mile, even though additional resources are needed to meet the new requirements with new test procedures and new facilities. However, the proposed MY 2025 FTP PM Standard of 1 mg/mile is considered impossible to achieve with the currently established as well as the under development measurement procedures. BMW recommends to eliminate the 2025 FTP PM Standard 1mg/mile from the regulations and to plan a review of the PM standards with ARB, U.S. EPA, and the industry. The review process should evaluate correlation and variability of new test procedures and facility requirements, consistency and repeatability of measuring PM at low levels (≤ 3 mg/mile), as well as an evaluation of alternative particulate test methods.

In addition to above mentioned comments on harmonization and PM standard, BMW recommends specific amendments on Appendix A, see attached.

BMW is committed to working constructively with ARB on this matter. If you should have any questions please contact me or Dr. Azita Khalili at (805) 271-7314.

Sincerely,


Thomas C. Baloga
Vice President, Engineering – US

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cont'd

cc: Mary Nichols
Tom Cackette
Bob Cross
Steve Albu
Paul Hughes

Enclosure

**Proposed LEV III and GHG Emission Standards,
BMW COMMENTS ON PROPOSED REGULATION ORDER**

- **Section § 1961 (b) (1) (B), page A-22:** Table c shows the applicable emission standards to be used in the fleet average equations. According to ARB’s Manufacturers Advisory Conversation on rounding of the equation, the results of the equation lead to different values for 2004 through 2014 model year vehicles certified to the optional 150,000 mile “LEV II” standards (e.g. ULEV for PCs and LDTs is 0.03 instead of 0.034). Please ensure the regulatory text does not retroactively change for manufacturers who have planned their vehicle certification in MY 2004 through 2014 based on ARB’s Manufacturers Advisory Conversation.
- **Section § 1961.2 (a) (7), page A-42:** BMW recommends to introduce a pooling provision for SFTP like it is already proposed for FTP in California, the District of Columbia, and all states that have adopted California’s criteria pollutant emission standards (see page A-54).
- **Appendix D, Test Procedure, page E-2** “ 1.1.1. LEV II Exhaust Standards. The following LEV II standards are the maximum exhaust emissions for the intermediate and full useful life from new 2004 through 2019 model year LEVs, ULEVs, and SULEVs, including fuel-flexible, bi-fuel and dual fuel vehicles when operating on the gaseous or alcohol fuel they are designed to use, except that for the 2015 through 2019 model years, SULEV exhaust standards shall only apply to vehicles that receive partial zero-emission vehicle credits according to the criteria set forth in section C.3 of the “California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles”

In the ZEV Standards and Test Procedures it is required that from MY 2015 all PZEV and TZEV must fulfill LEV III SULEV 30(20) and LEV III Evap. So the intention of the above limitation is unclear. BMW recommends to adjust the regulation language to ensure PZEVs certified under LEV II regulation may be carried over without limitation until MY 2017 and LEV III SULEVs certifications be allowed without limitations starting with model year 2014.

- Harmonizing of different phase-in requirements: depending on product line up, the different phase-in requirements for PM, FTP, SFTP and EVAP standards can lead to a number of model variants and unreasonably high burden for variants near end of model cycle. BMW recommends to allow an alternative harmonized phase in for different standards as follows:

| Phase-in | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|----------------------------|------------|------------|------------|------------|-------------|------|
| PM | 10% | 20% | 40% | 70% | 100% | |
| FTP | 10% | 20% | 40% | 100% | | |
| SFTP | 10% | 20% | 40% | 70% | 100% | |
| EVAP | | 60% | 60% | 80% | 80% | 100% |
| Harmonized Phase-in | 10% | 20% | 40% | 70% | 100% | |

- In addition to one single harmonized phase-in requirement for all criteria PM, FTP, SFTP, and EVAP), manufacturers should get more flexibility for aligning their model plans with the phase-in requirements by allowing an alternative phase-in with variation in the individual years if the same overall phase-in requirement 2017 to 2021 is achieved.

- **Appendix D, Test Procedure, page F-1** “ §86.1823 Durability demonstration procedures for exhaust emissions. ... 4.3 SFTP. These procedures are not applicable to vehicles certified to the SFTP standards set forth in section E.1.2.2.”

BMW understands DF's estimated through FTP Cycle may be applied to the LEV III US06 and SC03 emissions as well, in line with Tier 2 SFTP standards.

ⁱ **Section § 1961. (a) (1), page A-15** “(1) “LEV II” Exhaust Standards. The following standards are represent the maximum exhaust emissions for the intermediate and full useful life from new 2004 through 2019 ...”

ⁱⁱ **§ 1960.1. (r)** “4000-Mile Supplemental FTP Emission Standards. ... The SFTP exhaust emission levels from new 2001 through 2020 and subsequent model low-emission vehicles, ultra-low-emission vehicles and super-ultra-low-emission vehicles in the passenger car and light-duty truck class certifying to the LEV II exhaust emission standards in section 1961,” According to the Test Procedure page E-8 LEV II SFTP Standards could only be applied through MY 2018: “1.2.1 4,000-mile SFTP Exhaust Emission Standards for Light- and Medium-Duty Vehicles. The following standards represent the maximum SFTP exhaust emissions at 4,000 miles for 2015 through 2018 model year passenger cars, and ...”

LEV III – L34 Response

- 34-1 The commenter expresses that “Upstream Emissions – Proper Allocations of Responsibilities ARB’s view is not justified, that within a national context there are expected to be significant lower shares of electric and fuel cell vehicles than in California and higher national grid GHG emissions, and therefore any non-zero upstream crediting serves as a lesser relative incentive for BEV and PHEV than the proposed ARB GHG crediting based on California’s low-GHG grid. Manufacturers are not able to influence the grid mix and therefore differentiating between CARB States and the others in regard to upstream emissions should be avoided. Every such vehicle needs to be counted as zero upstream emissions. Any crediting above zero is a disincentive.

It is a principle question whether automakers are responsible for inclusion of upstream emissions in the compliance calculations or not, and this question is independent from the emission level of the electricity grid. BMW accepts the responsibility of car makers for the vehicle efficiency by which their products use energy – no matter which fuel or energy source. But manufacturers have no control over the carbon content of electricity generation and cannot be held responsible for energy mix decisions made decades ago.

While is also acknowledged that the upstream impact of electricity generation needs to be addressed politically at the point of responsibility in order to ensure the credibility of a policy supporting the electrification of road transport, strategic decisions to be taken by car manufacturers for the decades to come should not be burdened by past decisions taken in other sectors: If upstream emissions would be allocated, the comparative advantage of electric vehicles dwindles. Clean Diesel in this case may achieve similar GHG emission reduction results at a much lower costs. The attractiveness of electric vehicles for vehicle manufacturers would significantly decrease. Therefore, BMW continues to maintain that electric vehicles on the merits of the own carbon use, should be counted as zero grams-per-mile vehicles in the greenhouse gas regulations for 2017-2025.” Please see the comment letter shown above for other issues raised.

Although this comment does not directly relate to the adequacy of the EA prepared for the proposed ACC Program, and therefore, no written response is required in accordance with ARB’s certified regulatory program at CCR section 60007, subdivision (a), this comment is responded to in this document because it mentions a potential impact on emissions. The principle difference between California’s program and U.S. EPA’s is the ZEV mandate. Whether or not inclusion of upstream emissions of ZEVs will act as a disincentive to the manufacturers is irrelevant. The mandate requires a certain percentage of these vehicles to be marketed in California and the 177 states, regardless of how manufacturers choose to comply with California’s GHG standards. Regarding

the emission impact, under the California program any upstream emissions from ZEVs have to be offset by lower emissions from non-ZEVs. Therefore, removing the requirement would result in higher emissions in California. The LEVIII Staff Report indicates that ARB staff is proposing to credit electric- and hydrogen-powered vehicles according to their incremental emission impact from California-specific low-GHG upstream energy sources that are most likely in the timeframe of the regulation. Advanced electric-drive vehicles, including plug-in hybrid electric vehicle, battery electric vehicle, and fuel cell electric vehicle technology, can be driven primarily or entirely without tailpipe CO₂ emission emissions. Their associated GHG emissions are, instead, upstream from the vehicle at primary energy processing facilities, at electricity generation plants, and throughout the fuel and electricity distribution network. In order to structure the GHG program for the long-term for a diversity of vehicle fuel types, the regulation proposes the implementation of standards that incorporate the relative GHG emissions from battery electric vehicle, plug-in hybrid electric vehicle, and fuel cell electric vehicle technologies as compared to the conventional vehicles that primarily utilize gasoline. The intent then is to establish straightforward performance-based GHG emission provisions that accurately count the upstream emissions in a technology-neutral way that provides industry certainty to plan for GHG requirements as these more advanced ultra-low-GHG technologies enter the market.

Staff notes that its proposed crediting provision for battery-electric vehicle, plug-in hybrid electric vehicle, and fuel cell electric vehicle technology differs from the expected federal U.S. EPA GHG regulatory program. However, as directed by the Board in Resolution 12-11, staff "...will return to the Board with a new regulatory proposal to accept compliance with the 2017 through 2025 model year National Program as compliance with California's greenhouse gas emission standards in the 2017 through 2025 model years, if the Executive Officer determines that U.S. EPA has adopted a final rule that at a minimum preserves the greenhouse reduction benefits set forth in U.S. EPA's December 1, 2011 Notice of Proposed Rulemaking for 2017 through 2025 model year passenger vehicles." Accordingly, staff intends to propose two compliance options: (1) an automaker chooses to comply directly with California's standards including upstream accounting as specified here or (2) an automaker chooses to comply with the federal U.S. EPA standards; utilizes the federal accounting provisions for battery electric vehicle, plug-in hybrid electric vehicle, and fuel cell electric vehicle technologies in the federal standards; and receives the same federal accounting for these technologies within the California regulation. Staff believes that, consistent with their comments on the ACC program, manufacturers will ultimately choose compliance with the National Program, rendering the upstream emission issue moot.

Staff's non-zero-emission accounting for these technologies' incremental upstream emissions is justified for several reasons. Primarily, the ZEV regulation already requires electric-drive vehicles in California, therefore obviating the need

for special artificial crediting incentives. In addition, ARB's proposed GHG crediting more accurately depicts the science regarding known GHG impacts, more adequately sets the precedent for a future with increasingly more alternative fuel vehicles for 2025 and beyond, more assuredly protects against the environmental repercussions of foregone GHG emissions allowed from battery electric vehicle emission incentives, and better continues ARB's objective in keeping its performance standards technology-neutral. In addition, this accounting reflects California's purpose and intent to evaluate and reduce all GHG emissions – beyond tailpipe CO₂ – from all principal phases of passenger motor vehicle powering and use.

ARB's position on incorporating the incremental upstream emissions of electric and hydrogen fuel cell vehicles is further justified by several California-specific details that are different from the national US situation. The greater deployment of these advanced technologies in California fundamentally differentiates the State from the US context. The California ZEV regulation as proposed for amendment mandates that over 10% of the new vehicle fleet be some form of battery electric vehicle, plug-in hybrid electric vehicle, or fuel cell electric vehicle technology in 2025. In addition, California has complimentary programs (e.g., Low Carbon Fuel Standard and Renewable Portfolio Standard) that reduce upstream GHG emissions over time, rigorously track these emissions, and provide the basis for accurate GHG emissions accounting. According to staff's analysis, for California's relatively low-GHG electricity and hydrogen, these ZEV-type vehicles will achieve very low GHG emission ratings and therefore would naturally achieve substantially lower GHG emissions than any other known vehicle technologies (e.g., hybrids) by a large margin without artificial incentives.

Nevertheless, staff notes that accepting federal compliance (i.e., with federal upstream crediting incentives) remains valid, owing to the 50-state GHG reduction benefit greatly outweighing the California-alone GHG standard compliance, thus achieving additional emissions reductions benefiting California. Please also refer to response to LEV- III L9-1.

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Katherine H. Yehl
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January 25, 2012

The Clerk
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Subject: Volvo Car Corporation Comments on California's Clean Cars Package

Volvo Car Corporation (VCC) appreciates the opportunity to submit comments in response to California's proposed California's Clean Cars Package.

VCC supports the comments filed by the Alliance of Automobile Manufacturers (Alliance). VCC appreciates CARB staff efforts to engage the auto industry during the development of these regulations. VCC looks forward to continuing to work with CARB and would be pleased to discuss our comments in further detail with you or members of your staff.

If you need any additional information or have any questions, please do not hesitate to contact me. My contact information (including business address, telephone number, and email address) appears on the letterhead above.

Sincerely,

Katherine H. Yehl
Katherine H. Yehl
Director of Government Affairs North America
Volvo Car Corporation

Enclosures

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LEVIII - 38 - Katherine Yehl, Volvo Car Corporation

Volvo Car Corporation
January 25, 2012

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Volvo Car Corporation
January 25, 2012

Volvo Car Corporation (VCC) would like to provide its comments on California Air Resources Board's (CARB) proposed Advanced Clean Cars program. VCC supports the Advanced Clean Cars program but would like to draw attention to certain critically important issues relating to the proposed changes within LEVIII, ZEV and proposed changes in certification fuel.

VCC would like to emphasize that we appreciate the openness and transparency that has characterized CARB's development of the proposed regulations, and that this openness has been a key enabler for an intermediate manufacturer, such as VCC, to be able to make a reasonable estimation of what the future requirements may include. Similarly, we would also like to acknowledge that CARB's staff has regularly met with intermediate manufacturers regarding issues unique to this group.

VCC wants to be very clear that the proposed regulations are, and will be very challenging. One of the challenges is the pace of introduction of Advanced Technology Vehicles (ATV) to the market. CARB has been clear on what environmental needs are driving the aggressive introduction of ATVs, culminating in extraordinarily challenging requirements for Volvo as an intermediate manufacturer. We all need to recognize, however, that there is only limited ability to identify the mechanisms that will motivate tomorrow's consumers to actually purchase these highly advanced vehicles in requisite numbers, both to achieve the desired environmental impact and to provide economies of scale for smaller manufacturers.

As an intermediate manufacturer, VCC wishes to highlight some areas that are important to us.

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1. GHG LEV III & National Program 2017-2025

– *Harmonization*

In the early 2000's, CARB addressed climate change in its own greenhouse gas initiative.

Then, under the direction of the Obama administration, a national plan was initiated to require EPA and NHTSA, in cooperation with CARB and other states, to develop standards for greenhouse gas and fuel consumption for the period 2012-2016 in or to achieve requirements that could coexist.

VCC's conclusion is that the agencies successfully achieved this for the 2012-2016 timeframe. For VCC, as an intermediate manufacturer, this is of great importance and we want to be clear that we value this pursuit of efficiency. It supported the critical need of smaller manufacturers to reduce administrative costs.

– *Alignment with the Federal Program*

VCC is sympathetic to the myriad environmental challenges that weigh on the agencies in trying to reach their varied goals. However, it is of *utmost importance* that all agencies, as far as possible, collaborate to achieve common understanding wherever possible. Section 1961.3 provides a good example of how CARB can achieve a common approach to technical proposals that EPA and NHTSA have identified in their pending regulatory

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Volvo Car Corporation
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proposal. But such commonality is clearly lacking in other areas. Here are areas of particular concern.

- **Reciprocal Recognition:** The current draft does not make it clear that CARB intends to allow reciprocal recognition of the national greenhouse gas program, as was the case for model years 2012 to 2016. Technical alignment and efficiency are of utmost importance to VCC. Although CARB's actions may be somewhat constrained by the fact that a federal 2017-2025 program is not finalized, CARB's draft does not express even an optimistic intent to allow reciprocal recognition as a best-case scenario.
- At this stage of drafting, only minor differences remain between the CARB and federal proposals. CARB should acknowledge that, barring unforeseen changes, it intends to recognize the federal program as meeting CARB's own requirements.
- VCC seeks confirmation that CARB intends to make this commitment for model years 2017 through 2025.

– **Mid-term evaluation**

Mid-term evaluation will allow manufacturers and the agencies to consider whether the regulation is reasonable and on track in its assumptions. VCC supports a mid-term evaluation because it is very difficult to predict fifteen years into the future without making a vast number of assumptions. Customer acceptance, affordability (especially in light of the phase-out of many of the federal and state incentives), safety, convenience and utility should be examined in the mid-term evaluation.

It is therefore imperative that the industry and the agencies review and consider the outcomes of our work in 2012 in relation to the joint plan at the midpoint.

– **AC leakage determination**

VCC continuously develops its climate systems in order to reduce refrigerant leakage and to improve durability. VCC is convinced that physical measurements better reflect real vehicle emissions and also result in development of more robust air conditioning systems than calculations of theoretical estimates and allowances.

VCC strongly supports the Agency's intent to allow, as expressed in the draft's Appendix D, paragraph 2.5.6.3,¹ physical measurements of refrigerant leakage as an alternative to the latest version of SAE J2727.

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cont'd

¹ Appendix D "CALIFORNIA 2015 AND SUBSEQUENT....."
2.5.6.3 The calculation of A/C Direct Emissions Credit.... (page E-42)
Note: Initial leak rate is the rate of refrigerant leakage from a newly manufactured A/C system in grams of refrigerant per year. The Executive Officer may allow a manufacturer to use an updated version of the August 2008 version of SAE J2727 or an alternate method if s/he determines that the updated SAE J2727 or the alternate method provides more accurate estimates of the initial leak rate of A/C systems than the August 2008 version of SAE J2727 does.

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2. Criteria Emissions

– Harmonization with federal proposed Tier 3

VCC has actively worked with CARB toward development of the next generation of criteria pollutant regulations (LEV III). VCC values the open and interactive dialog that staff has had with the industry.

During 2010, EPA revealed its views about its next generation of regulations for criteria emissions (Tier 3). There is a clear indication that EPA and CARB intend to work together in order to harmonize their common targets in some areas, but there remain several critical issues and opportunities for reduced administrative burdens on both industry and CARB.

It is of utmost importance to VCC, as an intermediate manufacturer, that the agencies achieve harmonization to the greatest possible extent. The recent economic crisis, which resulted in an unprecedented contraction of the automotive market, was extremely challenging for all automakers and downright dire for many. This difficult period demonstrated that the requisite economic wherewithal for manufacturers to invest in new and reliable industrial development processes can evaporate almost overnight. This is important to note because investment in long-term development and testing procedures and facilities will form the critical foundation for meeting future technical requirements. Challenges like the financial crisis of 2008-2009 can result in manufacturers being forced to take drastic streamlining measures.

– PM

CARB has chosen to broadly seek to harmonize with the EPA's upcoming Tier 3 requirements to control particulate matter (PM) from gasoline-powered vehicles. However, there remain many discrepancies between the agencies' regulatory requirements that affect manufacturers' ability to meet these very stringent particulate requirements.

Among the most important of these discrepancies are the test methods that will be selected to measure the particles now and in the future. The other critical discrepancy is that CARB and EPA have different requirements for reference fuels.

In its Tier 3 plan, EPA has proposed test methods for particulate matter based on its experience developing methods for heavy duty vehicles, Part 1065. VCC has been actively involved in addressing these issues directly with EPA and through the Alliance of Automobile Manufacturers (Alliance) on the proposal that was presented by EPA in November 2011. Through such dialogue, we have requested that EPA work closely with industry to minimize the requirements that lead to substantial investments while developing procedures that still achieve a high level of accuracy.

One very critical aspect of the requirements that are now proposed is a 3 mg/mile PM measurement standard. 3 mg/mile is on the edge of accurate and repeatable measurement capability using available techniques today. This challenge is likely to remain for the next 5 years.

It is therefore critical that these regulations do not set standards at levels that cannot be measured and that cannot be achieved with known technology. VCC recognizes that the

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agencies may tighten the requirements in the future, but VCC emphasizes that this should be accomplished through continuous dialog between government and industry.

FTP LEV III PM Standard 1 mg/mile in 2025

Based on VCC knowledge of particulate matter measurement technology, it is not currently feasible to measure compliance with the 1 mg/mile standard proposed for model year 2025. VCC does not believe that setting an unattainable standard so far out in the future (2025) is realistic.

VCC supports a thorough, formal, review of PM standards, vehicle emission control technologies, test methods of today and alternative test methods for the future, but only as part of future rulemaking. After this review is complete, we would recommend CARB develop and promulgate standards for 2025.

-LEV III Phase-In Requirement

The phase-in plan for LEV III (FTP and SFTP 150K durability and E10 certification fuel) was unclear in the ISOR and in the regulatory wording. It is VCC's understanding that all PZEVs can be carried over until MY2018 and that CARB intends to require all vehicles that certify to ULEV70 and below to meet the LEV III requirements from the beginning of model year 2015.

VCC requests confirmation of CARB's intent.

-Interim In-Use Standards

For FTP, SFTP NMOG + NOx, and SFTP PM, interim in-use standards apply only through model year 2019. All of these interim in-use standards should apply through model year 2020. For interim in-use FTP PM, VCC supports CARB's planned phase-in through model year 2020.

Inconsistent phase-in periods and overly stringent ramp-ups place unwarranted burdens on intermediate manufacturers. For such manufacturers, the required ZEV volumes and the introduction of new technologies already pose disproportionate challenges. (§1961.2(a)(8), page A-48)

-Early Model Year 2014 Compliance

In the introductory paragraph and the corresponding regulatory text, there is a need for CARB to clarify its plan to allow compliance with LEV III prior to model year 2015. The regulation lacks LEV III FTP and SFTP composite fleet averages for model years 2013 and 2014. The LEV III regulations appear to require LEV II vehicles to continue to meet separate NMOG and NOx standards. (§1961.2, Page A-35)

VCC requests clarification.

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–Early Phase-in for Zero EVAP

The proposed regulation for LEV III evaporative emissions allows manufacturers the option to certify to the zero evaporative vehicle standards using the Bleed Emissions Test Procedure instead of a “rig” test.

Manufacturers should be allowed early (model year 2014) compliance with the new evaporative emission standards consistent with the plan to allow early compliance for LEV III exhaust. (§1976(b)(1)(G), page A-131)

–EVAP Testing During Exhaust DF Tests

Development of deterioration factors (DF) is already an extremely resource-intensive process. The prescribed intervals (5,000, 40,000, 70,000, and 100,000 miles) also make EVAP tests very costly. Eliminating the evaporative tests would result in a significant relief to VCC. (Appendix F, Part II.A.(2.4), page II-2)

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3. ZEV Mandate

VCC recommends that CARB align the following areas in the ZEV regulation with the LEV III criteria emission regulations.

- PZEV carryover from 2014 and prior model years: As written, the regulations would require manufacturers to recertify all Partial Zero Emission Vehicles (PZEVs) using the LEV III (or federal Tier 3) certification fuel and to the new SFTP emission standards.

VCC requests a revision to the model year 2009 – 2017 ZEV Regulation §1962.1(c)(2) to allow manufacturers to carry over PZEV certification data to model year 2015 and beyond.

- Similar to VCC's abovementioned request concerning early certification to LEV III EVAP, VCC requests that equivalent changes be made to §1962.1(c)(2) to allow early certification of PZEVs to LEV III.

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4. Test Procedure

VCC has put considerable time and effort into maintaining a high degree of accuracy by having well-developed arrangements to monitor calibrations, checks, and all critical processes in our emission laboratory. We work continuously to monitor and improve the correlation and repeatability of our test rooms. Thus, VCC realizes that test procedures, calibrations, and instrumentation must be regularly reviewed and renewed to meet new challenges.

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In the fall of 2011 EPA proposed, under TIER 3, to consolidate all test procedure requirements of Parts 86 into Part 1066 in order to improve their organization. In doing so, some test procedures will remain as they are, some will evolve, and new ones will be introduced.

Along with the industry, VCC pointed out that close industry-EPA cooperation is critical to ensuring that test procedures are relevant to their intended purpose, adequate, and meet the objective standards of reproducibility and repeatability. The initial EPA proposal would have required enormous investment from VCC, but based on current discussions there appears to be an understanding that there are other possible ways to address measurement.

VCC has therefore been actively involved in addressing issues directly with the EPA and through the Alliance on the proposal that was presented by EPA in November 2011.

Based on VCC's ongoing analysis of Part 1066, VCC believes that these proposed processes would benefit from thorough revision, in cooperation with the industry, to minimize the risk of creating processes that will add very little value to the goals they are meant to achieve: good repeatability and accuracy. EPA has recognized industry's challenges and therefore continues to work with industry on this issue.

VCC would welcome CARB's participation in that dialog.

Currently there are crucial differences between CARB and EPA advanced technology vehicle test procedures that would benefit from harmonization.

Hybrid Test Procedures

The hybrid test procedures need to be updated to reflect a common approach between EPA and CARB. EPA extensively refers to SAE J1711 test procedures. The J1711 test procedures are the result of many years of cooperative work between industry and government, which includes EPA and CARB. If this harmonization does not occur, there will be unnecessary additional test burdens on the industry as a result of duplication of testing and uncertainty concerning the certification requirements.

Nitrous Oxide - N₂O

The LEV III regulations require this N₂O measurement for the 2015 MY. Currently there is no equipment on the market that can measure N₂O with a relevant repeatability. During 2012-2013, new technology will be introduced to the market, but this technology is still in the research stage, and it would be premature to commit to its use as a certification tool at this juncture. VCC is concerned about technology readiness, instrument availability, measurement accuracy, and implementation lead time, including verifying that the instrument is robust enough for certification testing.

VCC and the Alliance addressed the same concern to EPA, which has pushed implement date of its requirement to model year 2017.

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5. Fuel

– **Certification Gasoline and Harmonization**

VCC agrees that there is a need to move the reference fuel to a blend of 10% ethanol, consistent with the current and foreseeable future U.S. market. This is also consistent with fuel developments in Europe and Asia.

VCC supports a single certification fuel for EPA and CARB. It is expensive and inefficient to develop and store several different fuels to meet two nearly identical regulations.

When EPA and CARB require different fuels, it effectively doubles the amount of testing manufacturers are required to perform, while yielding limited, if any, additional environmental benefit. Even though it appears that 10% ethanol is likely to be the most common fuel on the U.S. market for the foreseeable future, it appears likely that EPA will require E15.

The consequence of this would be that CARB and EPA will have different certification gasoline requirements. To eliminate unnecessary duplicative testing, VCC is requesting that CARB accept certification using the EPA proposed fuel from MY2017.

VCC requests that CARB allow manufacturers to use the federal Tier 3 gasoline for certification to CARB standards for exhaust and evaporative emissions testing. For EVAP testing, the use of EPA temperature profiles is a necessity that must be part of this allowance.

– **Sulfur**

The same criteria that govern the need for new test procedures to measure extremely low emissions adequately and correctly also dictate the need for low-sulfur fuel. It is essential to avoid sacrificing environmental gains achieved by use of advanced technology by failing to recognize the effect of higher quality fuel or the impact of sulfur on catalyst efficiency over time. Lower sulfur in fuel will also result in environmental gains for the existing fleet since the catalyst deactivation and the need to regenerate the catalyst will be minimized.

VCC would prefer a flat 10 ppm cap instead of using the currently proposed range of 8.0-11.0. This would align with international standards, such as the current requirement in Europe.

– **RVP**

EPA's proposed Reid Vapor Pressure of 9 psi offers an opportunity to act on an achievable environmental opportunity that would positively influence on the vehicle EVAP systems. To that end, VCC would encourage EPA's harmonization with CARB's 7 psi. This is an environmental opportunity that would positively influence all vehicles nationwide.

VCC supports CARB's decision to remain at a more environmentally beneficial level of 6.9-7.2 psi.

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– **Octane number**

Higher octane fuel would enable manufacturers to pursue strategies that better support development and introduction of advance vehicle technologies, and a consequent reduction in greenhouse gases and criteria emissions.

To optimize engine fuel efficiency and minimize emissions, transitioning to higher octane regular and premium grade market gasoline may be necessary.

VCC would support establishment of a minimum blend stock octane. In this way, adding ethanol would raise fuel octane without risk that blenders would make corresponding reductions in base blend stock octane, thereby undoing the octane benefit of ethanol addition.

We recommend the Board direct staff to assess the environmental benefits of higher octane gasoline.

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LEV III – L38 Response

- 38-1 The commenter expresses that “Higher octane fuel would enable manufacturers to pursue strategies that better support development and introduction of advance vehicle technologies, and a consequent reduction in greenhouse gases and criteria emissions. To optimize engine fuel efficiency and minimize emissions, transitioning to higher octane regular and premium grade market gasoline may be necessary. VCC would support establishment of a minimum blend stock octane. In this way, adding ethanol would raise fuel octane without risk that blenders would make corresponding reductions in base blend stock octane, thereby undoing the octane benefit of ethanol addition. We recommend the Board direct staff to assess the environmental benefits of higher octane gasoline.”

Although this comment does not directly relate to the adequacy of the EA prepared for the proposed ACC Program, and therefore, no written response is required in accordance with ARB’s certified regulatory program at CCR section 60007, subdivision (a), this comment is responded to in this document because it mentions potential environmental benefits. Staff designed the certification fuel to be reflective of the current in-use fuel. According to the EIA , in California, among the total 5.4 million gallons per day of gasoline sold to end users in May 2011, 4.2 million gallons per day of gasoline (77%) were regular (87 AKI), 500 thousand gallons per day of gasoline (9%) were mid-grade (89 AKI), and 800 thousand gallons per day of gasoline (14%) were premium (91 AKI). Therefore, the certification fuel is designed around an 87 AKI and for those vehicles that have a warranty that requires 91 AKI, ARB allows for the vehicle to be tested using the certification fuel at 91 AKI.

The Department of Measurement Standards regulates octane level for in-use fuels. Octane is considered a consumer protection issue to prevent knocking and poor vehicle performance. ARB does not and has not regulated octane in gasoline because there is no evidence to suggest that octane affects emissions in and of itself. Staff is unaware of any studies that have been designed to isolate octane as an independent effect. It is very difficult to isolate octane at the same composition and volatility levels.

Increasing octane would; however, provide a CO₂ benefit if the vehicle was designed to take advantage of it; but it may not have an accompanied criteria pollutant benefit. Since the vehicle modeling supporting the proposed ACC Program was conducted on octane levels of current commercial gasoline, increased octane fuel is not needed to meet the proposed standards. In addition, because commercial gasoline specifications were not part of the regulatory package, the commenter’s proposal is out of the scope of this rulemaking.

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COMMENT 2 FOR ZERO EMISSION VEHICLE REGULATION (ZEV2012) - 45 DAY.

First Name: dan

Last Name: Mars

Email Address: dmsail@gmail.com

Affiliation:

Subject: ZEV

Comment:

I am very much in favor of feebates to encourage the use of plug-in hybrid, and all-electric vehicles. Charge a fee for inefficient vehicles and use that money to give rebates to buyers of clean vehicles that plug-in. There are many advantages for the individuals as well as society as a whole.

Attachment:

1

Original File Name:

Date and Time Comment Was Submitted: 2011-12-19 15:12:32

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ZEV – L2 Response

- 2-1 The commenter expresses that “I am very much in favor of feebates to encourage the use of plug-in hybrid, and all-electric vehicles. Charge a fee for inefficient vehicles and use that money to give rebates to buyers of clean vehicles that plug-in. There are many advantages for the individuals as well as society as a whole.”

This comment and a response is included in this document because the commenter advocates a feebate program as an alternative. The EA prepared for the proposed ACC Program analyzed a feebate regulation as a potential alternative. Although it was considered, it was rejected as infeasible (see page 196 of Appendix B). A feebate is a new car pricing scheme where consumers who purchase high-emitting vehicles would pay an extra fee that would be used to fund rebates to consumers who purchase low-emitting vehicles. ARB sponsored research on the potential benefits of a feebate program for new vehicles and eliminated it as an option for a number of reasons. First, given the aggressive performance standards proposed for new vehicles, the additional reductions that could result from a feebate program are likely to be minimal. Manufacturers would already need to install all available, cost-effective emission-reducing technology, as well as adopt their own internal pricing strategies to comply with the standards. A feebate program would replace this internal pricing strategy and would only induce substantial, additional emission reductions if fees and rebates were very high, leading to greater impacts on consumers. Furthermore, a California-only program within a national market could result in more higher emitting vehicles being sold out of state and negating any in-state emission reductions. In terms of implementation, maintaining a revenue-neutral regulation would likely be a significant challenge given that vehicle purchase behavior would vary based on current economic conditions, but fee and rebate levels would need to be set in advance. More importantly, ARB may not have the legal authority to pursue feebates and could face challenges similar to pursuing a carbon fee or tax. In addition to legal opposition, there may be public opposition because some consumers would have to pay more for new vehicles. The administration of a feebate program would require ARB to collect revenues and then disperse funds. ARB may need additional authority from the Legislature to both disperse funds and collect feebate revenues. Consequently, in light of the legal and administrative challenges for minimal emissions reductions, ARB did not pursue the further evaluation of this alternative.

Of note, the ARB’s Clean Vehicle Rebate Project (CVRP), funded through the AB 118 Air Quality Improvement Program, provides funding for consumer rebates of up to \$2500 for zero-emission and plug-in hybrid light-duty vehicles. As of January 2012, the CVRP has provided rebates for over 4700 vehicles totaling about \$17 million. More information on the CVRP may be found on ARB’s website at <http://www.arb.ca.gov/msprog/ajip/cvrp.htm>.

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Comment Log Display

BELOW IS THE COMMENT YOU SELECTED TO DISPLAY.

COMMENT 74 FOR ZERO EMISSION VEHICLE REGULATION (ZEV2012) - 45 DAY.

First Name: Loren

Last Name: Marz

Email Address: lmarz@charter.net

Affiliation:

Subject: Comments on LEV III Proposed Regulation

Comment:

While fully supporting the spirit of the proposed LEV III Regulation, it doesn't appear that the impacts of a significant shift to "ZEV" technology such as electric vehicles (EV) have been fully considered.

According to a National Academies report (National Academies, "Hidden Costs of Energy: Unpriced Consequences of Energy Production

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and Use.")...

"...Electric vehicles and grid-dependent (plug-in) hybrid vehicles showed somewhat higher nonclimate damages than many other technologies for both 2005 and 2030. Operating these vehicles produces few or no emissions, but producing the electricity to power them currently relies heavily on fossil fuels; also, energy used in creating the battery and electric motor adds up to 20 percent to the manufacturing part of life-cycle damages...."

This is supported by the latest version of Argonne National Laboratory's GREET model (GREET1_2011 - <http://greet.es.anl.gov/>) which shows that WTW emissions of particulate matter (PM) in California are higher for EV technology than current "clean diesel" technology. Based on the default "mid-sized" vehicle assumed in GREET for the year 2020...

WTW PM10 (diesel) = 0.004 (Feedstock) + 0.009 (Fuel) + 0.030
(Vehicle Operation) = 0.043 g/mi

WTW PM10 (EV) = 0.060 (Feedstock) + 0.006 (Fuel) + 0.021 (Vehicle
Operations) = 0.087 g/mi

WTW PM2.5 (diesel) = 0.003 (Feedstock) + 0.005 (Fuel) + 0.016
(Vehicle Operations) = 0.024 g/mi

WTW PM2.5 (EV) = 0.015 (Feedstock) + 0.004 (Fuel) + 0.007 (Vehicle
Operations) = 0.026 g/mi

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All of these values are based on the California electric generation mix assumed in GREET in 2020.

Exhaust PM from the diesel vehicle assumed in GREET = 0.009 g/mi (PM10); 0.0084 g/mi (PM2.5).

Furthermore, based on certified emissions of the 2003 VW Jetta TDI (example of an "old tech" diesel vehicle), exhaust PM emissions = 0.05 g/mi
(http://www.arb.ca.gov/msprog/onroad/cert/pcltdtmv/2003/volkswagen_pc_a00702)

$0.05 - 0.009 = 0.041$ g/mi more exhaust PM for the "old tech" diesel than that assumed for "clean diesel" in GREET.

0.043 g/mi + 0.041 g/mi = 0.084 g/mi WTW PM10 for the "old tech" diesel car, actually less than the 0.087 g/mi WTW PM10 calculated by GREET for EV in California for 2020.

"Old tech" diesel vehicles have been effectively banned for many years under LEV II regulations, to the Air Resources Board's credit, yet mandates are being proposed for vehicle technology (e.g., EV) which may actually increase PM emissions from a WTW perspective above "old tech" diesel engine technology. EPA acknowledges in the Draft RIA for the Proposed Rule to Extend the National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks - Docket ID No. EPA-HQ-OAR-2010-0799, that all PM2.5 is treated as equally potent in causing premature mortality regardless of source (page 6-35 of the Draft RIA), even

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ZEV - 74 - Loren Marz

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http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=zev2012&comment_num=97&vi...

specifically mentioning PM2.5 from diesel engine sources. So there appears to be no valid reason from a public health perspective to displace the reduction in PM2.5 emissions from diesel engines with increased PM2.5 emissions from power plants to support EV/PHEV technology. The regulatory push for these "advanced technologies" defies logic from an emissions perspective.

A massive shift to EV/PHEV technology would potentially offset gains made from diesel PM emission reduction mandates. It appears superfluous to propose significant reductions in PM emissions from gasoline/diesel vehicles under LEV III to trivial levels (which I support) yet essentially mandate technology which not only doesn't decrease WTW PM emissions from current technology, it increases WTW PM emissions with respect to pre-2004 (Tier 1) diesel vehicles.

I would like to state unequivocally that I support EV/PHEV technology for certain niches (e.g., urban commuter travel), but upstream emissions of this technology really need to be taken into account.

As a disclaimer, I am in no way associated with the auto industry or any support industries to the auto industry, including diesel engine manufacturers.

Thank you for your consideration of these comments.

Respectfully submitted,

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ZEV - 74 - Loren Marz

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Loren Carl Marz, Certified Consulting Meteorologist (#591)

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Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2012-01-23 11:01:37

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ZEV – L74 Response

74-1 The commenter expresses that “While fully supporting the spirit of the proposed LEV III Regulation, it doesn’t appear that the impacts of a significant shift to “ZEV” technology such as electric vehicles (EV) have been fully considered.” According to a National Academies report (National Academies, "Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use.")...

"...Electric vehicles and grid-dependent (plug-in) hybrid vehicles showed somewhat higher nonclimate damages than many other technologies for both 2005 and 2030. Operating these vehicles produces few or no emissions, but producing the electricity to power them currently relies heavily on fossil fuels; also, energy used in creating the battery and electric motor adds up to 20 percent to the manufacturing part of life-cycle damages...."

Please refer to response for LEV III - L9-1.



January 24, 2012

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, California 95814

Sent by electronic transmission via ARB webpage

Re: **2012 Proposed Amendments to the Clean Fuels Outlet Regulation
Comments of Valero Refining Company—California, Ultramar Inc, Valero
Marketing and Supply Company, and Valero Renewable Fuels**

Board Members:

Valero Refining Company – California and Ultramar Inc, together with Valero Marketing and Supply Company and Valero Renewable Fuels (collectively “Valero”), appreciate this opportunity to provide comments regarding the California Air Resources Board (“ARB”) 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation. Valero’s refining entities in California own and operate two refineries in the state of California, with a combined throughput capacity of over 305,000 barrels per day. Valero is also one of the largest ethanol producers in the U.S, and is investing in renewable diesel and cellulosic ethanol projects at various locations.

Valero agrees with the comments offered by the Western States Petroleum Association (WSPA) regarding the CFO regulation and incorporates those comments as its own. Additionally, Valero is providing the following comments for your consideration.

1. **Refiners and importers should not be the regulated party under the Clean Fuels Outlet regulation.**

In the December 16, 2011 draft revisions to the rule proposed to be renamed as the “Clean Fuels Outlet” regulation, ARB proposes to change the emphasis of the former “Clean Fuels Program” from facilitating market availability of various types of alternative fuels to focusing exclusively on zero-emission vehicles fueled by hydrogen and perhaps electricity. Further, ARB proposes to significantly shift the burden of the regulation by changing the “regulated party” under the regulation from the owners and operators of retail stations to refiners and importers of petroleum fuels. The effect of the proposed redefinition is to force refiners and importers to finance installation of infrastructure that will directly compete with

their own core business and, if market saturation is as successful as ARB hopes it will be, eventually erode that business. As the nation's largest independent refiner and the second-largest producer of corn ethanol, Valero objects to being forced to fund its own demise, and would note in particular the following issues:

- ARB's staff report on the Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuels Program Regulation does not consider making the parties who will benefit from installation of CFOs—the auto manufacturers and the hydrogen suppliers—the “regulated parties.” With this change, ARB proposes to make the parties that will bear the brunt of the economic impact of declining gasoline demand fund the CFOs. The rationale offered in support of making refiners/importers regulated parties is that “This amendment will ensure that those refiner/importers that have the largest stake in supplying gasoline to the California market have a commensurate role in developing the state's hydrogen infrastructure.” The logic supporting this statement is not apparent, unless one takes the punitive view that having supplied gasoline to the California market is a misdeed that now must be remedied. It makes more sense for those who potentially stand to profit from the proliferation of ZEVs to be responsible for developing the infrastructure to fuel them, yet the ISOR does not even identify this approach as an alternative.
- Transfer of funds from the refining industry based on each participant's market share in that industry for the benefit of stimulating a competitive business amounts to exaction of funds from the refining/importing industry. In order to impose a new tax, ARB must first seek approval of two-thirds of the California Legislature, as provided by Proposition 26. In order to impose a new fee, ARB must show a nexus between the fee and the use of the fee.
- The economic impact discussion in the ISOR acknowledges that return on investment (ROI) is important in assessing the economic impact of the regulation. Leaving aside for the moment the adequacy of ARB's ROI projections, the ISOR does not explain the basis for the assumption that refiners/importers will be in a position to recoup any return at all if they are forced to pay for installation of equipment on property they neither own nor control. The ISOR assumes that branded dealers lease the real estate and equipment on which their stations operate from refiners. This is simply not the reality today. Nearly all branded dealers own their own property and equipment and are simply parties to branding and supply agreements. In fact, out of over seven hundred Valero-branded, wholesale-supplied retail outlets in California (which number does not include sites operated by a Valero affiliate), Valero has a real estate interest in only 19 of them, and fee title to only 10. To the extent Valero is compelled to fund installation of CFOs at branded stations that it does not own based on ARB's market-share formula for identifying the number of stations a particular refiner/importer must finance, coupled with ARB's ability to dictate the location of CFO outlets, Valero will not be making an “investment” in its own property at all. In that circumstance, Valero will receive no benefit whatsoever. Instead, Valero will be harmed to the extent CFOs result in reduced sales of the products provided under those supply agreements.

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- Refiner/importers such as Valero that do not own the property upon which the CFOs will be located will have no direct control over how the CFOs are to be operated. Valero-affiliated entities that own operate petroleum refineries in California do not even have indirect relationships through contractual arrangements with wholesalers, much less retailers. Thus, the extraordinarily detailed requirements in Section 2309(b) of the proposed regulation prescribing exactly where on the property the CFOs are to be installed and how they are to be operated (sufficient fuel storage, signage, how customers are to pay, lighting, daily maintenance of equipment, etc.) and the breakdown/repair provisions in Section 2311 are not only unreasonably prescriptive, but they are completely inappropriate to impose as requirements on refiner/importers. The only way refiner/importers will be able to have any influence at all over compliance with these provisions is indirectly, through entering agreements with retailers for “constructive allocation” of stations or through persuading affiliated corporate entities to request modification of their contractual relationships with branded retailers to have the retailers promise to fulfill these provisions. Independent retailers may be reluctant accept the increased liability associated with storing and dispensing hydrogen onsite, or refuse to agree to the intrusive operational provisions mandated by the proposed revisions to the regulation. Even if some retailers ultimately agree to allow their site to be used for CFOs, if they do not fulfill their contractual obligations, refiner/importers will be left vulnerable to enforcement under the regulation with no direct ability to comply.

2. **The proposed enforcement remedies in the ISOR are inequitable and without sound legal basis.**

The proposed revisions would make refiner/importers’ willful failure to timely install CFOs subject to the penalty provisions of California Health and Safety Code (H&SC) Sections 43027 and 43208, and thus would provide penalties of up to a quarter-million dollars per day. This proposal raises several issues of equitable regulation and of legal sufficiency:

The proposed penalties for regulated parties and auto manufacturers are grossly inequitable. Under the proposed revisions, if vehicle manufacturers fail to meet their projections for production of hydrogen vehicles, the consequence to refiners and importers is that they will have been required to spend tens or hundreds of millions in sunk costs on installation of fuel outlets for which the demand turns out to be insufficient. Under the proposed revisions, the penalty for the vehicle manufacturers in this instance is a one-time fine of up to \$35,000. In contrast, the proposed revisions would make a refiner/importer’s “willful” failure to timely build a single fuel outlet subject to a penalty of up to \$250,000 *per day*. The proposed revisions exceed the authority granted to ARB under H&SC Section 43027(a) based on the plain language of the statute, which does not reference imposition of daily penalties. Even if ARB recognizes that a penalty under Section 43027 should be a one-time occurrence, the quarter-million-dollar potential penalty for failure to install a single CFO on ARB’s timetable represents a penalty over seven times that proposed for an auto manufacturer’s penalty for misleading ARB and the public, as well as refiners and importers.

- The order-of-magnitude disparity noted above is particularly troubling given the vagueness of what constitutes a “willful” failure to install outlets timely. Under the proposed revision, the regulated party obligated to provide for installation of fuel

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outlets may have little or no direct control over where, when, and how the outlets are to be installed. If a regulated party has no option but to negotiate with a third party to install outlets to satisfy the refiner/importer's obligation, the third party is likely to leverage the fact that the regulated party is under the compulsion of a regulatory requirement, coupled with time pressure and a significant potential penalty, to demand commercially unreasonable terms. Based on the discussion in the ISOR and the language of the proposed regulation, it appears that ARB could regard the regulated party as willfully violating the regulation if it does not agree to this type of extortion.

- Although the draft rule indicates that Health and Safety Code Section 43027(a) will be cited as the basis for any violation of the requirement to install CFOs, ARB cannot unilaterally expand its statutory authority through regulatory interpretation. H&SC Section 43025 states that "It is the intent of the Legislature in the enactment of this chapter to update the penalty provisions for *violations of fuel regulations* to ensure that the appropriate tools are available to effectively and fairly enforce state law." Further, the plain language of H&SC Section 43027 indicates that it applies to violations for sales of fuel that does not comply with applicable specifications. Subsection (a) reads as follows (emphasis added):

*Any person who willfully and intentionally violates any provision of this part, or any rule, regulation, permit, variance, or order of the state board, pertaining to **fuel requirements and standards**, is liable for a civil penalty of not more than two hundred fifty thousand dollars (\$250,000), **and the prosecuting agency shall include a claim for an additional penalty in the amount of any economic gain that otherwise would not have been realized from the sale of the fuel determined to be in noncompliance.***

The language above makes it clear that the California Legislature intended Section 43027 to apply to violations of applicable regulations related to fuel quality. Requiring Valero to fund installation of CFOs is a way to fund installation of infrastructure to provide a regulated fuel, but these new requirements have nothing to do with meeting the requirements of ARB's fuel regulations. The California Legislature has not empowered ARB to impose a penalty of this magnitude for a violation of a requirement that is fundamentally different in nature than anything that existed when this provision was adopted.

3. The economic impact assessment in the ISOR does not adequately address impact on retailers or on refiner/importers.

- The ISOR does not address the potential consequences to retailers of displacing gasoline availability with CFO stations or on-site steam methane reformers. Most retail gasoline stations have little or no undeveloped surface available. During the peak hours before and after work and at lunchtime, the fueling positions at most retail stations are fully

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occupied and the limited parking spaces are full. If the hydrogen refueling equipment uses existing parking spaces, then in-store sales will decline. If the hydrogen dispenser replaces a gasoline dispenser, then not only will gasoline sales decline, but in-store sales will also decline, as there will be fewer hydrogen customers than gasoline customers. If the hydrogen dispenser is added to a fuel island, a car using it will prevent another car from using the gasoline pump next to the hydrogen dispenser. If an on-site steam methane reformer must be installed, this equipment would completely displace any space that could be occupied by an in-store retail customer. Thus, in any of these scenarios, gasoline and retail sales will decline, and retail service station owners will lose sales, revenue and profit. The economic impact of the proposed rule cannot be understood without quantifying these impacts.

- The economic analysis presented in the ISOR is based on numerous unfounded and unduly optimistic assumptions. For example, ARB assumes that technology advancements will result in a drop in the price of supplied hydrogen, although there is no basis for concluding what those advancements might be or why they would result in cheaper hydrogen. ARB assumes counterintuitively that station operators will be able to sell hydrogen at a higher price in later years to recoup their initial losses even though ARB also assumes that the number of stations will increase in subsequent years. If ARB's assumptions about the eventual profitability of hydrogen fueling outlets were correct, it would not be necessary to forcibly conscript participants in this market.
4. **The prescriptive requirements pertaining to CFO operation are overly burdensome and unrealistic.**

Sections 2309 and 2311 of the proposed regulation include numerous requirements that are overly burdensome and unrealistic, even if station operators remain the regulated party. For example, the requirement to notify ARB within four hours of dispensing equipment malfunction is unnecessarily burdensome and serves no purpose. Station operators' time would be better spent calling the repair company to service the equipment. The requirement to repair broken equipment within one month overlooks the fact that until market saturation is reached, equipment and contractors are not likely to be widely available, and therefore it is arbitrary to mandate an unreasonably short time for equipment to be ordered, fabricated, delivered, and installed. The detailed requirements pertaining to amenities, lighting, signage, and so forth are stunningly intrusive. Most or all of these requirements exceed ARB's statutory authority to protect air quality in California.

5. **The ISOR overlooks the environmental and safety impacts associated with hydrogen fuel manufacture and supply.**

The proposed CFO revisions will just raise cost to all California consumers with little or no benefit. There are still emissions when hydrogen is produced and electricity is generated, they just are not at the tailpipe. Further, the ISOR is dismissive of the risks associated with onsite hydrogen storage, fueling, and perhaps manufacture.

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For the reasons discussed above and in the comments submitted by WSPA, Valero strongly urges ARB to refrain from moving forward with the proposed amendments to the Clean Fuel Outlet regulations. If you have any questions, please contact me at (210) 345-2922.

Sincerely,



John R. Braeutigam
V.P. Strategic & Regulatory Development

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CFO – L8 Response

- 8-1 The commenter expresses that “The ISOR overlooks the environmental and safety impacts associated with hydrogen fuel manufacture and supply. The proposed CFO revisions will just raise cost to all California consumers with little or no benefit. There are still emissions when hydrogen is produced and electricity generated, they are just not at the tailpipe. Further, the ISOR is dismissive of the risks associated with onsite hydrogen storage, fueling and perhaps manufacture.”

ARB disagrees. Contrary to the commenter’s concerns, the EA for the proposed ACC Program (Appendix B), which ARB prepared in accordance with CEQA and its certified regulatory program, both evaluates environmental and safety impacts that may be associated with hydrogen fuel manufacturing, supply, storage, and fueling.

The EA analyses potential environmental impacts associated with the reasonably foreseeable compliance responses of the regulated community. Chapter 3 of the EA provides a discussion of the existing physical conditions and the regulatory framework relevant to each environmental resource area potentially affected by the proposed ACC Program. The chapter includes a section pertaining to hazards. This section describes characteristics of hazardous materials as toxic (causes human health effects), ignitable (has ability to burn, such as hydrogen), corrosive (causes severe burns or damage to material and reactive (causes explosions or generates toxic gases). California’s hazardous waste regulations provide the means to determine whether or not a waste is hazardous. The section also provides a table of applicable federal and state laws and regulations governing hazards and hazardous materials.

Chapter 4 of the EA describes the foreseeable regulated community compliance responses, and includes discussions related to hydrogen supply and the potential for modification of hydrogen production plants. This section discloses that modification of existing hydrogen production plants may be necessary to accommodate an increase in demand. The EA indicates that using the fast-rate scenario for FCVs entering the vehicle fleet, the total hydrogen demand when the 10,000 FCV trigger is activated in the South Coast Air Basin could represent 1.1 percent of the hydrogen supply in that area. Under the same fast-entry scenario, total statewide demand in 2020 would represent 3.9 percent of the merchant hydrogen supply, and in 2024, it could represent 9.2 percent. The EA also indicates that once the statewide demand for hydrogen reaches 3.5 million kilograms per year, the California standards for hydrogen will be in place, which require that 33 percent of the hydrogen that is produced for transportation be made from eligible renewable resources (CPUC Code Section 399.12) This requirement will eventually present a business case for the construction of new hydrogen plants that produce hydrogen from renewable resources.

Chapter 5 of the EA provides a programmatic impact and mitigation analysis, using the CEQA Checklist as a tool for determining whether an impact may result. It describes potential impacts associated with the entire ACC program and includes a discussion of construction of new facilities or modification of existing facilities, which may include hydrogen production plants. Such actions would be subject to site-specific analysis under CEQA. As for emissions related to hydrogen production, those emissions would be regulated by the local air district.



H. Daniel Sinks
Fuels Issues Advisor

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January 24, 2012

Clerk of the Board, Air Resources Board
1001 I Street
Sacramento, CA 95814

Via electronic submittal to: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Re: Notice of Public Hearing to Consider Adoption of the 2012 Amendments to the Clean Fuels Outlet (CFO) Regulation – ConocoPhillips Company Comments

Dear Clerk of the Board,

ConocoPhillips Company (ConocoPhillips) appreciates the opportunity to provide these comments. ConocoPhillips will be directly impacted by this amended rule because we own and operate two refineries in the State of California and will be a "Major refiner/importer of gasoline" as defined in the proposed amendments. In addition, we have pipeline and terminal assets in the State that distribute fuels produced at our refineries.

ConocoPhillips also is a member of the Western States Petroleum Association (WSPA) and supports the comments submitted by WSPA for this hearing and rulemaking. Rather than repeat WSPA's detailed comments here, we incorporate them by reference into this letter. ConocoPhillips specifically opposes the proposed modifications to the CFO regulation that shifts the burden of motor fuel hydrogen infrastructure on to major refiner/importers of gasoline for the following reasons.

Legal Authority

As described in detail by WSPA in its comments, if amended as proposed the CFO regulation will violate several laws and/or legal authorities:

- the U.S. Constitution (both the Takings Clause of the Fifth Amendment as applied to the states via the Fourteenth Amendment and the Commerce Clause);
- the requirement of an administrative agency to remain within the scope of its statutory authority and not promulgate rules *ultra vires*;
- Proposition 26; and
- CEQA.

Bad Public Policy

We believe the proposed regulatory changes are bad public policy in that CARB is effectively picking "winners and losers" and placing the burden for those outlets on producers and importers of gasoline. The proposed amendments would require our company to install hydrogen fueling stations at sites that we do not own or operate. In fact, ConocoPhillips does not own or operate any retail outlets in California. In addition, the selection of those sites would be at locations prescribed by CARB. Further, the number of stations and the required investment would be based upon forecasts and

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projections from vehicle manufacturers that may never materialize based upon consumer choice and actual vehicle sales.

We urge the Board to reject the staff proposed provision identified above. If the Government wants to mandate hydrogen fueling outlets, the burden of the mandate should not be borne by the petroleum based fuel suppliers. Thank you for considering ConocoPhillips' comments. Please feel free to contact me if you have questions regarding our comments.

Sincerely,

<H. Daniel Sinks>

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CFO – L15 Response

- 15-1** The commenter expresses that “ConocoPhillips also is a member of the Western States Petroleum Association (WSPA) and supports the comments submitted by WSPA for this hearing and rulemaking. Rather than repeat WSPA’s detailed comments here, we incorporate them by reference into this letter. ConocoPhillips specifically opposes the proposed modifications to the CFO regulation that shifts the burden of motor fuel hydrogen infrastructure on to major refiner/importers of gasoline for the following reasons.

Legal Authority

As described in detail by WSPA in its comments, if amended as proposed the CFO regulation will violate several laws and/or legal authorities:

- the U.S. Constitution (both the Takings Clause of the Fifth Amendment as applied to the states via the Fourteenth Amendment and the Commerce Clause);
- the requirement of an administrative agency to remain within the scope of its statutory authority and not promulgate rules ultra vires;
- Proposition 26; and
- CEQA.”

Please refer to responses CFO – L26. Regarding the statement that the CFO Regulation violates CEQA, ARB disagrees. ARB prepared an EA for the proposed ACC Program (Appendix B) in accordance with CEQA and its certified regulatory program. The EA analyses potential environmental impacts associated with the reasonably foreseeable compliance responses of the regulated community, identified mitigation where impacts were identified, and analyzed a reasonable range of alternatives. CEQA does not preclude ARB from pursuing a regulation that improves air quality in California or determining an appropriate regulated community. See also responses to this comment provided in the FSOR prepared for CFO regulation.

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Western States Petroleum Association

Credible Solutions • Responsive Service • Since 1907

Catherine H. Reheis-Boyd

President

January 25, 2012

Clerk of the Board
Air Resources Board
1001 I St
Sacramento, CA 95814

Via e-mail to <http://www.arb.ca.gov/lispub/comm/bclist.php>

Re. **Western States Petroleum Association's Comments on CARB Board Hearing Agenda Item # 12-1-2 – Public Hearing to Consider Amendments to the Clean Fuels Outlet Regulation**

Dear Clerk of the Board:

The Western States Petroleum Association (WSPA), is a non-profit trade association representing twenty-six companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and five other western states.

WSPA has actively participated in the California Air Resources Board's (ARB's) Clean Fuels Outlet (CFO) regulatory amendment workshops and meetings over the past two years. During the July 13th, 2011 workshop, WSPA and WSPA members expressed strong policy, technical, economic, environmental and legal concerns with staff's outline of proposed revisions to the CFO regulation; most notably the fact that CARB is proposing to target "gasoline producers and importers" as the regulated party responsible for creating a hydrogen retail infrastructure.

WSPA also has been an active and productive participant in the Hydrogen Infrastructure Collaborative Workgroup ("workgroup") composed of, but not limited to, the California Fuel Cell Partnership, auto manufacturers, hydrogen fuel providers including equipment suppliers, environmental organizations, the California Energy Commission, South Coast Air Quality Management District, representatives of the University of California Davis and Irvine, the International Clean Cars & Transportation and ARB. Over the past few months, the workgroup has diligently worked together in understanding the technology, equipment, and most

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importantly funding challenges and costs necessary to make an effective business case for hydrogen (H₂) infrastructure deployment.

At our recent workgroup meetings, WSPA was both encouraged that the workgroup was working toward developing a funding strategy based on utilizing/expanding existing state hydrogen programs such as the AB 118 program, and was supportive of this approach. Thus, we continue to question why ARB feels there is a need for continued pursuit of the CFO regulatory amendment rulemaking.

WSPA urges ARB to withdraw the CFO regulation and continue to support the collaborative efforts and goals of the workgroup. WSPA continues to oppose ARB's proposed CFO regulatory mandate and submits the attached comments and supporting documents to express our opposition as well as identify the deficiencies with staff's proposed regulatory amendment package.

A mandate as proposed in the regulation will provide none of the certainty in infrastructure development that the Board and automakers are seeking. Forcing infrastructure investments from non-interested parties will likely result in certain legal challenges.

For that reason, WSPA strongly urges the ARB Board to deny approval of the proposed Clean Fuel Outlet amendments, and instead pledge to work within the Hydrogen Collaborative framework to progress the installation of hydrogen infrastructure in the state – commensurate with the level of fuel cell vehicles sold in the state in the most cost-effective manner to meet consumer needs.

If you have any questions, please contact me at (916) 498-7752.

Sincerely,



c.c. Nancy McFadden, Executive Secretary, Office of the Governor
Cliff Rechshaffen, Senior Advisor, Office of the Governor
Matt Rodriguez, Secretary, California Environmental Protection Agency
Mary Nichols, Chairwoman, California Air Resources Board
James Goldstene, Executive Officer, California Air Resources Board
CARB Board

ARB ADVANCED CLEAN CARS PROGRAM

2012 PROPOSED AMENDMENTS TO THE CLEAN FUELS OUTLET REGULATION

**Western States Petroleum Association Comments on ARB January 26 Board Hearing
Agenda Item #12-1-2 – Public Hearing to Consider the 2012 Amendments to the Clean
Fuels Outlet Regulation**

Comments on Legal Issues Raised by the Proposed CFO Amendments

Comments on Appendix F: Legal Authority

ARB Does Not Have Statutory Authority to Adopt the Proposed CFO Amendments

A regulation must be “(1) within the scope of authority conferred and (2) . . . reasonably necessary to effectuate the purpose of the statute.” *Culligan Water Conditioning v. State Bd. Of Equalization*, 17 Cal.3d 86, 93 (1976). Administrative agencies have only the authority that is granted them by statute. *State Bd. Of Equalization v. Bd of Supervisors*, 105 Cal. App.3d 813, 818-820 (1980).

Nothing in the Health and Safety Code provides ARB with statutory authority to mandate that petroleum refiners/importers (or anyone else) establish retail outlets for the distribution of “designated clean fuels,” including hydrogen. Indeed, ARB does not appear to even have the authority to mandate the use of a particular substance or form of energy (i.e., hydrogen or electricity) as a motor vehicle fuel. If ARB can require that fuel suppliers install or pay for hydrogen CFO stations throughout California, where is the limit of what ARB can mandate? With a stroke of the same regulatory brush, ARB could require the same fuel suppliers to provide retail facilities for sale of every kind of alternative fuel that might ever propel a vehicle of any kind. ARB could direct solar power generators to install equipment to generate renewable hydrogen to assure that the SB 1505 renewable hydrogen mandates are met. ARB could reach out to impose similar mandates on big-box retailers, cities and counties, utilities, and any “indirect source” that attracts vehicles (like amusement parks and sport complexes and universities). We do not believe the general “enabling clause” in Health and Safety Code section 43018¹ could ever reach this far, and that the proposed hydrogen mandates in the proposed CFO amendments cross the line of ARB’s authority under state law.

In the Initial Statement of Reasons for the 2012 Proposed Amendments to the Clean Fuels Outlet Regulation (“ISOR”), ARB concedes that “Health and Safety Code section 43018 is the primary source of ARB’s legal authority to adopt the proposed regulation.” ISOR, p. 66. ARB also references a July 31, 1990 memorandum from Senior Staff Counsel W. Thomas Jennings to

¹ All statutory references are to sections of the Health and Safety Code unless indicated otherwise.

Peter Venturini (“1990 Memo”). That memorandum explains ARB’s view that section 43018, enacted as part of the California Clean Air Act of 1988, “provides the ARB with broad regulatory motor vehicle and fuel authority not otherwise granted in the Health and Safety Code.” 1990 Memo, p. 6.

As relevant here, section 43018 reads as follows:

43018. (a) The state board shall endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state standards at the earliest practicable date.

(b) Not later than January 1, 1992, the state board shall take whatever actions are necessary, cost-effective, and technologically feasible in order to achieve, not later than December 31, 2000, a reduction in the actual emissions of reactive organic gases of at least 55 percent, a reduction in emissions of oxides of nitrogen of at least 15 percent from motor vehicles. These reductions in emissions shall be calculated with respect to the 1987 baseline year. The state board also shall take action to achieve the maximum feasible reductions in particulates, carbon monoxide, and toxic air contaminants from vehicular sources.

(c) In carrying out this section, the state board shall adopt standards and regulations which will result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel, including, but not limited to, all of the following:

- (1) Reductions in motor vehicle exhaust and evaporative emissions.
- (2) Reductions in emissions from in-use emissions from motor vehicles through improvements in emission system durability and performance.
- (3) Requiring the purchase of low-emission vehicles by state fleet operators.
- (4) Specification of vehicular fuel composition.

According to ARB, section 43018 “does not limit the Board’s authority to adopting ‘specifications’ of fuels. Rather, it authorizes the Board to adopt whatever control measures pertaining to fuels that are technologically feasible, cost-effective, and necessary to attain the state ambient air quality standards by the earliest practicable date.” ISOR, p. 66. ARB further argues that section 43018 “expanded the Board’s previous authority to regulate and control the sale of motor vehicle fuels.” 1990 Memo, p. 5.

ARB’s interpretation overstates the scope of authority granted by section 43018. Nothing in section 43018 grants ARB authority to mandate the use of a particular fuel (i.e., hydrogen or electricity) in motor vehicles. Even “specification of vehicular fuel composition” under section 43018(c)(3) provides no more authority than does section 43013(a): “‘specification of vehicular fuel composition’ in section 43018(c)(4) correlates to ‘motor vehicle fuel specifications’” under section 43013. 1990 Memo, p. 7. That authority allows ARB to establish standards and specify characteristics for vehicle fuels, but not to mandate what fuel is used.

ARB asserts in the 1990 Memo that the legislature’s use of the phrase “including, but not limited to” in section 43018(c) expanded ARB’s authority beyond the measures specified. However, even if the list of measures in section 43018(c) is non-exclusive, measures adopted pursuant to

that authority must be consistent with the statutory scheme. See *Copley Press, Inc. v. Superior Court*, 39 Cal. 4th 1272, 1288-89 (2006); *California Sch. Boards Assn. v. State Bd. of Educ.*, 191 Cal. App. 4th 530, 572 (2010) (holding that regulations adopted by the School Board must be consistent with authority under statutory scheme, despite express authority to “adopt, regulations implementing this subdivision, including but not limited to defining the terms ‘average daily classroom attendance,’ ‘conditions reasonably equivalent,’ ‘in-district students,’ ‘facilities costs...”). As discussed above, neither the text of section 43018 nor the regulatory scheme suggests that ARB has authority to mandate the use of a particular fuel. None of the measures listed in section 43018(c) comes close to mandating the use of a particular fuel, so such a requirement cannot be considered to be within the scope of ARB’s authority under section 43018.

ARB claims that the legislative history of section 43018 supports its interpretation, because at various points in the legislative process the list of measures in what eventually became section 43018(c) included “requiring the use of clean burning fuels,” and “requiring the manufacture of vehicles capable of using cleaner-burning fuels.” “It therefore follows that each of the specifically itemized categories listed in the intermediate versions of the bill fell within the broader range of control measures the Board was authorized to adopt.” 1990 Memo, pp. 7, 8. In fact, the legislature’s later deletion of that language from the final enacted legislation establishes the opposite – that such measures are not included within the authority granted to ARB under Section 43018. The scope of an agency’s authority may not be enlarged by the “insertion of language that the Legislature has overtly left out.” *Traverso v. People ex rel. Dept. of Transportation*, 46 Cal.App.4th 1197 (1996); see also *Cooper v. Swoap*, 11 Cal. 3d 856, 863-64 (1974) (holding that an agency did not have authority to adopt a regulation using the same language as a proposed amendment to the enabling statute that had been rejected by the Legislature).

“The evolution of a proposed statute after its original introduction in the Senate or Assembly can offer considerable enlightenment as to legislative intent.... Generally the Legislature’s rejection of a specific provision which appeared in the original version of an act supports the conclusion that the act should not be construed to include the omitted provision.” *People v. Goodloe* (1995) 37 Cal.App.4th 485. Here, the Legislature amended the earlier-proposed versions of section 43018(c) to eliminate all references to “clean burning fuels” and “clean fuel vehicles.” Because the Legislature expressly deleted any grant of authority to implement measures relating to “clean burning fuels” and “clean fuel vehicles,” ARB may not infer the inclusion of such authority in the statute. See *Traverso*, 46 Cal.App.4th at 1207; see also *People v. Hunt*, 74 Cal. App. 4th 939, 947-48 (1999) (holding that “the Legislature’s rejection of a specific provision which appeared in the original version of an act supports the conclusion that the act should not be construed to include the omitted provision”).

Even assuming that ARB had authority to mandate the use of particular substances or energy sources as motor vehicle fuels, it does not have authority to require that any particular person or entity construct and operate facilities to sell a particular fuel. The language used in sections 43013 and 43018 consistently refers to “motor vehicle emission standards,” “motor vehicle fuel specifications,” “the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel” and similar language. Nowhere is there even a mention of fuel

providers or retail outlets, much less a grant of authority to require that existing fuel providers establish retail outlets to sell a completely different fuel, and the terms used in the statute cannot be read that expansively. Contrary to ARB's assertion in the ISOR, the 1990 memo doesn't address this issue. Notwithstanding its title, the 1990 Memo addresses ARB authority to adopt clean fuels regulations only generally, not with respect to a requirement to establish retail outlets. *Western Oil and Gas Ass'n v. Orange County APCD*, 14 Cal. 3d 411 (1975), discussed in the 1990 Memo, also does not address the issue of ARB's authority to require establishment of retail outlets for specific fuels, and it does not provide any such authority.

The Legislature's enactment of SB 1505 (Lowenthal) in 2006 (Stats. 2006, Ch. 877) further undercuts ARB's position. Section 43869(a), enacted by SB 1505, expressly authorizes ARB to "adopt hydrogen fuel regulations" to accomplish specified objectives in a manner consistent with criteria established by the Legislature. SB 1505 illustrates the maxim that the Legislature knows how to say what it means, and that the plain meaning of the statutory language controls. *Murphy v. Kenneth Cole Productions, Inc.*, 40 Cal. 4th 1094, 1103 (2007) ("[W]e presume the Legislature meant what it said and the plain meaning of the statute governs"). This extensive and detailed legislation regarding hydrogen as a vehicle fuel (enacted after section 43018) does not authorize ARB to mandate the establishment of retail facilities for the sale of hydrogen fuels. Accordingly, ARB cannot read such an authorization into section 43018.

Finally, a substantial element of ARB's rationale for adopting the proposed CFO amendments (as part of the Advanced Clean Cars package) is reducing greenhouse gas emissions. For example, "Beyond 2025, the driving force for lower emissions will primarily be climate change." ISOR, p. i. Nothing in sections 43013 and 43018, or indeed in any of the Health and Safety Code provisions cited in the Proposed Regulation Order as authority for the CFO amendments, grants ARB any authority whatsoever with regard to greenhouse gas emissions or climate change. For example, section 43018(a) states: "The state board shall endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state standards at the earliest practicable date." The "state standards" do not include climate or greenhouse gas emissions. 17 Cal. Code Regs. § 70200. Since ARB has cited no authority for the GHG-related aspects of the proposed CFO amendments, any anticipated GHG impacts and emission reductions cannot be considered in connection with this measure.

The Proposed CFO Amendments are not Cost-Effective, and ARB has not Prepared the Required Cost-Effectiveness Analysis

ARB has characterized the proposed CFO amendments as a motor vehicle fuel standard. Prior to adoption, ARB must determine that motor vehicle fuel standards are, among other things, "necessary and cost effective." Sections 43013(a), 43018(c). Cost effectiveness is typically presented in terms of the cost per ton of emissions reduced. *See, e.g.*, Table VII-B-5, "Estimates of Cost Effectiveness for Advanced Clean Cars Reductions of Criteria Pollutants and Greenhouse Gases (2009 Dollars)," Initial Statement Of Reasons For Proposed Rulemaking, Public Hearing To Consider The "LEV III" Amendments To The California Greenhouse Gas And Criteria Pollutant Exhaust And Evaporative Emission Standards And Test Procedures And To The On-Board Diagnostic System Requirements For Passenger Cars, Light-Duty Trucks, And

Medium-Duty Vehicles, And To The Evaporative Emission Requirements For Heavy-Duty Vehicles (“LEV III ISOR”), p. 196. None of the rulemaking documents for the CFO amendments include such an analysis, nor do they identify any emission reductions attributable to the proposed CFO amendments. In the absence of any identified emission reductions attributable to the proposed CFO amendments, the cost-effectiveness of the proposal is infinite and the proposed amendments cannot be considered to be cost-effective.

Consistent with the lack of analysis in the current rulemaking package, in its Final Statement of Reasons for the 1999 amendments to the CFO, ARB stated that the CFO program has no emissions benefits or identified cost-effectiveness:

While the commenter is correct to note that there are no specific emission benefits associated with the regulations, the regulations are an important part of the California LEV Program. When the LEV Program was first adopted in 1990, the Clean Fuels Regulations were also adopted to ensure that clean alternative fuels used to certify LEVs would be publicly available. In order for automakers to confidently produce clean fuel LEVs, a degree of certainty must be present that there will be fuel available for those vehicles. Therefore, while the regulations themselves do not provide any specific emission benefits, they assist automakers in implementing the LEV Program.

The commenter is correct to note that the regulations by themselves have no associated cost-effectiveness. However, during the adoption of the LEV/Clean Fuels Regulations in 1990, the estimated overall cost-effectiveness of the LEV Program included the costs associated with the clean fuels portion of that rulemaking. Therefore, the cost-effectiveness of the LEV Program has already considered the costs associated with the clean fuels provisions. In addition, staff believes that the amendments provide an overall cost-savings to affected parties compared to the original regulations.

Final Statement of Reasons for Rulemaking Including Summary of Comments and Agency Responses; Hearing to Consider Amendments to the Clean Fuels Regulations Regarding Clean Fuel Outlets, pp. 4, 5.

Since ARB has previously admitted that the CFO rule has no emissions benefits and no associated cost-effectiveness and has not provided any information to the contrary in the current CFO amendment rulemaking materials, the ARB Board cannot find that the proposed CFO amendments are necessary or cost-effective.

The Proposed CFO Mandate Would Result in an Unconstitutional Taking of Private Property.

The proposed amendments include a CFO mandate that requires major refiners/importers to establish CFOs without just compensation. That would result in an unconstitutional taking of private property. The Legislature has not, and could not, mandate such a taking without providing compensation. Neither can the ARB.

The ARB can only take private property with express authority from the Legislature. The Legislature has never authorized the ARB to exercise the state's power of eminent domain, and it has not done so to allow ARB to take private property to establish CFOs.

Requiring major refiners/importers to establish CFOs, particularly where no mechanism has been included to assure an adequate return on the required investment, constitutes a taking of property without just compensation and violates the Fifth Amendment to the U.S. Constitution. *See Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978) (interference with investment-backed expectations); *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982) (permanent physical occupation of property).

Plainly, the proposed amendments interfere with the investment-backed expectations of refiners. Over the course of many years, refiners have invested substantial capital to enable themselves to produce the gasoline needed by vehicles in California. While refiners might expect state agencies to impose reasonable regulations on their refinery operations, no one could reasonably expect that a state agency would require refiners to establish retail outlets for hydrogen, a fuel that competes with gasoline. For the ARB to require refiners to establish outlets for a product that directly competes with the refiners' own gasoline is an unconstitutional interference with investment-backed expectations and would result in an unconstitutional taking of property.

The Proposed CFO Mandate Violates the Commerce Clause

The proposed amendments contemplate that most CFOs would be established at existing service stations. That has a discriminatory effect against importers of gasoline from outside California--those importers are unlikely to have contractual relationships with existing service stations and will be at a disadvantage in attempting to establish CFOs at existing service stations.

The Commerce Clause of the U.S. Constitution "directly limits the power of the States to discriminate against interstate commerce." *New Energy Co. of Indiana v. Limbach*, 486 U.S. 269, 273 (1988). "A finding that state legislation constitutes 'economic protectionism' may be made on the basis of either discriminatory purpose . . . , or discriminatory effect." *Bacchus Imports, Ltd. v. Dias*, 468 U.S. 263, 270 (1984). The discrimination barred by the Commerce Clause "takes various forms." *Hunt v. Washington State Apple Advertising Commission*, 432 U.S. 333, 350 (1977). A statute may be unconstitutional "[d]espite the statute's facial neutrality." *Hunt*, 432 U.S. at 351. For example, a statute may have "a leveling effect which insidiously operates to the advantage of local . . . producers." *Hunt*, 432 U.S. at 351.

Applying these Commerce Clause principles, the U.S. District Court for the Eastern District of California recently enjoined the enforcement of California's Low Carbon Fuel Standard ("LCFS"), holding that it impermissibly discriminated against out-of-state sources. *Rocky Mountain Farmers Union v. Goldstein*, E.D.Cal., Dec. 29, 2011. In one portion of his decision, District Judge O'Neill of the Eastern District of California found "that the LCFS discriminates against out-of-state and foreign crude oil while giving an economic advantage to in-state crude oil." Order on NPRA Plaintiffs Summary Adjudication Motion, p. 2. Judge O'Neill noted that the "practical effect of the LCFS" is to favor California crude oil and discriminate against out-of-

state and foreign crude sources. *Id.*, p. 19. That violates the Commerce Clause “even though the distinctions drawn appears to be neutral.” *Id.*

Similarly here, the proposed amendments would give an economic advantage to in-state refiners that have contractual relationships with existing service stations—the practical effect is to favor California refiners and discriminate against importers. That violates the Commerce Clause even if the proposed amendments appear to be neutral.

Proposition 26 and the Due Process Clause Limit the ARB's Authority to Impose any Levy, Charge or Exaction

Proposition 26 amended Article 13A, Section 3 of the California Constitution expands the definition of "tax" and requires a two-thirds supermajority vote in each house of the Legislature for "any change in state statute which results in any taxpayer paying a higher tax." Proposition 26 defines a "tax" as "any levy, charge, or exaction of any kind imposed by the State." Excepted from the definition is a fine, penalty, or other monetary charge imposed by the judicial branch of government or the State, as a result of a violation of law.

Here, the ARB's proposed amendments provide that violations of the CFO mandate would subject a refiner/importer to penalties under sections 43027 and 43028 of the Health and Safety Code. Other than providing that each day of violation at a specific outlet shall be deemed a separate violation, no other explanation is given in the proposed amendments. Without further information showing that the penalties in the proposed amendment are truly fines imposed by the state, the limits that Proposition 26 imposes may apply.

The CFO mandate itself is contrary to Proposition 26. The stated purpose of Proposition 26 was to restrict the adoption of levies, charges, or exactions "simply imposed to raise revenue for a new program"--such levies, charges or exactions "should be subject to the limitations applicable to the imposition of taxes," even if they are "couched as 'regulatory.'" *See* Proposition 26, Section 1(e) (Findings and Declarations of Purpose). The proposed amendments effectively impose an in-kind exaction on refiners and importers, requiring them to establish CFO outlets. By imposing that mandate, the ARB is establishing a new program of hydrogen fuel outlets--accomplished by requiring in-kind exactions. While circuitous, the CFO mandate is nonetheless subject to the requirement of a two-thirds vote of the Legislature. *See Dolan v. City of Tigard*, 512 U.S. 374, 386, 114 S. Ct. 2309, 2317, 129 L. Ed. 2d 304 (1994) (holding that forced dedication of easement was a non-monetary exaction).

Moreover, the Due Process Clauses of the U.S. Constitution and the California Constitution limit the authority of the ARB and other agencies to impose penalties. *Hale v. Morgan*, 22 Cal.3d 388, 398-399 (1978). The California Supreme Court has held that oppressive or unreasonable penalty schemes may be invalidated as violating due process. *Id.* “Uniformly,” the California Supreme Court has “looked with disfavor on ever-mounting penalties and ha[s] narrowly construed statutes which either require or permit them.” *Id.* at 401.

Yet, here, the ARB’s proposed amendments specifically provide that each day that a refiner/importer violates the CFO regulation at a clean fuel outlet is a separate violation subject

to a penalty under sections 43027 and 43028 of the Health and Safety Code. And, the ARB staff report notes that under those sections a willful violation could result in a penalty of \$250,000 per station per day, and a negligent violation could result in a penalty of \$50,000 per station per day. That is precisely the type of “ever-mounting penalties” that the California Supreme Court has disapproved in *Hale v. Morgan*.

ARB Failed to Properly Comply with CEQA.

As ARB recognizes, the California Environmental Quality Act (CEQA)² requires a study of environmental impacts before adopting regulations such as the proposed amendments to the Clean Fuels Outlet (CFO) regulation. It is well-settled that, even when an agency adopts a rule to protect or improve the environment, any adverse side-effects must be evaluated under CEQA.³ ARB has adopted its own procedures for CEQA compliance under its certified regulatory program, but still must satisfy the fundamentals of the statute. Thus, ARB must identify potentially significant impacts, consider mitigation measures and a reasonable range of alternatives to avoid or reduce such impacts, and consider and respond to comments from the public and other agencies. Finally, ARB must adopt mitigation measures or alternatives unless they are infeasible and overriding benefits justify adopting the regulation despite its significant and unavoidable impacts.⁴

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To comply with CEQA, ARB’s Initial Statement of Reasons (ISOR) for the CFO amendments includes Appendix B, a draft Environmental Analysis (EA) prepared as the functional equivalent of an Environmental Impact Report. The air quality evaluation in the EA is supported by ISOR Appendix D, an Emission Impact Analysis (EIA). However, the EA and EIA are seriously flawed and cannot be relied on to satisfy ARB’s CEQA obligations.⁵

Failure to Fully Disclose Programmatic Impacts. Throughout the EA, ARB finds that local authorities will conduct future project-level CEQA review when approving and issuing permits for individual hydrogen fueling station projects. Through project-level review, the local agencies will be responsible for implementing ARB’s recommended mitigation measures and others that they may identify and incorporate in permit conditions. While expecting that local authorities will do so, ARB cannot be certain that mitigation which is beyond its control will be implemented successfully. Accordingly, the EA finds such impacts to be potentially “significant and unavoidable”, though justified by the benefits of the CFO rule. Although in general this “programmatic” or “tiered” approach is authorized for CEQA review at the rulemaking stage, the EA takes the tiered approach too far.

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² Pub. Res. Code § 21000 *et seq.*

³ *Save the Plastic Bag Coalition v. City of Manhattan Beach*, 52 Cal. 4th 155 (2011); *County Sanitation District No. 2 of Los Angeles County v. County of Kern*, 127 Cal. App. 4th 1544 (2005).

⁴ Pub. Res. Code § 21081, 14 Cal. Code Regs. (CEQA Guidelines) § 15093.

⁵ In addition to the legal issues raised in this portion of WSPA’s comments, the technical flaws in Appendices B and D, as described in other sections of our comments, further undercut ARB’s reliance on these analyses for CEQA purposes. All technical and other comments on Appendices B and D, elsewhere in WSPA’s comments, are incorporated by reference herein and should be considered as part of our CEQA comments.

Even impacts that are significant and unavoidable at the programmatic stage must be fully disclosed, to provide a meaningful opportunity for the public to comment and to propose further feasible mitigation measures. Such issues also must be fully disclosed to enable informed decision-making, a central objective of CEQA. The ARB Board is responsible for considering and balancing benefits and adverse side-effects in deciding whether to adopt the CFO amendments. For each significant and unavoidable impact, ARB must find “overriding considerations”, i.e., that specific benefits outweigh each adverse side-effect. But overriding considerations cannot be legally or factually supportable if the decision-makers have insufficient information to understand the extent of the side-effects they are deciding to accept. Weighing benefits and impacts is impossible when the impact side of the balance is insufficiently disclosed. In short, programmatic “significant and unavoidable” determinations are not a shield for the casual narrative evaluations and conclusions throughout the EA.

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Over-Reliance on Future Project-Level CEQA Review. Moreover, in following the programmatic approach, the EA relies heavily on project-level CEQA review that supposedly will be conducted by local agencies undertaking or permitting individual hydrogen fueling facility projects. However, it is quite likely that many local agencies will conduct no CEQA review at all. On an individual basis – especially if ARB is correct in assuming that most new hydrogen fueling station projects will be located at existing gas stations – many of these small projects will be exempt from CEQA, under the categorical exemption for minor alterations to existing facilities⁶ or other exemptions. Yet ISOR Table IV-2b (p. 50) projects that over 450 new stations will be required under the CFO rule. Of course, capturing impacts that are insignificant for each project considered separately, but significant when nearly five hundred projects are considered together, is the purpose of cumulative impacts analysis under CEQA.

The EA does acknowledge impacts to be addressed by local agencies as significant and unavoidable:

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use and/or permitting agency for individual projects, and programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, this EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate impacts) and, for CEQA compliance purposes, discloses that potentially significant impacts related to the development of fueling stations and new or modified manufacturing facilities may be significant and unavoidable.

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ISOR App. B, p. 8. Nevertheless, the EA reassures the public and decision-makers that:

ARB expects, however, that as the proposed ACC Program is carried out, these significant impacts can and should be resolved and reduced to insignificance by other

⁶ CEQA Guidelines § 15301; see, e.g., Attachment A, Notice of Exemption for University of California, Irvine, North Campus hydrogen fueling station expansion ; and Attachment B, Notice of Exemption for Alameda County Transit District (AC Transit) Hydrogen Energy Station, May 25, 2011. The AC Transit Notice, p. 2, indicates that a prior hydrogen fueling project in 2004 was also found to be exempt from CEQA.

government agencies, in accordance with their authorities and project review procedures.”

Id. This reassurance is hollow, however, since the EA does *not* disclose to the public and decision-makers the extent to which local agencies can be expected to rely on categorical exemptions and not consider CEQA mitigation in the first place. Thus, rather than being conservative, the EA hides the true magnitude of anticipated significant and unavoidable impacts. If unmitigated through project-level review due to CEQA exemptions, the adverse impacts will be greater than the EA admits.⁷ This error also further undercuts the basis for overriding considerations, since the adverse impacts side of the balance is understated by assuming more project-level mitigation than can reasonably be expected.

Failure to Consider Available Information on Foreseeable Project-Level Impacts. Even at the programmatic or first-tier level, CEQA requires evaluation of all issues that are ripe for review, where feasible and where information is available. Yet, while claiming that extensive analysis must be deferred to the project level, the EA ignores CEQA documents for hydrogen fueling projects that are already in place. Although some existing hydrogen facilities were approved based on CEQA exemptions, CEQA review documents do exist for other projects. Such documents provide concrete, readily available information on matters as to which the EA merely speculates.

For example, the City of Burbank prepared a Mitigated Negative Declaration for its Hydrogen Fueling Station Project, attached.⁸ It is true that some impact analyses in Burbank’s Negative Declaration are based on project-specific details (e.g., visual impacts of the facility’s profile in the specific setting) not appropriate for evaluation at the programmatic stage. Nevertheless, some impact analyses in the Negative Declaration provide valuable information on issues inherent to hydrogen fueling facilities – in particular, on the hazards of hydrogen itself (see comment on hazards below). Other impacts likely to be common to hydrogen facilities wherever they are located include air emissions, noise, public services (including fire protection), and transportation and traffic, from both facility construction and operation.⁹

It is also true that the City of Burbank, after full analysis and disclosure, found that all potential impacts could be mitigated to less than significant – but only for that individual project. Findings of insignificance are by no means assured when scaling up the impacts identified in the Burbank Negative Declaration to over 450 new hydrogen stations anticipated as a result of the CFO amendments. Yet the EA could have analyzed reasonably foreseeable means of

⁷ For example, the EA (pp. 141-142) states: “All projects, no matter their size or type would be required to seek local land use approvals prior to their implementation. Part of the land use entitlement process requires that each of these projects undergo environmental review consistent with California environmental review requirements (e.g., CEQA) and other applicable local requirements (e.g., local air district rules and regulations). This environmental review process would assess whether project implementation would result in short-term construction air quality impacts.” This is simply not true of “each of these projects” if a substantial number can reasonably be expected to be categorical exempt, while air district rules would not reach the range of impacts addressed by CEQA.

⁸ Attachment C, Burbank Hydrogen Fueling Station Project, Initial Study/Negative Declaration/Environmental Assessment (August 2008).

⁹ See Attachment C, Burbank Hydrogen Fueling Station Negative Declaration, pp. 2-12 – 17, 2-36 – 44.

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compliance by considering available information from CEQA documents for existing hydrogen fueling facilities. It was ARB’s responsibility to identify and consider such available information, but not one such project-level CEQA document is cited in the EA references.

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Failure to Analyze CFO, ZEV and LEV III Actions As Separate “Projects.” Three separate regulatory actions are before ARB: amendments to the CFO regulations and also to the Zero Emission Vehicle (ZEV) and Low Emission Vehicle (LEVI III) regulations. These three actions are collectively referred to as the Advanced Clean Cars (ACC) Program. They are also collectively analyzed in the EA for environmental impacts, as though they were a single “project” for purposes of CEQA. See EA, p. 35. However, the EA’s characterization of the single “project” is inconsistent with ARB’s Notice of Public Hearing to Consider Amendments to the Clean Fuels Outlet Regulation (Nov. 29, 2011), which does not propose a single ACC project. Instead, the proposed regulatory action in the Notice is a stand-alone action on the CFO amendments. The Notice, p. 3, merely notes in passing that the CFO project is “part of the Advanced Clean Cars regulatory proposals” – note that “proposals” is plural – that are to be heard on the same day. Similarly, ARB’s website at <http://www.arb.ca.gov/regact/2012/cfo2012/cfo2012.htm> lists the CFO amendments as a stand-alone proposed regulatory action, and the January 26-27, 2012 meeting agenda lists three separate, albeit consecutive, public hearings rather than one hearing covering three subjects; see <http://www.arb.ca.gov/board/ma/2012/ma012612.htm>.

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Certainly, it was appropriate for the EA to consider the cumulative impacts of the three separate CFO, ZEV and LEV III projects. Cumulative impact analysis is the correct means of evaluating the effects of past, present and reasonably foreseeable future projects that overlap in time and may combine to exacerbate their respective impacts. However, nothing in the Notice or the EA states that ARB will *only* adopt the CFO amendments if it also simultaneously adopts the ZEV and LEV III changes. Nor does the EA inform the public and decision-makers of the potential environmental consequences should ARB choose to separately adopt the CFO amendments. Accordingly, the EA does not provide a basis for action on the CEQA “project” that is actually proposed.

Lack of Clarity on Numbers of New Hydrogen Fueling Stations. A CEQA document must contain a clear, stable and complete project description, in order to provide the essential basis for review of the project’s impacts. The EA project description, pp. 33-35, describes the CFO regulation changes themselves but does not describe the reasonably foreseeable means of compliance; i.e., the numbers and locations of new hydrogen fueling stations. Not until pp. 131-133 of the EA is the “compliance response” discussed. Even here, an example for the South Coast is provided, followed by a statement that “Starting in 2016 in the Upper Bound [i.e., fast entry of fuel cell vehicles into the California market] Scenario, the number of vehicles statewide would exceed the 20,000 statewide trigger requiring the construction of 39 additional stations.” But that figure is for a single year, without stating the total effect of the rule provided. The reader must hunt for that information in the ISOR, Table IV-2 on p.50.

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However, even there it is not even clear exactly how many new hydrogen fueling stations ARB attributes to the CFO amendments. ISOR Table IV-2b, p. 50, includes a column for Total Stations and a column for Total New Stations Installed Per CFO under the fast-entry Upper

Bound FCV Scenario. In the Total New Stations column, 31 stations are indicated prior to the rule and 488 stations by 2024, the difference representing 457 new stations attributable to the rule. However, the sum of the Total New Stations Installed Per CFO, adding the numbers for each year from 2015 to 2024, is 461. This discrepancy is not explained in the document.

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The total number of new fueling stations is one of the main drivers of the magnitude of CEQA impacts. The failure to clearly disclose the total number of stations within the EA does not comport with CEQA's informational purposes.

Unsupported Assumptions Regarding Locations of New Hydrogen Fueling Stations. The other main driver of the magnitude of impacts is the location of the fueling stations. The EA downplays location-based impacts, assuming that “new individual hydrogen fueling facilities would be constructed at existing public retail gasoline service stations that are already managed by the retail branches of the respective refiners/importers of gasoline. These locations would also likely be in urban areas where they are positioned to serve the most drivers. Thus, it is unlikely that new hydrogen fuel outlets would be located at greenfield sites (land not previously developed), and that they would be built in locations consistent with local zoning.”¹⁰ EA, p. 133. Nothing in the proposed CFO amendments requires this result and the EA cites no evidence to support these assumptions.¹¹ Instead, since the existing CFO regulations would have directly required gas station owners and operators to locate facilities on their property, ARB simply assumes that the same thing will occur despite shifting the obligation to refiners and importers. This unsupported speculation is the critical basis for conclusions of limited impacts throughout the EA.¹²

In fact, there is reason to doubt the EA's assumptions. Even today, gas stations are the sites of only a small proportion of CFO facilities. The attached spreadsheet identifies 27 hydrogen fueling facilities which currently operate in California and another 15 that are planned.¹³ Of the total of 42, only 12 are located in gas service stations. The other 30 are not, including facilities operated by transit agencies, municipalities (for city vehicles) and universities, many not open to the general public.¹⁴

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¹⁰ Presumably the word “consistent” is a typographical error and the EA intended to state that it was unlikely that new outlets would be in locations inconsistent with local zoning.

¹¹ As the California Fuel Cell Partnership has noted: “Not all of the hydrogen stations need to be traditional retail fueling sites. Some may be built at grocery or big box stores. Fueling dispensers may also be co-located at other hydrogen sites such as with transit stations, forklift fueling or with renewable power generation.” California Fuel Cell Partnership, *Hydrogen Fuel Cell Vehicle and Station Deployment Plan: A Strategy for Meeting the Challenge Ahead* (February 2009), pp. 14-15.

¹² As discussed above, even where the EA concludes that an impact is significant and unavoidable, it cannot unreasonably downplay the impact's magnitude and thereby tilt the balance in favor of overriding considerations. Accordingly, even for impacts that are significant and unavoidable (because outside ARB's regulatory control at the project level), the assumption of location on existing service station sites (tending to reduce impacts compared to new sites) must be supported by evidence. In other words, the significant and unavoidable findings do not shield the EA where it relies on unsupported assumptions.

¹³ Attachment D, Hydrogen Fueling in California.

¹⁴ This spreadsheet was developed from information from the following sources: California Fuel Cell Partnership, <http://cafcp.org/stationmap>; US Department of Energy list of Hydrogen Fueling Stations in California, http://www.afdc.energy.gov/afdc/progs/ind_state.php/CA/HY; “Program Overview - Hydrogen Fueling Infrastructure” presentation by Larry Watkins to the Clean Fuels Winter Advisory Group Winter Retreat

Moreover, just as ARB does not control the behavior of local governments, the refiners and importers do not control the behavior of station owner/operators. The overwhelming majority of service stations in California are now owned by independent operators who only have a supply contract with a refiner or distributor. There are few remaining lessee dealers who lease service stations owned by refiners. Except in those few cases, a refiner has no ability to require station owner/operators to install equipment to dispense hydrogen. The expense would likely be considerable, both to pay for the equipment and to induce station owner/operator to cooperate and surrender its property for a new line of business without a track record of profitability.¹⁵ Moreover, refiners and importers will be reluctant to install costly equipment at locations where they have no control but may be subject to liability in the event of accidents. Accordingly, refiners may be more likely to contract with other parties, such as the existing providers who are already in the hydrogen business and with whom refiners already have business relationships, to establish new outlets specializing in hydrogen. At this point, that prospect too may be speculative, but it appears to make economic sense. But those new outlets are unlikely to be sited at existing retail service stations. At the least, ARB has provided no justification for assuming that the development of outlets in new locations will *not* occur.

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In sum, the facts suggest that it is reasonable to expect a significant number of CFO facilities may be located outside existing retail service stations, contrary to the assumption in the EA. As a result, there is no substantial evidence to support the EA's conclusions that are predicated on the restriction of CFO facilities to existing stations, in order to avoid impacts in new locations.

Improper Use of “Hypothetical Future Conditions” Baseline. ARB assumes that the existing conditions or “baseline” for purposes of determining impacts of the CFO amendments (as well as the ZEV and LEV III provisions addressed in the EA and EIA) consists of:

existing vehicle and related fuel emissions programs, policies, and regulations. The existing regulatory condition includes the existing LEV regulation (LEV II), including the GHG requirements that are part of LEV II (known as the Pavley regulations), the EPL regulation, and the existing ZEV regulation, as well as other relevant, previous California rulemakings, such as the LCFS and all comparable federal regulations. . . . In the context of regulatory programs, impacts on the physical environment are the result of compliance responses to regulations. Compliance responses to the existing LEV II, ZEV, and CFO regulations are already in place and underway. The environmental effects of proposed amendments to regulations that reduce CAP and/or GHG emissions from light-

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(February 2, 2011), http://www.aqmd.gov/tao/ConferencesWorkshops/Retreats/2-2011_Watkins.pdf; Berkeley Transportation Letter, “Filling the Tank with Hydrogen” (Winter 2011), <http://its.berkeley.edu/btl/2011/winter/hydrogen>; Los Angeles Times, “Torrance Shell station adds hydrogen fuel pump” (May 11, 2011), <http://latimesblogs.latimes.com/greenspace/2011/05/hydrogen-torrance.html>; and review of Google Maps for the locations identified in these sources.

¹⁵ Elsewhere in these comments, WSPA provides an analysis questioning the economic analysis in ISOR Appendix E, which appears to underestimate capital costs, interest rates and hydrogen costs, and overestimate station utilization rates. Applying more realistic assumptions, ARB's projected \$150 to \$531 million in cumulative economic benefit becomes an estimated \$210 to \$775 million cumulative loss.

and medium-duty vehicles would build upon the compliance responses to these existing regulations.

ISOR Appendix B, pp. 24-26. On the contrary, the CEQA baseline consists only of the physical environmental conditions that actually exist.¹⁶ Hypothetical conditions that do not physically exist are not properly included in the CEQA baseline, no matter how reasonable the expectation that those conditions will come to pass.¹⁷ Similarly, anticipated future conditions that will exist on completion of plans, rules and compliance responses cited by the EA cannot be included in the baseline here.¹⁸ Instead, impacts of the CFO amendments must be determined by comparison to the physical environment that now exists. By improperly including regulatory developments which are still in progress in the baseline, the EA obscures the actual impacts required to be disclosed under CEQA, by understating changes compared to conditions that exist today.

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Failure to Correctly Analyze Air Emissions. Even if ARB were justified in considering the future conditions resulting from compliance with the pre-amendment regulatory regime as the CEQA “baseline”, it failed to correctly implement this approach. The Emissions Impact Analysis, ISOR Appendix D, compares scenarios of fast and slow fuel cell vehicle (FCV) deployment to gasoline vehicles only. However, compliance with the existing regulatory regime, including existing ZEV regulations, should result in the deployment of battery electric vehicles (BEVs) instead. Accordingly, the CFO amendments, fostering the development of the FCV market by ensuring the availability of hydrogen fuel, would be expected to result in the replacement of BEVs with FCVs. Therefore, the EIA should have focused on the differences in air emissions between BEVs and FCVs, the emissions associated with the generation and distribution of electricity and hydrogen, and any secondary issues associated with the use of conventional vehicles for long-distance travel by owners of both BEVs (which require frequent battery charging) and FCVs (which require proximity to hydrogen fueling stations). In particular, utilizing the EA’s claimed baseline, the EIA should have compared hydrogen production to electricity generation emissions, rather than to those of gasoline production.¹⁹

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¹⁶ CEQA Guidelines § 15125(a); *Communities for a Better Environment v. South Coast Air Quality Management District*, 48 Cal.4th 310 (2010).

¹⁷ See, e.g., *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale*, 190 Cal.App.4th 1351 (2010) (baseline for traffic congestion relief project was the existing environment, not projected traffic conditions based on expected growth under adopted plans).

¹⁸ CEQA Guidelines § 15125(a) defines the environmental setting as a “description of the physical environmental conditions in the vicinity of the project at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, from both a local and a regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant.” Courts have interpreted the word “normally” to allow some latitude; e.g., if the environmental analysis commenced during a flood or drought, an average of *past* conditions over time may be preferred to an instantaneous but unrepresentative “snapshot.” However, as explained in *City of Sunnyvale*, hypothetical conditions based on *future* expectations cannot be included in the CEQA baseline

¹⁹ Moreover, even if the CFO amendments led to displacement of gasoline rather than electricity production, there is no basis for the EIA’s assumption that emissions associated with gasoline production in California would decline. Refiners are more likely to continue producing gasoline (and emissions) and ship the product outside the state, than to forego production and reduce emissions.

These comparisons not only affect the claim of overriding benefits to justify significant and unavoidable impacts, but also have implications for the analysis of adverse impacts. Hydrogen generation, whether at central facilities or at fueling stations, generally can be expected to occur in developed areas, which are more likely to be in non-attainment of ambient air quality standards. By contrast, electricity in California is often generated outside urban and developed areas and in some cases outside the state. Emission increases associated with hydrogen thus may be more likely to cause significant air quality impacts.

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Failure to Analyze and Disclose Air Quality and GHG Impacts from Construction of New Hydrogen Fueling Stations. The EA air quality section, p. 142, states: “Based on typical emission rates and default parameters for above mentioned equipment and activities, construction activities could result in hundreds of pounds of daily NOx and PM, which may exceed general mass emissions limits depending on the exact location of generation.” The short-term construction impact (which is not so “short term” when considering construction of over 450 fueling stations) is considered potentially significant, and mitigation is left to the local permitting authorities during project-level CEQA review. However, the EA does not say what those casual references to “typical emission rates” and “default parameters” may mean, nor explain the “general mass emissions limits” which may apply. Neither the EA nor the EIA (ISOR Appendix D, the emissions impact technical analysis) provides any quantitative estimates of air pollutant emissions beyond the vague acknowledgment of “hundreds of pounds of daily NOx and PM.”²⁰ Readers are given no information to understand or comment on whatever basis ARB may have for that order-of-magnitude figure. Moreover, other construction air quality impacts (e.g., toxic air contaminants) are not even described with order-of-magnitude estimates, and neither the EA nor the EIA even mentions greenhouse gas (GHG) emissions from fueling station construction.

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As discussed above, the programmatic nature of the EA and the anticipated future project-level review (at least, for those projects not found exempt from CEQA) are not a shield from CEQA’s disclosure obligations. Determining the readily identifiable magnitude of emission impacts was not properly left as an exercise for the reader.

Failure to Evaluate Construction and Operation Impacts of New Hydrogen Generating Capacity. The EA (pp. 134-145) acknowledges that compliance with the CFO requirements would require an increase of up to 9.2% in the state’s currently projected supply of merchant hydrogen. The EA also notes that increased hydrogen purity may be required for merchant hydrogen to be suitable for use as fuel for FCVs. Accordingly, the EA explains: “For delivered gaseous hydrogen, modifications of the central plants may be necessary to further purify the hydrogen so that it meets the purity standards required for fuel cell vehicles” and goes on to rely on other agencies for mitigation as it does elsewhere, noting that “the construction work associated with these plant modifications would have to satisfy State and local requirements for permitting, hazardous materials, and other resource areas, which are typically handled by local agencies” (EA, p. 135).

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²⁰ The EA and EIA could easily have provided reasonable quantitative estimates and an explanation for their basis, scaled up for approximately 450 stations from the individual project level; see, e.g., Attachment C, Burbank Hydrogen Fueling Station Negative Declaration, p. 2-13.

However, the EA fails to indicate what percentage of currently available or forecast merchant hydrogen complies with existing specifications for hydrogen as an alternative vehicle fuel. More important, it does not provide any justification for assuming adding up to 9.2% of higher purity hydrogen to the existing supply can be accomplished merely by “modifications” to existing hydrogen generating plants. In fact, in every reference to impacts associated with meeting hydrogen demand, the EA is careful to assert that the demand will be met with “modifications” of existing plants. See, e.g., EA pp. 139, 141, 148, 151, 152, 155, 158, 161-163, 167-169, 171 (each asserting that “New hydrogen fueling stations could also be constructed and operated along with modifications to existing hydrogen production plants”).

By assuming only modifications to existing facilities, the EA can avoid any impacts from construction and operation of new hydrogen generating capacity, which can be substantial. New merchant scale hydrogen plants are major industrial facilities whose construction and operation, like that of other industrial plants, can have significant environmental impacts requiring evaluation under CEQA. (Among other things, hydrogen generation itself produces GHG emissions, which must be mitigated or offset.) However, the EA provides no basis for the assumption. In fact, it seems unreasonable that so great an increase in supply can be accomplished without new facilities. Moreover, as the EA also notes, pursuant to SB 1505, once statewide demand for hydrogen as a transportation fuel reaches certain levels, state law requires that 33.3 percent of this hydrogen be made from renewable resources. There is no estimate of the amount of hydrogen available from existing sources that meets both this requirement and vehicle fuel specifications. Yet under these circumstances, it seems inevitable that there will be more than a modification of existing facilities.

Just as the EA’s unrealistic assumption that all fueling facilities will be located on existing retail service stations serves to understate impacts from new facilities, so does the assumption that only modifications of existing generating capacity are needed. However, given the far larger footprint and environmental effects of new hydrogen generating capacity, the omission has greater consequences for the inadequacy of the EA.

Failure to Analyze Hydrogen Hazards. The EA, p. 158, summarily dismisses impacts related to hazardous materials transport and use, asserting that “New hydrogen fueling stations [and] . . . modifications to existing hydrogen production plants. . . would likely occur within existing footprints or in areas with consistent zoning.” As discussed above, there is reason to doubt these speculative and unsupported assumptions. The EA (pp. 158-159) goes on to address explosion risk from electric vehicle batteries (for the ZEV portion of the ACC initiative) but, remarkably, omits any mention of explosion risk from hydrogen transport and use. Still more remarkably, the only risk of spills the EA discusses is minor diesel spills from fueling construction equipment. No potential impacts (not even insignificant impacts) are recognized for hydrogen transport to fueling stations and operations at stations. No mitigation measures are provided for hydrogen hazards, not even recommended measures to be implemented by local authorities in project-level CEQA review for permitting or approvals.

The failure to discuss hazards or the impacts of hazard mitigation strategies in relation to hydrogen transport and refueling facility operation is a significant omission in the EA. The California Energy Commission (CEC) evaluated potential failure modes and the effects of those failures at hydrogen refueling stations, which include failure modes associated with hydrogen

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delivery vehicles and on-site generation.²¹ The U.S. Department of Energy developed an on-line tool for hydrogen hazard and risk analysis.²² As indicated in these references, the outcomes of many potential failure modes are explosion and fire. Some of the analyzed scenarios have low or moderate frequency but, if they do occur, would have severe consequences.” Both of these references also address potential mitigation measures that are not addressed at all in the EA which might address hazards but could create other potential environmental impacts not to mention impact refueling facility design, throughput, cost, and other important factors.

The CEC report (p. 6-3) concludes that:

hydrogen is relatively leak prone, particularly considering the fact that it is usually stored at high pressures, flammable mixtures are easily ignited, and it is difficult to detect. These characteristics may make hydrogen less safe than other fuels in some accident scenarios. While hydrogen’s industrial-use safety record is good, this application does not include all vehicle fuel and lay person issues. Fortunately, safety research is underway and codes and standards are being developed to address hydrogen vehicle fuel applications.

However, neither the Existing Conditions section (pp. 79-83) nor the Hazards and Hazardous Materials section (pp. 158-160) of the EA describes any such codes and standards, either as part of the regulatory setting or as a source of mitigation measures.²³ Moreover, as recognized in the CEC’s allusion to “lay person issues”, customers at hydrogen fueling stations cannot be expected to observe safety procedures as rigorously as trained personnel.

Failure to Consider Fire Protection/Public Service Impacts. As in the Hazards and Hazardous Materials section, the EA’s Public Services section contains no discussion of hydrogen risks. Given that the impacts of failure modes at hydrogen refueling facilities are frequently fire, explosion, or both, the EA’s conclusion (p. 168) of a less than significant impact on fire protection public services is untenable.

As shown in the ISOR, Table I-1 (p. 10), there are only ten public hydrogen refueling stations currently open in California. The largest of those ten stations has a capacity of 100 kg/day of hydrogen. Given the lack of existing stations, most fire departments would not be expected to be familiar with nor trained to deal with emergencies at hydrogen refueling stations. These departments could be faced with the need to purchase new equipment, engage in additional training or add additional fire fighters. Moreover, ARB assumes that hydrogen stations attributable to the CFO amendments will be designed for throughputs of 400 kg/day, or four

²¹ Attachment E, California Energy Commission, *Failure Modes and Effects Analysis for Hydrogen Fueling Options* (November 2004).

²² http://www.hydrogen.energy.gov/permitting/risk_analysis.cfm

²³ The Negative Declaration for the Burbank hydrogen fueling station examined hydrogen hazards and safety and accident prevention procedures for facility design and operation. Attachment C, pp. 2-26 – 30. Operational risks including accidental spills from delivery vehicles, hydrogen leaks, breaks in hydrogen lines and fires were examined. After thorough analysis, the Negative Declaration found the impact less than significant, for that individual project. Again, the EA should have provided such analysis for over 450 stations, rather than remaining entirely silent on the subject of hydrogen risk.

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times the capacity of the largest existing station. Even fire departments that are familiar with and trained to deal with emergencies at existing hydrogen stations will be faced with much larger potential fires and explosions at facilities with larger volumes of stored hydrogen and/or the increased number of hydrogen delivery vehicle trips. Finally, the increase in hydrogen transport vehicles on the state’s roadway network would introduce increased risks, necessitating training and, potentially, new equipment for fire departments in locations that do not have fueling stations, as well as those that do.

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If the EA were to follow its usual pattern, relying on the authority of local agencies to address increased demands on local fire protection service, then the impact should be found significant and unavoidable, not less than significant. At the least, the impact must be acknowledged and recommended mitigation measures provided.²⁴ The EA should also recognize that agencies responsible for disaster response (e.g., in the event of earthquake), as well as local fire departments, likely would be affected by the risks associated with over 450 new hydrogen outlets and the delivery trucks necessary to service them.

Failure to Analyze Population and Housing and Related Impacts. Typical impacts in several areas – e.g., population and housing, land use, recreation, utilities, public services in addition to fire protection, and growth-inducing impacts – relate to the numbers of workers involved in construction and operation of hydrogen facilities. The EA makes broad, unsupported assertions that worker numbers will be low and impacts related to worker numbers accordingly insignificant (see, e.g., EA p. 168). Again, the reader has no basis to know how well-founded such assertions are and it was ARB’s responsibility to provide support for public review and comment.

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Failure to Consider a Reasonable Range of Feasible Alternatives. Alternatives analysis is a central aspect of the CEQA review process. A lead agency must consider and evaluate a range of potentially feasible alternatives that will foster informed decision-making and public participation. To accomplish this, the CEQA document must develop and evaluate a range of reasonable alternatives that would feasibly attain most of the basic objectives of the project, but “would avoid or substantially lessen any of the significant effects of the project.”²⁵ However, with respect to the CFO amendments, the EA fails to meet even the “reasonable range” standard.

Other than the statutorily required no project alternative, the sole alternative to the CFO amendments considered is the Memorandum of Agreement (MOA) with major gasoline refiners and importers to carry out the exactly same objectives provided in the CFO amendments.²⁶

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²⁴ Moreover, ARB should consider mitigation measures at the state level to address this issue, rather than leaving it entirely to local fire departments and other local responders. For example, the California Fuel Cell Partnership suggested that resources should be provided "to the state fire marshal to integrate hydrogen training into the state fire curriculum", as one of the key "education outreach needs" for hydrogen fueling. The Fuel Cell Partnership also recommended educational efforts aimed at "emergency responders, building and code officials, and state and federal elected officials as well as the general public in communities that have or will have hydrogen stations." California Fuel Cell Partnership, *Hydrogen Fuel Cell Vehicle and Station Deployment Plan: A Strategy for Meeting the Challenge Ahead* (2009), pp. 26-27.

²⁵ CEQA Guidelines § 15126.6(a).

²⁶ The EA also considers alternatives involving more and less stringent LEV and ZEV standards than those proposed, but these are not alternatives to the proposed CFO amendments.

Accordingly, the EA concludes (pp. 195-196) that its impacts would be the same or less than those of the proposed project, since potentially “varying levels of commitment” by MOA participants could lead to fewer hydrogen fueling stations being constructed.

WSPA strongly disagrees with the implication that MOA participants would breach the agreement. ARB has no grounds to impugn the intent of MOA participants to fully comply with requirements to which they have committed. Moreover, intent aside, compliance would not be optional. As the EA (p. 195) states, the “MOA would have the binding power of a contract and be legally enforceable.”

The unsupported presumption of inadequate MOA compliance also has an important consequence for the CEQA review of alternatives. The MOA alternative is designed to and can be expected to achieve the same results as the CFO amendments. Accordingly, the EA fails to consider *any* CFO alternative that is designed to “avoid or substantially lessen any of the significant effects of the project” as required by CEQA. Not every feasible alternative that an agency (or a commenter) can conceive of need be considered. Nevertheless, ARB is obligated to revise the EA to contain, and must then fully and fairly consider, some other alternatives that reasonably can be expected to accomplish actual reductions in significant impacts.

While it is ARB’s obligation to develop a reasonable range of alternatives that can avoid or less impacts, at least two potential alternatives appear feasible.

First, as discussed above, the EA analysis assumes that hydrogen fueling facilities will be constructed at existing gasoline service stations. However, ARB could accomplish the same objective, promoting the availability of hydrogen fuel and so encouraging the manufacturing and purchase of FCVs, without assuming that hydrogen fueling will only occur at public fueling stations. Deployment of FCVs could also create a market for in-home hydrogen fueling. In-home fueling for natural gas vehicles already exists.²⁷ Hydrogen fueling could be accomplished through exchange of canisters, such as is already being tested on light electric vehicles with fuel cells (such as scooters) in Taiwan.²⁸ FCV fueling by this method could occur at some public fueling stations, but canisters also could be purchased at retail outlets and installed at home. Under this alternative, far fewer than the 450 public hydrogen dispensing facilities assumed by the EA would be necessary, and associated impacts would be reduced.

Second, refiners and importers could be provided the option of meeting CFO obligations through hydrogen dispensing or electric vehicle charging facilities. Electricity is also a clean fuel that could satisfy CFO requirements. The regulatory language in proposed 13 Cal. Code Regs. section 2300(a)(2) defines “clean alternative fuel” as “any fuel used as the certification fuel in a zero-emission vehicle” which includes both electricity and hydrogen.²⁹ Since this alternative

²⁷ See Honda Home Energy Station at <http://automobiles.honda.com/fcx-clarity/home-energy-station.aspx>. Also see “Convenient Home Refueling Appliances Now Available for Natural Gas Vehicles” at: <http://www.honda.com/newsandviews/article.aspx?id=200707092524>.

²⁸ See <http://www.hydrogencarsnow.com/blog2/index.php/hydrogen-fueling-stations/first-hydrogen-canister-exchange-station-set-up-in-taiwan/>.

²⁹ Proposed 13 Cal. Code Regs. section 2300(a)(5) defines “designated clean fuel” – that is, fuels subject to the CFO requirements – as any clean alternative fuel, except that “Designated clean fuel does not include electricity unless

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would have the effect of promoting a mixed fleet of FCVs and BEVs, the CEQA evaluation would include consideration of impacts associated with BEV batteries. Nevertheless, BEVs are a more mature technology with which consumers are more familiar than FCVs. At the least, hazard impacts and firefighting public service impacts associated with the use of explosive hydrogen fuel could be reduced. In particular, hydrogen handling by “lay persons” as opposed to trained personnel was recognized as an issue by the CEC (see above). Accordingly, this alternative merits consideration by ARB in a revised EA.

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Revision and Recirculation of the EA. Correcting the deficiencies discussed above require extensive revisions to the EA. Substantial changes (including the addition of feasible new alternatives that clearly would lessen significant impacts) must be made available for public review and comment.³⁰ Accordingly, the EA should be revised and recirculated for additional public comment before ARB takes action on the proposed CFO amendments.

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Comments on Initial Statement of Reasons (ISOR)

Listed below, WSPA has several concerns with the ISOR for the CFO regulatory amendments. Specifically, there are many technical, policy and legal concerns WSPA has relative to what ARB is using as the basis and assumptions to justify the regulation.

I (B)(1)(e) Hydrogen Vehicle Deployment Plans

In Table 1-2 of the ISOR, ARB staff presents data that are purported to be the results of a 2010 CARB/CEC survey of automakers to ascertain their plans regarding FCV placement in California over the period from 2012 to 2017. According to ARB, the manufacturer responses were predicated on the assumptions that:

1. Adequate hydrogen fueling infrastructure will indeed be in place in the communities ahead of vehicle deployments; and
2. Customers will lease or buy these vehicles.

With these assumptions in place, ARB reports that very few FCVs will be in place prior to the 2015-2017 period, but that manufacturers expect a rapid increase in FCV deployment during that period. These survey results are used as not only the basis for the FCV projections of the “Upper Bound” scenario but also to justify the need for modifications to the CFO regulation to be made now rather than waiting until later to see if FCV demand and the need for hydrogen refueling facilities really materialize.

What ARB staff does not report in the ISOR is that auto manufacturers were asked to characterize their FCV projections with one of three levels of confidence. The survey instructions in this regard were as follows:

the Board concludes, based on the analysis conducted pursuant to section 2302(c), that public charging infrastructure for electric vehicles should be incorporated into this regulation.” The alternative proposed here would require ARB to so determine.

³⁰ CEQA Guidelines § 15088.5.

Please fill in the green shaded areas for all time periods to represent the confidence level regarding the locations of these reported FCEVs, using the descriptions below.

10% - interest in area/deployment discussions

50% - concept plan

90% - delivery plan

The actual survey results for 2015 to 2017 indicated California statewide placement of 57,490 FCVs. However, only 6,130 (10.6% of the total) were designated with the 90% confidence level, while 11,830 (20.6% of the total) and 39,530 (68.8% of the total) were designated with the 50% and 10% confidence levels, respectively.

The fact that almost 70% of the FCVs projected for 2015 to 2017 were at the 10% confidence level and that almost 90% were at the 50% or lower level, even after manufacturers thought there would be both customer interest and refueling infrastructure, seems to dramatically highlight the continuing level of uncertainty regarding the commercial viability of FCVs. It also suggests that actual FCV placement levels prior to 2017 will be much lower than those associated with the Upper Bound scenario which in turn has significant ramifications regarding both the need for the CFO regulation as well as the reasonableness of the associated Emission Impact and Environmental Analyses.

II (A)(9) – Tools for Evaluating Proposed Outlet Locations

ARB references various models such as the STREET model, developed by U.C. Irvine that may be used to identify potential CFO location placement in various regions of interest. While such models may be helpful, WSPA is concerned that these often cannot simulate actual market conditions. Additionally, such models cannot take into consideration other factors like retailer interest, community acceptance, land and space availability, and agency permitting requirements including compliance costs. To date, there is no real-world evidence or peer review that supports the accuracy and appropriateness of the use of this academic tool as proposed.

WSPA recommends ARB update this section to clarify that the final siting decision for the clean fuel outlets shall be made by the regulated party, regardless of any modeling tools or other sources of information and data used by either ARB or any local, state or federal regulatory agency.

II (A)(10) – Extending the Timeline for Compliance

The compliance timeline should include more checks/balances and “look backs” to validate that additional stations are needed. Please see comments under Regulation Section 2304.

II (A)(11) – Compliance Requirements

While WSPA understands that some manufacturers are pursuing 5,000 psi and others are pursuing 10,000 psi fueling pressure levels, to our knowledge there has been no industry consensus developed or agreed to by the automobile manufacturers on the appropriate fueling pressure for hydrogen fuel cell vehicles. In that regard, rather than require all clean fuel outlets to be equipped with both 5,000 and 10,000 psi pressure dispensers, an analysis should be conducted that would assess the number of FCVs that are equipped with different pressures and

an assessment of the number of stations needed to provide the appropriate pressure dispenser levels.

An alternative approach would be for ARB to require industry to standardize the pressure at a single level. If done now, well ahead of construction of the vehicles and the fueling sites – it would greatly simplify fueling and fueling availability for this fuel. It will certainly cut down on customer frustration if they pull into a site only to find the pressure does not match their vehicle.

WSPA recommends that as part of its annual survey, ARB should request the number of vehicles and deployment geographies, separately, for vehicles at each fueling pressure. ARB should also drive the industry to establish a fueling pressure standard for FCVs. Further, the regulated parties should only be required to install the fueling pressure identified in the industry-wide standard for the vehicles projected to be deployed within a given geography.

II (A)(12) – Violations

WSPA does not support the proposed level of violations that could be assessed to the regulated party (up to \$250,000/day), while the penalty that could be assessed to an auto manufacturer would not exceed \$35,000, which is clearly not equitable given the regulated parties compliance obligations are based on auto manufacturer FCV projections. Since the auto manufacturers' annual projections trigger the CFO regulation and subject the regulated parties to substantial investment on fueling infrastructure in advance of actual vehicle deployment, to have regulatory compliance parity, the penalties assessed to the auto manufacturers should be commensurate with those assessed to the regulated parties for noncompliance.

WSPA recommends ARB reduce the penalties for violations imposed on major producers or importers of gasoline to a level commensurate with the penalties imposed on automotive manufacturers. Alternatively, auto manufacturer penalties (\$35,000) should be increased to be commensurate with fueling infrastructure penalties because auto manufacturer projections trigger significant investment by infrastructure providers.

II (A)(13) – Breakdown of Dispensing Equipment-Release from Liability

WSPA is very concerned with ARB's proposal to reduce the time for equipment repairs from 6 months to 1 month. Any new technology, particularly in regards to dispensing and operating equipment associated with hydrogen, as well as a limited vendor base, most likely will result in delays associated with repairs and replacements of such equipment and technology. Given hydrogen fueling station technology is not yet mature; the vendor base is limited; a robust, skilled workforce capable of performing repairs does not yet exist; and some of the equipment providers are not based in the U.S., these factors could all result in lead times for repair work that could easily exceed one month.

WSPA recommends ARB retain the six month allowable repair timeline.

II (A)(14) – Sunset Provisions

While ARB's proposal to reduce the sunset provisions from 10% to 5% is a step in the right direction, nonetheless a 5% sunset provision is higher than the number needed to "bridge the gap" to commercialization. In fact, according to the California Fuel Cell Partnership's Action

Plan, it identifies 50-100 hydrogen stations are needed for early commercialization (see Attachment F).

WSPA recommends ARB reduce the sunset provisions to 50-100 hydrogen stations.

IV (A)(2)(a) – Capital Costs

In its economic analysis, ARB provided capital cost ranges. However, in its calculations, ARB used the lower end of those ranges when determining the economic impacts of the regulation. WSPA believes these capital cost estimates are unrealistic since a 400 kg/day hydrogen station has not yet been installed or operated in the field. The capital cost of a 400 kg/day hydrogen station with compressed gas deliveries is estimated by ARB at \$1.5MM in the early years, \$1.4MM in the later years and \$1.8MM for liquid deliveries. These estimates have not been substantiated nor demonstrated in the field. Further they conflict with previous hydrogen station estimates as presented by ARB staff during the July 13 workshop and recent CEC AB118 awards of \$2.3MM for compressed gas and \$2.7MM for liquid deliveries.

The need for the CEC to provide cost share for hydrogen fueling projects up to 75% in its AB 118 awards illustrates that the economic barriers to this technology are very significant.³¹

The U.S. Department of Energy launched its Hydrogen Analysis (H2A) initiative in February 2003 to utilize industry-wide expertise in the development of a standardized approach and set of assumptions for estimating the lifecycle costs of hydrogen and the cost of hydrogen fuel.³² Based upon publicly available data from the AB 118 grant awards (i.e. capital costs and station size) and utilizing the DOE H2A tool with standard assumptions, the cost per gallon equivalent of hydrogen is estimated to exceed \$28/kg (H2A inputs and assumptions are provided in Attachment G). Mandating such a high-cost transportation fuel will likely have significant adverse economic impacts on those who participate in that market.

WSPA recommends modifying the capital cost estimates to align with the July 13 workshop amounts of \$2.3MM for compressed gas and \$2.7MM for liquid deliveries since it is the most current data representing the actual capital costs for hydrogen fueling stations.

IV (A)(2)(b) – Delivered H2 Cost

The delivered hydrogen cost appears to be extremely low (\$2.70 - \$2.85/kg). The reference for the delivered hydrogen cost of \$2.70 for liquid hydrogen and \$2.85 for compressed gas, that ARB cites is: “US DOE, 2011b. United States Department of Energy. Satyapal, Sunita. US DOE Fuel Cell Technologies Program. “Overview of Hydrogen and Fuel Cells.” March 3, 2011. This reference is inaccurate.

The title of the slides containing this reference is “Infrastructure (Station with Liquid Truck Delivery) — Progress: Cost” and “Infrastructure (Station with Tube Trailer Delivery) — Progress: Cost.” In reviewing the detail on these slides, it is apparent that the \$2.85 and \$2.70 estimates are not the delivered hydrogen cost at all. They are the cost of the infrastructure associated with the delivery of hydrogen assessed on a per kilogram basis. Using compressed gas as an example, the \$2.85 includes compression, storage, terminal fees, cooling, tube trailer

³¹ http://www.energy.ca.gov/contracts/PON-09-608_Revised_NOPA.pdf

³² http://www.hydrogen.energy.gov/h2a_analysis.html#h2a_project

and other station costs - not the cost of hydrogen molecules as ARB has indicated in its economic analysis.

Further, the reference notes that the costs are for “high-volume” hydrogen stations. DOE defines “high-volume” as hydrogen stations capable of dispensing 1,000 kg/day. Scaling these costs down to a station size of 400 kg/day is not appropriate as they will not realize the benefits of economy of scale that were assumed for the “high-volume” scenario.

WSPA recommends modifying the cost of hydrogen in the economic assessment. ARB could consider the estimates from the MOA or an alternative reference.

Operating Cost

Additionally, ARB has not provided a transparent dataset that offers estimated operating costs for hydrogen fueling stations. These costs include: actual costs for hydrogen (the molecule), delivery of hydrogen from the production facility to the station, and the cost to operate and maintain the equipment at the station capable of compressing, storing and dispensing the hydrogen, repairs, maintenance, replacement and decommissioning.

Integrating hydrogen into an existing retail gasoline station is not without technical and logistical challenges. Analysis is needed to fully understand how such challenges can be addressed and the impacts that the hydrogen equipment will have on the existing retail business. Further, as we commented in our November 4, 2011 letter, the Collaborative Workgroup identified an estimated negative cash flow of \$175,000 or more per year for at least 4 years, or possibly longer. In fact, the operator may never realize a profit.

Thus, it is clear that early hydrogen station operators would be faced with operating a business that does not make economic sense and a business case cannot be made without recognizing the need for financial support.

WSPA recommends making the operating cost data available for review by the regulated parties. The reference ARB provided is UCD, 2011, University of California, Davis. Ogden, Joan et al. UCD Institute of Transportation Studies. “Analysis of a “Cluster” Strategy for Introducing Hydrogen Fuel Cell Vehicles and Infrastructure in Southern California.” Sept. 16, 2011. Revised Oct. 5, 2011. This version could not be found in the public domain. WSPA requests ARB provide a copy so that WSPA can review and provide additional comments as necessary.

SB 1505 Premium

ARB has assessed a \$0.70/kg additional cost for the SB 1505 requirements. There is significant competition for renewable energy in the marketplace due to requirements in the Renewable Portfolio Standard. Has ARB conducted an analysis to confirm that the renewable energy required for compliance with SB 1505 will be available? Further, in its worst case scenario, why is ARB using biogas as the renewable energy source? Solar electrolysis is currently the high-cost hydrogen production pathway, so the worst case analysis should include the highest cost technology.

WSPA recommends performing a more thorough analysis of: (1) the availability of renewable energy that could be utilized in the production of hydrogen; and (2) the impact of competition for

renewable energy on cost. Additionally, WSPA recommends ARB consider a true worst case scenario that includes the high cost alternative for producing hydrogen – solar electrolysis.

IV (A)(3) – Station Utilization and Payback Assumptions

WSPA does not agree with ARB’s position that hydrogen stations will operate at 100% utilization. Utilization rates are typically <100% to ensure that fuel is available when customers need it – even for gasoline stations. Hydrogen fueling stations new technology, so equipment downtime should be expected and planned for. It will also be difficult to predict when customers actually need fuel.

WSPA recommends ARB modify the economic analysis with a utilization rate of 70% to account for demand spikes and equipment downtime.

IV (B)(5) – Summary of Economic Analysis Results

ARB estimates that a retailer will be able to recover costs and begin making a profit within 3 years. As mentioned in Section IV (A)(2)(b) – Delivered H2 Cost, WSPA stated in our November 4, 2011 letter, the Collaborative Workgroup identified an estimated negative cash flow of \$175,000 or more per year for at least 4 years, or possibly longer, and in fact the operator may never recognize a profit.

Interest Rate for Commercial Loans

ARB does not provide a reference for using a 6% interest rate on business loans. Interest rates for commercial/business loans are typically higher, especially for unproven technology in a new market.

WSPA recommends ARB provide information to support a 6% interest rate. In the absence of such information, WSPA recommends ARB update the economic analysis with a more reasonable number based upon actual commercial interest rates.

Comments on Appendix A: Proposed Regulation Order

§2300 - Definitions

(14) Importer – Definition should be consistent with the CaRFG3 regulation and/or LCFS regulation.

§2302(b)(1) – Retail Outlet Requirements

The requirement to provide “upon request” fueling capability for both 5,000 and 10,000 psi vehicle storage tanks is problematic. See II (A)(11) comments above.

§2302(c)

The regulatory package indicates ARB will conduct an analysis on the feasibility and need for EV charging and EV charging may be added to the CFO regulation following the conclusion of the analysis. WSPA feels strongly that there is no need to include provisions for a study in this regulation and that sufficient electric vehicle recharging infrastructure efforts are well under way in the state. Further, it is WSPA’s position that the same legal concerns associated with

mandating hydrogen fueling infrastructure exist with electric charging infrastructure. It is apparent that ARB believes the regulation can be modified to accommodate different fuels, so the agency could again opt for pursuit of modifications to the CFO to include electric charging infrastructure when the need is imminent.

WSPA strongly recommends the EV charging study be excluded from the proposed regulatory amendments and ARB conduct a study outside of the regulation to determine if any further EV charging infrastructure will be needed and, if so, options for achieving the funding requirements in consultation with utilities and other involved stakeholders.

§2303(b)

There appears to be a problem with the reference cited in 2303(b) for the reporting of FCV sales projections. Specifically, reference is made to "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as incorporated by reference in Title 13, California Code of Regulations, section 1961. This reference only requires reporting of model-year TLEVs, LEVs, ULEVs, and SULEVs not certified exclusively on gasoline or diesel.

WSPA recommends revising the reference as appropriate, presumably such that it aligns with that used in §2303(a).

§2303(b)(2)

In the ISOR, ARB extrapolates vehicle projection data. In the regulation, it is unclear if the methodology for triggering the CFO will be similar.

WSPA recommends all survey data be made publicly available, especially to the regulated entities. Additionally, ARB has indicated that it is collecting and analyzing data to determine whether auto manufacturers are on track to manufacture FCVs within a given timeframe. Such information should also be made publicly available to ensure the regulated parties have full knowledge and information given they are required to expend capital to comply with the requirements of the regulation.

Additionally, WSPA recommends in the regulatory language, that ARB should explicitly state that the trigger can only be calculated by the summation of actual responses received. Projections should only include actual, auditable responses from each individual auto manufacturer. Extrapolation of data (as referenced in the ISOR) should not be allowed. If an auto manufacturer does not respond or project vehicles, their response shall be recorded as zero and also be made part of the public record.

§2303.5(a)(1)

ARB has added a regional trigger of 10,000 vehicles in an air basin, where CFOs would then be required to be installed.

WSPA recommends ARB remove the regional trigger of 10,000 within the boundaries of an air basin. Alternatively, the regulation should explicitly state that if ARB does not remove the regional trigger of 10,000, then CFOs will only be required within that region.

§ 2304(a)(1)

ARB's calculation for the number of CFOs required, are based upon 146,000 kg/yr. It is unclear if ARB expects that compliance is based upon this minimum capacity.

WSPA recommends that regulated parties must have the flexibility to install station types and scale appropriately for each location. The calculation assumes 146,000 kg/year (400 kg/day), but this should not be a requirement. The flexibility to install smaller and/or larger stations should be allowed and determined by the regulated party.

§2304(a)(2)(C) – Determination of the Number of CFO's

It is unclear if the CFO can be redacted if projections fall below the 10,000 or 20,000 vehicle threshold. There is no robust look-back mechanism to validate that additional CFOs are needed.

WSPA recommends new sections (3 and 4) as shown in red italicized underlined language below.

- (C) Reducing the number of required retail clean fuel outlets to reflect certain preexisting outlets and based on the actual demand for the designated clean fuel.
1. For each year, the Executive Officer shall determine for each designated clean fuel the number of retail clean fuel outlets that [i] are owned or leased by persons who are non refiner/importers of gasoline, [ii] have a design capacity as set forth in section 2302(b) where applicable, [iii] satisfy the provisions of section 2309 (b), and [iv] certify that they will operate throughout the compliance year for which the determination is being made.
 2. For each year, the Executive Officer shall reduce the total number of required clean fuel outlets required for each designated clean fuel, as determined pursuant to sections 2304(a)(1), and (a)(2)(B) by the number of retail clean fuel outlets determined in accordance with section 2304(a)(2)(C)1. The Executive Officer shall notify the refiner/importer responsible for each retail clean fuel outlet included in the determinations made pursuant to this section 2304(a)(2), and no such outlet may be constructively allocated pursuant to section 2308.
 3. At the end of each year, the Executive Officer shall conduct a needs assessment to validate the total number of clean fuel outlets required for each designated clean fuel before increasing the number of required clean fuel outlets for the next year. The needs assessment shall include analysis of the vehicle manufacturers' projections pursuant to section 2303(b)(2), the number of vehicles deployed in the State of California compared with the vehicle manufacturers' projections, and the available supply of versus demand for the designated clean fuel. Based upon the findings in

the needs assessment, the Executive Officer shall reduce the number of clean fuel outlets required if:

- a. The vehicle manufacturers' projections pursuant to section 2303(b)(2) exceed the actual number of vehicles deployed in the State of California for that year, resulting in an excess supply of the designated clean fuel as projected by the TPMV calculations set forth in section 2303(c).
 - b. The state-wide fueling capacity of the designated clean fuel exceeds the state-wide demand for that designated clean fuel by greater than 20%
4. In the event that the vehicle manufacturers' projections pursuant to section 2303(b)(2) decline below the trigger level requirement during the twelve months prior to the start of the year described in section 2303.5, the Executive Officer shall delay the requirement to install clean fuel outlets until the trigger level requirement is again reached. The Executive Officer shall notify the parties of this delay within 4 months of receipt of the vehicle manufacturers' projections.

§Section 2308 – Constructive Allocation of Retail Clean Fuel Outlets

Section 2308(a) seems to disallow constructive allocation of a retail clean fuel outlet if the outlet is also a retail gasoline outlet.

WSPA recommends ARB strike the words “which is not a retail gasoline outlet” in line 2. We believe that dual purpose or multi-purpose fuelling facilities may be more attractive to owners, operators and customers and should be allowed.

§2309(b)(2)

ARB requires that the regulated party, “store a commercially reasonable quantity of the designated clean fuel at the outlet.” This requirement is technology limiting and favors hydrogen deliveries over onsite production.

WSPA recommends ARB consider modifying the requirement to “make a commercially reasonable quantity of the designated clean fuel at the outlet available”, as opposed to requiring a minimum amount of hydrogen to be stored on site.

§2309(d)(2)

ARB's provisions for reporting operational details of clean fuel outlets at facilities not owned by the regulated party are problematic. WSPA does not support the regulated parties being responsible for reporting operational requirements, such as the manner of how fuel will be supplied at outlets that our members do not own and operate.

WSPA recommends modifying or excluding the detailed operational reporting requirements for outlets that are not owned and operated by the regulated parties from this section.

§2311(a)(1)- Breakdowns

WSPA does not support the limited time to provide notification in the event of CFO equipment malfunction. In terms of a “major breakdown,” for example, the requirement to notify the Executive Officer within 4 hours is burdensome and onerous. As stated in section §2309(d)(2), WSPA does not support regulated parties being held accountable for operational requirements, which includes requirements to report breakdowns at outlets that they do not own and operate.

WSPA recommends deleting the definition of “minor breakdown” and removing all requirements regarding “minor breakdowns”. In terms of a major breakdown we recommend a notification period of 72 hours. We also support the original regulatory language that allows for a repair time of six months.

§2312 - Reporting

WSPA recommends this section be deleted. Since the regulation is being changed to regulate producers and importers, the requested information is unnecessary.

§ 2315(d) – Violations of Section 2303 (b)(2)

As stated above in the ISOR section, we believe false vehicle projection penalties should be equivalent to the CFO non-compliance penalties. If an auto manufacturer decides not to deploy the number of vehicles it already projected at the last minute due to lack of consumer interest/sales, the manufacturer would likely take the ARB penalty of \$35,000 over a choice of continuing to build cars for which a market does not exist. However, the regulated party to the CFO regulation will have already invested substantial capital to comply with the regulatory requirements. An investment that would ultimately be a stranded liability with sunk costs. Given this potential realistic scenario, it is critical that the penalty to auto manufacturers be comparable for both the CFO regulated parties and the auto manufacturers. Further, it ensures that OEM projections are accurate, particularly during the second year of the three year survey analysis.

WSPA recommends the false vehicle projection data penalty be equivalent to the CFO non-compliance penalties. It is currently significantly lower. Additionally, the vehicle projection data penalty is slated to remain with the government. ARB should utilize the vehicle projection data penalty revenues to reimburse the CFO regulated parties for stranded investment as a result of inaccurate OEM projections.

Comments on Appendix B: Environmental Analysis

Environmental Analysis Related to Hazards, Hazardous Materials, and Public Services

WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents.

As part of the ARB’s Environmental Analysis for the Advanced Clean Cars Program (Appendix B to the Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation), the potential impacts of the CFO regulation on Hazards,

Hazardous Materials, and Public Services are analyzed along with means to mitigate potentially significant impacts.

Beginning with Hazards and Hazardous Materials ARB analyzed three issues. These are:

1. Routine Transport, Use, or Disposal of Hazardous Materials
2. Upset and Accident Conditions, and
3. Hazardous Emissions, Materials, or Substances Near Schools, Hazardous Material Site, Airport Land Use Plan, Private Airstrip, Emergency Response Plan or Emergency Evacuation Plan, and Wildland Fires.

With respect to Public Services ARB analyzed only the following issue:

4. Response Time for Fire Protection, Police Protection, Schools, Parks, and Other Facilities.

With respect to issues 1 and 4, ARB concluded that impacts would be less than significant.

With respect to issue 2, ARB identified only the potential of fuel spillage associated with the refueling of construction equipment as a potentially significant impact but went on to indicate that “...*this impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of the ARB.*” No description of what the “mitigation” to which ARB refers is provided. What is clear is that impact has nothing to do with the delivery of hydrogen to refueling stations or the operation of those stations.

With respect to issue 3, ARB indicates that “*impacts...may be significant and unavoidable*”.

It appears that ARB ignored germane factors that should have been included in the Environmental Analysis for issues 1, 2 and 4 that could have also lead to findings of significant impacts and unavoidable impacts. These factors are related to the potential failure modes and the effects of those failures at hydrogen refueling stations which include failure modes associated with hydrogen delivery vehicles and on-site generation. These factors have been studied extensively and documented, for example, in a report prepared for the California Energy Commission³³ and in an on-line tool for hazard and risk analysis available from the U.S. Department of Energy.³⁴ As indicate in these references, the outcome of many potential failure modes are “explosion and fire”. This seems to directly contradict ARB’s conclusion that risks with respect to issues 1 and 2 are not significant and do not require mitigation.

Given that the impacts of failure modes at hydrogen refueling facilities are frequently fire, explosion, or fire and explosion, it is difficult to understand how ARB arrived at the conclusion that there would not be significant impacts with regard to fire protection services which are

³³Failure Modes and Effects Analysis for Hydrogen Fueling Options, California Energy Commission, CEC-600-2005-001, November 2004.

³⁴ The tool is available at http://www.hydrogen.energy.gov/permitting/risk_analysis.cfm

included in issue 4. As described below, it is clear that there will be significant impacts on fire protection services which will require either mitigation or which will have to be deemed to be significant and unavoidable.

As shown in Table I-1 of the CFO ISOR (page 10), there are only ten public hydrogen refueling stations currently open in California and of those ten stations, the highest capacity is 100 kg/day of hydrogen. This is important for at least two reasons. The first is that given the lack of existing stations, most fire departments would not be expected to be familiar with, nor trained, to deal with emergencies at hydrogen refueling stations. These departments could be faced with the need to purchase new equipment, engage in additional training or perhaps add more fire fighters. A similar issue could be raised by the introduction of hydrogen transport vehicles operating in their jurisdictions which could raise new threats necessitating new equipment and/or training.

The second reason is that ARB assumes that hydrogen stations created by the CFO will be designed for throughputs of 400 kg/day or four times the capacity of the largest existing station. Given this, even fire departments that are familiar with and trained to deal with emergencies at existing hydrogen stations will be faced with much larger potential fires and explosions owing to the larger volumes of stored hydrogen and/or the increased number of hydrogen delivery vehicle trips created by the operation of the station.

Another potential factor that could impact public services that was not identified or analyzed by ARB is the impact of hydrogen refueling stations on disaster response requirements. Given that their numbers are currently very small, the increases required under the CFO regulation could affect public agencies responsible for earthquake response requirements as well as responses required for prolonged outages of electric service potentially resulting from high wind events and other types of disasters.

Returning to issue 3, where ARB did indicate that potentially significant and unavoidable impacts could exist, one way to mitigate the risk associated with a hydrogen refueling station could be for the local lead agencies (which ARB states will be responsible for approving construction of those stations) to simply reject applications for station construction submitted by refiners subject to the CFO regulation precluding their ability to comply with the CFO regulation.

As review of the CEC and DOE references cited above quickly indicates, there are different potential failure modes and hence risks associated with different hydrogen refueling station designs. Given this, another potential mitigation measure would be to dictate station design. Given that ARB's economic model presented in Appendix E to the CFO ISOR indicates significant differences in the cost of station construction as a function of their design, these local lead agency actions could have significant impacts on the costs of compliance with the CFO regulation that CARB staff has failed to take into account.

CFO Environmental Analysis Related to Hydrogen Production

WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents.

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As part of ARB's Environmental Analysis for the Advanced Clean Cars Program (Appendix B to the Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation), the compliance response of increased hydrogen generation for fuel for fuel cell vehicles (FCVs) is recognized and discussed. The impacts associated with the compliance response are analyzed with respect to air quality but not with respect to greenhouse gas (GHG) emissions.

With respect to air quality, ARB concludes that compliance with CEQA would ensure that all impacts associated with the construction and operation of hydrogen production facilities are mitigated to a "...*less-than-significant level*". However, it appears as discussed below that ARB ignored a number of factors in analyzing the air quality and GHG impacts associated with the required increase in hydrogen production for compliance with the CFO regulation.

ARB's discussion of hydrogen production is embedded on pages 134 and 135 of the EA. ARB notes that compliance with the CFO requirements would require increases in the supply of up to 9.2% in the state's currently projected supply of merchant hydrogen. The EA also notes that increased hydrogen purity may also be required for merchant hydrogen to be suitable for use as fuel for FCVs. However, ARB does not indicate what percentage of currently available or forecast merchant hydrogen complies with the agency's existing specifications for hydrogen used as an alternative motor vehicle fuel³⁵ or what the environmental impacts associated with changes required at hydrogen production facilities to produce sufficiently pure hydrogen could be.

ARB also notes that pursuant to SB 1505, once statewide demand for hydrogen as a transportation fuel reaches certain levels, state law requires that 33.3 percent of this hydrogen be made from "eligible renewable resources as defined in subdivision (a) of section 399.12 of the Public Utilities Code." However, ARB provides no estimate of the current amount of hydrogen that is available that meets both this requirement as well as its motor vehicle fuel specifications and does not include any forecasted estimates.

Finally, ARB assumes the required hydrogen will be available (and in its economic analysis, at prices equivalent to those associated with local production at centralized steam methane reforming facilities). However, no basis is provided for that assumption.

The first problem with the ARB analysis is the assumption that all potential air quality impacts will be mitigated to be non-significant as a result of the need for CEQA compliance, and the simultaneous assumption that all of the increase in hydrogen production capacity required for CFO compliance will occur in a timely fashion.

Looking first at central hydrogen production facilities producing local merchant hydrogen, ARB has provided no evidence that refiners either have direct control over these plants or that refiners can somehow compel the expansion of their capacity. Therefore, the decision with regard to whether or not to expand hydrogen production will likely be made based on economics by the

³⁵ CARB's current hydrogen fuel composition regulation is found at §2292.7, Title 13, California Code of Regulations.

plant owner who will factor the costs of CEQA compliance into that analysis and may well conclude that expansion does not make economic sense, particularly in areas such as the South Coast Air Basin where necessary emissions offsets are difficult to obtain or expensive. If merchant hydrogen meeting ARB's hydrogen fuel specifications is in short supply, costs will likely rise and to the extent that supply is unable to satisfy FCV demand, FCV owners would have to turn to other modes of transportation, most likely conventional vehicles with the result being increases in emissions of both air pollutants as well as GHG emissions.

Similarly, existing merchant hydrogen plants are subject to the AB32 cap-and-trade regulation, which will likely require reductions in GHGs from those plants. Expansion of those plants would increase GHG emissions and force plant operators to purchase additional offsets. Again, this fact would be accounted for in the economic decision-making of hydrogen plant owners and tend to discourage decisions to increase capacity.

ARB also fails to identify the potential impacts of the need to increase hydrogen supply and the specific production methods used on hydrogen prices which in turn may have environmental impacts. As noted by the California Hydrogen Highway Network³⁶ (see Attachment H) and as CARB staff is aware, the cost of hydrogen produced by different methods varies dramatically, in this case ranging from \$1.44 to more \$7.00 per kilogram. As hydrogen fuel prices will be related to the marginal cost of the source of the last increment of hydrogen needed to satisfy demand, it is crucial that CARB identify the sources of supply it assumes will be added to satisfy the increased demand. The price of hydrogen will be critical to decisions made regarding supply increases and also to FCV purchase decisions made by consumers.

In addition, because compliance with the ZEV regulation requires only that vehicle manufacturers deliver vehicles for sale in California and allows manufacturers to count FCVs sold in other states towards compliance with the ZEV regulation, the supply and price of hydrogen in California are going to be critical determinants in both the impacts of the ZEV regulation as well as the actual need for the CFO regulation.

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Appendix C: Status of Alternative Fuel Infrastructure for Non-ZEV Alternative Fuel Vehicles

No comments.

Comments on Appendix D: Emissions Impacts Analysis

WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents.

ARB has incorrectly performed the analysis of fuel cell vehicles (FCVs) by comparing them only with gasoline vehicles. However, it would appear from a technical point of view that the correct baseline for assessment of the emission benefits of FCVs in general and the CFO regulations in

³⁶ See presentation at http://www.arb.ca.gov/msprog/hydprod/SB_1505_workshop_feb2010.pdf

particular is with a scenario where battery electric vehicles (BEVs) are assumed to be produced instead of FCVs to comply with the “pure-ZEV” requirements of either the existing ZEV regulation or the modified ZEV regulation being proposed by ARB staff.

While this might not at first seem intuitive, the ZEV regulation requires vehicle manufacturers to produce and offer for sale a range of vehicles including ZEVs which as indicated in Table 1.1 of the ISOR for the ZEV regulation are either BEVs or FCVs. Manufacturers can elect to comply with the pure ZEV requirements using either BEVs or FCVs. Therefore, to the extent that ARB takes action to foster the development of one technology over the other – for example FCVs as is the case with the proposed modifications to the CFO regulations - then fewer BEVs will have to be produced and offered for sale.

Since the proposed modifications to the CFO regulations are intended to support the introduction of FCVs, one assumes that in the absence of the revised regulations manufacturers would be required to sell more BEVs instead. Therefore, the emissions impact analysis of the CFO regulation should focus only on the differences in emissions between BEVs and FCVs, the emissions associated with the generation and distribution of the “fuels” that power these vehicles, as well as any secondary issues associated with inability of both BEVs and FCVs to fully account for the travel demands of their owners who may be forced to use conventional vehicles for long distance travel or travel away from hydrogen refueling stations. ARB staff has failed to perform this analysis.

While any real EIA would have to include a complete comparison of emissions impacts for BEV and FCV compliance under the ZEV mandate that includes not only emissions associated with fuel production, but also emissions associated with fuel transportation and the need to use conventional vehicles for some portion of travel given the range and refueling infrastructure limitations that will affect BEVs and FCVs regardless of the CFO, it is easy to show that there will be differential impacts. The following table shows the CI values contained in the most recently modified version of ARB’s LCFS “Lookup Table” for electricity and hydrogen production along with those same values divided by the energy efficiency ratios (EERs) of 3.4 and 2.5 that apply to BEVs and FCVs, respectively. As shown, in almost all cases the values for the carbon intensity divided by the EER associated with hydrogen and therefore FCV operation is higher indicating that ARB regulations like the CFO regulation that promote FCVs relative to BEVs are likely to have adverse impacts on CO₂ emissions which need to be identified and quantified in the EIA and considered under CEQA.

| Fuel | Source | CI gCO ₂ eq/MJ | CI/EER |
|------|--|---------------------------|--------|
| ELEC | California average electricity mix | 124.10 | 36.50 |
| ELEC | California marginal electricity mix of natural gas and renewable energy sources | 104.71 | 30.80 |
| H2 | Compressed H ₂ from central reforming of NG (includes liquefaction and re-gasification steps) | 142.20 | 56.88 |
| H2 | Liquid H ₂ from central reforming of NG | 133.00 | 53.20 |

| | | | |
|----|--|-------|-------|
| H2 | Compressed H2 from central reforming of NG (no liquefaction and re-gasification steps) | 98.80 | 39.52 |
| H2 | Compressed H2 from on-site reforming of NG | 98.30 | 39.32 |
| H2 | Compressed H2 from on-site reforming with renewable feedstocks | 76.10 | 30.44 |

The EIA does not contain any estimate of emissions associated with the construction of hydrogen refueling facilities required under the modified CFO regulations. Although this deficiency should be noted, it is unlikely that these construction emissions will be substantial.

Different scenarios are evaluated in the EIA with respect to criteria pollutant and GHG emission impacts. Again, this finding is correct and should be noted as a deficiency in the EIA which should use the same scenarios throughout the analysis. However, the impact of this deficiency is not likely to be substantial.

In addition, there are a number of additional issues that should be raised with respect to the EIA. The first issue deals with the analysis of criteria pollutant impacts associated with hydrogen production presented on pages D18 to D23 of the EIA.

The first problem with this analysis is that ARB staff claims on page D-18 that it was performed “using GREET”. While California has created a version of GREET for use in estimating life-cycle greenhouse gas emissions associated with different fuel pathways that is incorporated into the LCFS regulation, this model is not used to develop emission inventories of criteria pollutants for use in the development of State Implementation Plans (SIPs) and the reasons for its use here, instead of the official methods for inventory development, are not explained.

Further, the GREET-based numbers in Table D-6 do not track in any way the numbers from the South Coast Inventory shown in Table D-7. For example, the ratio of NO_x to VOC for gasoline in Table D-6 is about 2 while it is less than 1 for petroleum refining in Table D-7. Similarly, the ratios of NO_x to VOC for all four hydrogen production processes shown in Table D-6 are all greater than 1 while the ratio for Industrial chemical processes in Table D-7 is less than 0.01 or more than 100 times different than the GREET-based ratios shown in Table D-6.

Notwithstanding the other issues identified with the so called “analysis” of criteria pollutants, impacts must be based on ARB approved emission inventory procedures, must be performed specifically for gasoline and hydrogen production occurring in California, and must be documented such that the public can properly comment on it (e.g. understand and reproduce the reported values).

The second problem is that hydrogen production is compared to gasoline production rather than properly compared to electricity generation. Issues associated with the proper comparison of criteria pollutant emissions associated with hydrogen production versus electricity generation include where the emissions occur. With hydrogen generation those emissions are likely to occur in the urban areas where FCVs are operated and where non-attainment with ambient air quality standards is likely. As a result, increases in emissions associated with increased

hydrogen production may exacerbate air quality problems. In contrast, electrical generation in California often takes place away from urban areas and in some cases outside the state of California. In this case, increases in electrical generation may not have any impact on air quality within any California non-attainment area. Again, the EIA must both recognize and address these issues.

Further, even if FCV use was displacing the use of gasoline rather than electricity, there is no basis to assume that emissions associated with gasoline production in California would decline. In order for that to happen refiners would have to either reduce throughput at California refineries (which may or may not reduce criteria pollutant emissions) or shut down refineries. It is unlikely that changes in local gasoline consumption are likely to cause refiners to operate their refineries differently as they would still have the option of producing gasoline in California but shipping it elsewhere for consumption – without any change in refinery emissions.

Similarly, even a refinery shutdown would not necessarily reduce emissions because those emissions are subject to local stationary source regulations and the shutdowns would generate emission reduction credits (ERCs) which could be used to offset emissions from new sources that could not otherwise be constructed in the area where the refineries were located. Again, the failure of the EIA to even raise this issue highlights the fact that it is fatally flawed and cannot be relied upon by the Board in making a decision to adopt the proposed modifications to the CFO regulation.

The third issue is the relation between the so called travel provisions of proposed section 1962.2(d)(5) (E) Title 13 California Code of Regulations (CCR) which allow FCVs sold in some states other than California to be counted towards compliance with the requirements of the ZEV mandate and the hydrogen-fueled vehicle reporting requirements associated with the CFO regulations in Section 2303(b)(2) Title 13 (CCR). Under the travel provisions, vehicle manufacturers receive credit with respect to compliance with the both the California ZEV regulation for the sale through the 2017 model-year of most BEVs and all FCVs in states other than California that have adopted the California vehicle regulations as well as the ZEV regulation in place in the state where the vehicle was actually sold. For FCVs, but not BEVs, these provisions continue to apply without sunset from the 2018 model-year. In contrast, the CFO regulation requires manufacturers to report the number of FCVs they plan to offer for sale in specific air basins of California.

Based on the above, it is not clear that the FCV sales projections shown in Figure D-1 of the EIA represent estimates of FCVs in operation in California or nationwide. To the extent that the estimates reflect the nationwide sales of FCVs upon which compliance with the ZEV regulation would be evaluated, the California hydrogen demand estimates and all California specific corrections in the EIA are incorrect. ARB must include estimates of the fraction of FCVs that are expected to be sold in states other than California under the ZEV regulation and account for the fact that many FCVs required under the ZEV regulation may not even operate in California in the EIA.

In addition, the calculations shown in the EIA were reviewed. While the methodology used in the analysis and the basis for a number of the assumptions are not well documented, there were no substantial issues identified.

Lastly, ARB should have analyzed the potential emissions impacts from truck deliveries of hydrogen in the case where on-site generation of hydrogen is not used. Liquid H₂ trucks carry approximately 4,000 kg and gaseous carry 400 kg. Assuming an 8000 gallon gasoline volume and an EER of 2.5, there are 25% less tanker trips to support a fleet of similar vehicles than with gasoline. But for gaseous, there would be 8 times as many tanker trips required. Also, one would expect H₂ tanker travel distances to be longer as you cannot pipe it to distribution facilities like gasoline. Like construction emissions, we don't think truck emissions are a major emissions impact but the issue should have been considered in the emissions and CEQA analyses.

Comments on Appendix E: Economic Model

WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents.

WSPA does not support placing the cost of hydrogen refueling infrastructure or electrical chargers on refiners and importers. These costs should be borne by those electing to produce the vehicles or produce the alternative fuel (the car manufacturers, the hydrogen producers and the electricity providers). Forcing a party to engage in a business that is in direct competition with their primary product makes no sense from any standpoint. Forcing a party to fund infrastructure that will exist on property owned by another party is also unfair. This proposed regulation does not treat all parties equally and is clearly an anti-petroleum fuel measure that will raise with little or no benefit. There are still emissions when hydrogen is produced and electricity is generated - they just are not at the tailpipe.

The proposed regulation is not treating all parties equally. The potential penalty for vehicle manufacturer's providing high estimates of future production of hydrogen vehicles are significantly lower than the penalty for refiners not building enough clean fuel outlets, let alone the cost of funding the hydrogen dispensing equipment that is not needed. Clearly, the vehicle manufacturers should be the one providing the majority of the funds. After all, they are choosing to produce hydrogen vehicles, a vehicle that uses a fuel without a current distribution system or infrastructure. ARB's stated reason for changing the regulated party to major producer/importers of gasoline is because it "evenly spreads the requirement to build CFO's among the parties that continue to benefit financially from California's use of gasoline" is flawed as it is the refiners who will suffer economically as demand for their product declines due to this regulation. ARB is making the party that carry's the major brunt of the economic impact of declining gasoline demand fund the CFO's. The section of the ISOR on "Regulated Party" just identifies the ownership of retail outlets and production of gasoline. It provides no justification for making refiner/importers the regulated party.

This regulation will cost the retail service station owners lost sales, revenue and profit.

Retail gasoline stations have little or no spare land. Installing hydrogen refueling infrastructure will result in lost sales, revenue and profits. Gasoline stations have three busy times of the day, before work, lunch time and after work. During these times the fueling positions are normally fully occupied and the limited parking spaces are full.

- a. If the hydrogen refueling equipment uses existing parking spaces then in-store sales will decline as people need to either be fueling their car or park their car in order to go into the store.
- b. If the hydrogen dispenser replaces a gasoline dispenser then gasoline sales will decline and in-store sales will also as there will be less hydrogen customers than gasoline customers.
- c. If the hydrogen dispenser is added to a fuel island, a car using it will prevent another car from using the gasoline pump next to the hydrogen dispenser. Thus gasoline sales will likely decline.
- d. If the hydrogen refueling equipment displaces a car wash or other revenue generating asset, the sales from these assets would likely be eliminated completely.

The Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation, includes an economic analysis of the impacts associated with the regulation (pages 47 to 65). This analysis is generally based on an “economic model” for hydrogen refueling facilities that is presented in Appendix E of the ISOR. These documents are supplemented by two spreadsheets posted on the ARB website.³⁷ This memorandum documents the results of a critical review of the ARB economic analysis for the CFO regulation.

The CFO economic analysis begins with projections of fuel cell vehicle (FCV) populations operating in California during the period from 2014 to 2028 under two scenarios referred to as the “Upper Bound” and the “Lower Bound”. These FCV populations are then used to estimate the number of hydrogen refueling outlets that would be required under the proposed CFO regulations from which the economic impacts are assessed using the “economic model”.

The fuel cell vehicle populations for the Upper Bound case are described as being based on automaker projections of FCV that are expected to be sold in specific areas of California through 2017 and then assuming that manufacturers elect to comply with the requirements of ARB’s Zero Emission Vehicle (ZEV) regulations using only FCVs. The Lower Bound population of FCVs is reported to represent ARB’s “most likely compliance scenario” for the ZEV mandate. The numbers of FCVs estimated to be in operation in California under both scenarios are presented in Figure III-1 of the ISOR.

However, it should be noted that FCVs sold in states other than California that have adopted the California ZEV regulation pursuant to section 177 of the Clean Air Act also count towards compliance with the ZEV regulation in California. It is not clear how many FCVs ARB staff estimates will be sold in other states or how, if at all, those vehicles are accounted for in FCV population estimates presented in Figure III-1 and in the CFO economic analysis. It should be

³⁷ http://www.arb.ca.gov/msprog/clean_cars/clean_cars_ab1085/clean_cars_ab1085.htm

noted that vehicle manufacturers can elect to comply with the ZEV mandate using only battery electric vehicles (BEVs) without producing any FCVs.

Although the costs of FCVs are not a consideration in the economic analysis of the CFO, they will likely be a major factor in determining the number of FCVs that will actually operate in California. It should be noted that compliance with the ZEV regulation is based on the number of ZEVs “produced and delivered for sale in California” rather than the number of ZEVs actually sold. Therefore, manufacturers can comply with the ZEV mandate without the public having to purchase FCVs. ARB estimates of incremental costs for FCVs taken from Table 5-4 of the ZEV ISOR are presented in Table 1 for the 2016 and 2025 model-year for three different types of vehicles. On-board hydrogen storage capacities associated with cost estimates are also presented. As shown, ARB estimates for FCV costs in 2016 range from about \$20,000 to \$35,000 more than a conventional vehicle. By 2025, ARB assumes these incremental costs have dropped to about \$7,500 to \$13,500. These cost reductions are driven as explained in the ZEV ISOR mainly by assumed reductions in the cost of fuel cells expected as the result of high volume production.

Although the costs shown in Table 1 do not necessarily reflect the prices that vehicle manufacturers will charge for FCVs and do not reflect the impact of any purchase incentives, or tax credits that may be offered, it is clear that FCVs will be expensive and are likely to cost more than comparable conventional vehicles making which may make them less attractive to consumers. Given, it is not clear that FCVs will be sold in California in the volumes assumed by ARB staff in the time frames assumed by ARB staff.

Overall, given the fact that vehicle manufacturer compliance with the ZEV mandate doesn’t depend directly on selling vehicles, manufacturers can get credit in California for FCVs offered for sale in certain other states, and the costs of FCVs, it is possible that actual in-use FCV populations may be substantially lower than those used in computing the number of hydrogen refueling facilities mandated under the CFO regulation. This may lead to lower station utilization rates than would reasonably be estimated which lead to greater economic impacts.

| Vehicle Type/(H2 storage) | 2016 | 2025 |
|---------------------------|--------|--------|
| Subcompact Car (3.3 kg) | 19,060 | 7,513 |
| Midsize Car (3.8 kg) | 23,472 | 9,334 |
| Large Car (4.3 kg) | 33,238 | 13,406 |

Turning now to ARB’s “economic model” for hydrogen refueling facilities, the model is based on capital cost estimates for construction costs and annual fixed costs associated with operation and maintenance, cost of hydrogen either delivered to or produced at the facility, and station

utilization rates. The estimates used by ARB staff are taken from studies prepared by U.C. Davis and the U.S. Department of Energy.

ARB's capital cost estimates are based on U.C. Davis studies and assume that stations are designed to supply 400 kg of hydrogen per day to FCVs. These estimates apply to three different types of station design and include higher "early years" and lower "later years" values which range from \$1.4 to \$3.8 million. These values are used with an ARB-assumed interest rate of 6% and an assumed seven year cost recovery period. No supporting bases for these assumptions are provided by ARB, and ARB provides no assumption regarding the lifetime or replacement costs associated with hydrogen station equipment. Others, including a U.C. Davis study,³⁸ (see Attachment I) have used different assumptions including much higher capital costs even in the early years under "low cost" scenarios, a 12% real discount rate and a 15 year equipment replacement lifecycle all of which call into question the reasonableness of ARB's assumptions and lead to higher costs than CARB has estimated for hydrogen refueling stations.

ARB's assumed fixed costs for operation and maintenance are \$100,000 per year regardless of station type.

Turning to the cost of hydrogen supplied to stations, ARB staff assumes relatively low costs for delivered gaseous and liquid hydrogen from central hydrogen plants and staff also assumes produced costs for hydrogen from on-site reformation of natural gas will be even lower than these costs. In addition, ARB assumes that compliance with the requirements of SB 1505 (which specifies once statewide demand for hydrogen as a transportation fuel reaches certain levels, that 33.3 percent of this hydrogen be made from eligible renewable resources) will add only \$0.70 per kg to the cost of hydrogen.

These ARB assumptions lead to hydrogen production costs of \$1.45 to \$3.00 per kg before the addition of the SB 1505 surcharge. The costs are not assumed to change over time except with respect to the addition of the SB 1505 surcharge in later years. However, the ARB assumptions appear to be at odds even with the estimates that are reported in the reference³⁹ (see Attachment J) that ARB cites as their source, which range from a low of about \$3 per kg to as much as \$10 per kg and suggest an average of about \$5 per kg based on a 2009 study before accounting for the cost impacts of SB 1505. The impact of higher hydrogen costs is of course that higher hydrogen prices will have to be charged in order to recover capital and recurring fixed costs which in turn will make the cost of operating FCVs higher relative to vehicles operating on other fuels, and the ownership of FCVs less economically desirable.

The next factor to be considered is station utilization rates. These are important because they establish the annual volume of hydrogen dispensed at a refueling facility over which capital costs and fixed annual maintenance and operating costs can be recovered. ARB assumes a four year ramp up (25, 50, 75 100%) to 100% utilization for all hydrogen refueling stations installed during the early program years and a two year ramp up (75%, 100%) for all hydrogen stations in the later years. There is no basis provided by ARB to support the assumed utilization rates,

³⁸ Nicholas M., and Ogdan, J., "An Analysis of Near-Term Hydrogen Vehicle Rollout Scenarios for Southern California", Final Draft January 29, 2010.

³⁹ Satyapal, S., "Overview of Hydrogen and Fuel Cells", March 22, 2011.

which are again higher than maximums of 70 to 80% referenced in the U.C. Davis studies⁴⁰ (see Attachment K). Again, use of more reasonable utilization rates will raise the price of hydrogen that has to be charged to recover capital and operating costs.

In summary, our review of the ARB economic analysis of hydrogen fueling facilities indicates that relative to other sources, ARB:

1. Underestimated capital costs;
2. Underestimated interest rates;
3. Underestimated hydrogen costs; and
4. Overestimated station utilization rates.

All of which lead to an underestimation of the economic impacts of the CFO regulation.

Based on the assumptions used by ARB regarding FCV populations and operation; the assumptions described above related to the economic analysis; and two assumed retail hydrogen pricing scenarios the basis for which is not disclosed; ARB concludes that the operation of hydrogen stations required to be built based on the CFO mandate will yield cumulative profits of between about \$150 and \$531 million over the course of the regulations. This includes percentage ratios of annual profit to cost (e.g. the dollars of profit per dollar spent) running at of over 35% by the time the CFO regulations are assumed to sunset. Given the apparent profit potential of hydrogen refueling stations revealed by the ARB economic analysis, one has to question why a regulation forcing the development of the industry and retail outlets is required.

However, this question is easily answered by re-examining the ARB analysis using some of the more reasonable assumptions described above. For example, if one simply assumes that the cost of producing or procuring hydrogen is \$5 per kg rather than the values assumed by ARB, and that the maximum average station utilization rate is 80% rather than 100% as ARB assumed, without changing any other ARB assumptions, the estimated \$150 to \$531 million in cumulative profits becomes instead an estimated \$210 to \$775 million dollars in cumulative losses. Obviously the magnitude of the estimated losses would be increased by using the alternative assumptions regarding capital cost and interest rate described above that appear to be more reasonable than those ARB selected.

⁴⁰ Ogden, J., and Nicholas, M., "Analysis of a "Cluster" Strategy for Introducing Hydrogen Fuel Cell Vehicles and Infrastructure in Southern California", September 16, 2011.

CFO – L26 Response

26-1 The commenter expresses that “ARB Failed to Properly Comply with CEQA.

As ARB recognizes, the California Environmental Quality Act (CEQA) requires a study of environmental impacts before adopting regulations such as the proposed amendments to the Clean Fuels Outlet (CFO) regulation. It is well-settled that, even when an agency adopts a rule to protect or improve the environment, any adverse side-effects must be evaluated under CEQA.

ARB has adopted its own procedures for CEQA compliance under its certified regulatory program, but still must satisfy the fundamentals of the statute. Thus, ARB must identify potentially significant impacts, consider mitigation measures and a reasonable range of alternatives to avoid or reduce such impacts, and consider and respond to comments from the public and other agencies. Finally, ARB must adopt mitigation measures or alternatives unless they are infeasible and overriding benefits justify adopting the regulation despite its significant and unavoidable impacts.

To comply with CEQA, ARB’s Initial Statement of Reasons (ISOR) for the CFO amendments includes Appendix B, a draft Environmental Analysis (EA) prepared as the functional equivalent of an Environmental Impact Report. The air quality evaluation in the EA is supported by ISOR Appendix D, an Emission Impact Analysis (EIA). However, the EA and EIA are seriously flawed and cannot be relied on to satisfy ARB’s CEQA obligations.”

This comment provides a general introduction to commenter’s more specific comments that follow. ARB disagrees with the comment that ARB failed to properly comply with CEQA and with the commenter’s statement that the EA and EIA cannot be relied upon to satisfy ARB’s CEQA obligations. ARB prepared an EA for the proposed ACC Program (Appendix B) in accordance with CEQA and its certified regulatory program. The EA analyses potential environmental impacts associated with the reasonably foreseeable compliance responses of the regulated community. Chapter 3 of the EA provides discussion of existing conditions and the regulatory setting for each of the resource areas potentially affected by the proposed ACC Program. Chapter 5 of the EA provides a programmatic impact and mitigation analysis, using the CEQA Checklist as a tool for determining whether an impact may result. Please refer to the following L26 responses for specifics regarding CEQA compliance and the purported flaws in the EA.

26-2 The commenter expresses that there was “Failure to Fully Disclose Programmatic Impacts. Throughout the EA, ARB finds that local authorities will conduct future project-level CEQA review when approving and issuing permits for individual hydrogen fueling station projects. Through project-level review, the local agencies will be responsible for implementing ARB’s recommended

mitigation measures and others that they may identify and incorporate in permit conditions. While expecting that local authorities will do so, ARB cannot be certain that mitigation which is beyond its control will be implemented successfully. Accordingly, the EA finds such impacts to be potentially “significant and unavoidable”, though justified by the benefits of the CFO rule. Although in general this “programmatically” or “tiered” approach is authorized for CEQA review at the rulemaking stage, the EA takes the tiered approach too far.

Even impacts that are significant and unavoidable at the programmatic stage must be fully disclosed, to provide a meaningful opportunity for the public to comment and to propose further feasible mitigation measures. Such issues also must be fully disclosed to enable informed decision-making, a central objective of CEQA. The ARB Board is responsible for considering and balancing benefits and adverse side-effects in deciding whether to adopt the CFO amendments. For each significant and unavoidable impact, ARB must find “overriding considerations”, i.e., that specific benefits outweigh each adverse side-effect. But overriding considerations cannot be legally or factually supportable if the decision-makers have insufficient information to understand the extent of the side-effects they are deciding to accept. Weighing benefits and impacts is impossible when the impact side of the balance is insufficiently disclosed. In short, programmatic “significant and unavoidable” determinations are not a shield for the casual narrative evaluations and conclusions throughout the EA.”

Appendix B is an environmental analysis prepared as in accordance with Public Resources Code section 21080.5, subdivision (d)(3) and ARB’s regulations at CCR sections 60005 through 60007. The programmatic approach to the analysis is informed by CEQA Guidelines section 15168, which describes the parameters for a program EIR. Section 5 of Appendix B (Impact Analysis and Mitigation) discloses impacts to the resource areas identified on the CEQA checklist.

The commenter acknowledges that CEQA authorizes a programmatic approach and indicates that ARB takes the tiered approach “too far” but is not specific as to which resource area impacts are insufficiently disclosed. The EA discloses potential environment impacts related to the foreseeable compliance responses by the regulated community on a statewide level, and identifies mitigation. The level of specificity required in an environmental analysis depends on the degree of specificity of the activity under review. For example, an EIR for a construction project must be more specific and detailed than an EIR for a general plan or other general policy. An EIR for a policy or plan focuses on the indirect secondary effects of that plan or policy and cannot be as detailed as a subsequent EIR on the specific construction projects that are expected to follow. (See CEQA Guidelines section 15146, sub (b).) ARB’s preparation of the EA for the ACC Program is similar to the approach for an EIR prepared for a plan or policy. In preparing the EA for the ACC Program, ARB cannot speculate about details that will be provided in any subsequent project specific environmental analyses.

ARB's programmatic approach to its analysis on the potential indirect impacts related to the regulated communities' foreseeable compliance responses is necessarily general, programmatic and qualitative in nature. A more detailed analysis is not reasonably feasible because it is unknown what specific future actions will be and any site-specific impacts cannot be known and assessed with any level of specificity at this time. Therefore, details of project level impacts are properly deferred to future project level review when those details can be known. This is an appropriate approach under CEQA. (See In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings (2008) 43 Cal.4th 1143.)

When potentially significant environmental impacts are identified in the EA, feasible mitigation measures have been presented to substantially reduce the effects. As stated in the EA, ARB does not possess the authority to require project-specific mitigation measures for facilities approved by other land use or permitting agencies if impacts are identified for those projects. Because the authority to determine project-level impacts and require project-level mitigation lies with the land use and/or permitting agency for individual projects, and project-specific details about the impacts and mitigation cannot be known at this stage, there is inherent uncertainty in the degree of impacts identified and mitigation ultimately implemented. Consequently, the EA took the conservative approach in its analysis of potential impacts and in its post-mitigation significance conclusions (i.e., tending to overstate impacts) and, for CEQA compliance purposes, discloses that potentially significant impacts related to the development of fueling stations and new or modified manufacturing facilities may be significant and unavoidable. ARB expects, however, that as the proposed ACC Program is carried out, these significant impacts can and should be resolved and reduced to insignificance by other government agencies, in accordance with their authorities and project review procedures

- 26-3 The commenter states that there is "Over-Reliance on Future Project-Level CEQA Review. Moreover, in following the programmatic approach, the EA relies heavily on project-level CEQA review that supposedly will be conducted by local agencies undertaking or permitting individual hydrogen fueling facility projects. However, it is quite likely that many local agencies will conduct no CEQA review at all. On an individual basis – especially if ARB is correct in assuming that most new hydrogen fueling station projects will be located at existing gas stations – many of these small projects will be exempt from CEQA, under the categorical exemption for minor alterations to existing facilities or other exemptions. Yet ISOR Table IV-2b (p. 50) projects that over 450 new stations will be required under the CFO rule. Of course, capturing impacts that are insignificant for each project considered separately, but significant when nearly five hundred projects are considered together, is the purpose of cumulative impacts analysis under CEQA."

Appendix B acknowledges that the proposed ACC Program could result in the construction and operation of over 100 new hydrogen fueling stations, along with modifications to existing hydrogen production plants. The EA found that these would likely occur within existing footprints or in areas with consistent zoning. The EA includes a Cumulative Impacts section in Chapter 6, which analyzes the potential for cumulative impacts for resource topics. These are disclosed in general qualitative terms as they pertain to reasonably foreseeable compliance responses because of the programmatic nature of the EA. See response to Comment 26-2. As with all of the environmental effects and issue areas, the precise nature and magnitude of impacts will depend on the types of projects associated with implementation of the proposed ACC Program, their locations, their aerial extent, and a variety of site-specific factors that are not known at this time but that would be addressed by environmental reviews at the project-level.

The commenter indicates, it is "...quite likely that many local agencies will conduct no CEQA review at all. On an individual basis new hydrogen fueling station projects that would be located at existing gas stations may be exempt from CEQA, under the categorical exemption for minor alterations to existing facilities or other exemptions." The commenter attached documents to demonstrate this point including two Notices of Exemption and a mitigated negative declaration. These submissions support finding that impacts from such projects are insignificant and do not contradict the conclusions in the EA even though the EA took a conservative approach to determining potential impacts at this programmatic level.

The commenter also expresses that "the EA does acknowledge impacts to be addressed by local agencies as significant and unavoidable:

Because the authority to determine project-level impacts and require project-level mitigation lies with the land use and/or permitting agency for individual projects, and programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, this EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate impacts) and, for CEQA compliance purposes, discloses that potentially significant impacts related to the development of fueling stations and new or modified manufacturing facilities may be significant and unavoidable.

ISOR App. B, p. 8. Nevertheless, the EA reassures the public and decision-makers that:

ARB expects, however, that as the proposed ACC Program is carried out, these significant impacts can and should be resolved and reduced to insignificance by other government agencies, in accordance with their authorities and project review procedures.

Id. This reassurance is hollow, however, since the EA does not disclose to the public and decision-makers the extent to which local agencies can be expected to rely on categorical exemptions and not consider CEQA mitigation in the first place. Thus, rather than being conservative, the EA hides the true magnitude of anticipated significant and unavoidable impacts. If unmitigated through project-level review due to CEQA exemptions, the adverse impacts will be greater than the EA admits. This error also further undercuts the basis for overriding considerations, since the adverse impacts side of the balance is understated by assuming more project-level mitigation than can reasonably be expected.”

The commenter asserts that the EA hides the true magnitude of anticipated significant and unavoidable impacts, apparently by not disclosing the extent to which local agencies can be expected to rely on categorical exemptions. The commenter states that local agencies can be expected to rely on CEQA categorical exemptions for particular fueling stations and that the reliance on categorical exemptions somehow results in impacts because no mitigation is considered when an exemption is used, and therefore, these projects will result in cumulative impacts. The commenter submitted several references during the 45-day public comment period, including copies of Notices of Exemptions and a Mitigated Negative Declaration for hydrogen fueling stations. The categorical exemptions submitted are under CEQA Guidelines sections 15301(e) and 15302 because the facilities were preexisting and the projects were considered ministerial under a public agency’s statutes and ordinances. Public Resources Code 21083 and 21084 were also cited in the documents submitted.

Categorical exemptions (found at CEQA Guidelines sections 15300-15329) are classes of projects fully exempt from CEQA. These classes of projects are identified by the Secretary of Natural Resources as exempt from CEQA because the Secretary has found these projects have no significant effect on the environment. (See Public Resources Code section 21084, subdivision (a).) A project otherwise eligible for a categorical exemption may not claim the exemption if “the cumulative impact of successive projects of the same type in the same place over time is significant.” (CEQA Guidelines section 15300.2, subd. (b).) Therefore, any new hydrogen fueling station projects that might otherwise fall under a categorical exemption may not use the categorical exemption if the cumulative impact of successive fueling station projects in the area is significant. The commenter’s assertion that local agencies will use categorical exemptions suggests then there must be no cumulative impacts from such facilities or else the exemption is not available for these projects. Therefore, commenter’s assertion, and the materials submitted, support a finding no cumulative impacts from the building of such facilities and not a finding of a greater magnitude of impacts as asserted by commenter. Therefore, the EA’s conservative approach, which did not assume the use of categorical exemptions, does not mask the magnitude of potential impacts as the commenter asserts, but instead tends to overstate potential impacts.

The commenter's submitted information supports the analysis in the EA and does not require a revision to the EA, nor does it trigger the obligation to recirculate the EA under CEQA because it does not identify significant new information, as defined by CEQA.

- 26-4 The commenter expresses that there was "Failure to Consider Available Information on Foreseeable Project-Level Impacts. Even at the programmatic or first-tier level, CEQA requires evaluation of all issues that are ripe for review, where feasible and where information is available. Yet, while claiming that extensive analysis must be deferred to the project level, the EA ignores CEQA documents for hydrogen fueling projects that are already in place. Although some existing hydrogen facilities were approved based on CEQA exemptions, CEQA review documents do exist for other projects. Such documents provide concrete, readily available information on matters as to which the EA merely speculates.

For example, the City of Burbank prepared a Mitigated Negative Declaration for its Hydrogen Fueling Station Project, attached. It is true that some impact analyses in Burbank's Negative Declaration are based on project-specific details (e.g., visual impacts of the facility's profile in the specific setting) not appropriate for evaluation at the programmatic stage. Nevertheless, some impact analyses in the Negative Declaration provide valuable information on issues inherent to hydrogen fueling facilities – in particular, on the hazards of hydrogen itself (see comment on hazards below). Other impacts likely to be common to hydrogen facilities wherever they are located include air emissions, noise, public services (including fire protection), and transportation and traffic, from both facility construction and operation.

It is also true that the City of Burbank, after full analysis and disclosure, found that all potential impacts could be mitigated to less than significant – but only for that individual project. Findings of insignificance are by no means assured when scaling up the impacts identified in the Burbank Negative Declaration to over 450 new hydrogen stations anticipated as a result of the CFO amendments. Yet the EA could have analyzed reasonably foreseeable means of compliance by considering available information from CEQA documents for existing hydrogen fueling facilities. It was ARB's responsibility to identify and consider such available information, but not one such project-level CEQA document is cited in the EA references."

The commenter asserts that the EA is inadequate because ARB did not cite to CEQA review documents for other fuel station projects such as the City of Burbank document attached to the commenter's letter.

ARB is not required by its CRP or CEQA to cite other environmental document in the preparation of its EA. It may do so if such documents are helpful.

As noted by commenter, the impact analysis in Burbank's Negative Declaration is based on project-specific details. These details are not appropriate for ARB's programmatic level of analysis of the potential impacts of implementation of its regulations. As the commenter notes, impacts are specific to each facility and its setting. ARB's EA speaks generally to the general types of impacts that may occur (see response to Comment 26-2 for explanation of level of detail appropriate for the EA). The commenter asserts that some impacts discussed in the Burbank document are likely to be common to hydrogen facilities wherever they are located, such as air emissions, noise, public services (including fire protection), and transportation and traffic. Contrary to commenter's assertion, the whole focus of the EA analysis was to consider impacts that would be common to hydrogen facilities wherever they are located such as air emissions, noise, public services (including fire protection), and transportation and traffic (see EA Chapter 5 Impacts Analysis and Mitigation).

The Burbank document submitted by commenter does not provide any more specific or helpful information than what is already included in the EA about potential impacts that would be common to hydrogen facilities. For example, the EA analysis of potential air emissions provides a reasonable accounting of the types of air quality impacts that could occur with new hydrogen fueling stations or modifications to existing facilities (see EA at page 141-152). The EA discloses that during the construction phase, air pollutants could be generated, including site grading and excavation activities which could generate fugitive PM dust emissions and exhaust emissions from off-road construction equipment, material delivery trips, and construction worker-commute trips. As disclosed in the EA, actual emissions can vary as a function of parameters such as soil silt content and moisture, wind speed, acreage of disturbance area, and the intensity of activity performed with construction equipment. These parameters are specific to individual facilities and cannot be known at this time. The Burbank document submitted does not provide more detailed information, and is not specific to that particular project that could be used to revise the analysis or conclusions in the EA.

Furthermore, the documents provided by the commenter demonstrate that such projects tend to have less than significant impacts. However, the EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate impacts) and, for CEQA compliance purposes, discloses that potentially significant impacts related to the development of fueling stations and new or modified manufacturing facilities may be significant and unavoidable. ARB expects, however, that as the proposed ACC Program is carried out, these impacts can and should be resolved and reduced to insignificance by other government agencies, in accordance with their authorities and project review procedures. This information supports the analysis in the EA and does not require a revision to the EA nor does it trigger the obligation to recirculate the EA under CEQA, because it does not provide significant new information, as defined by CEQA.

26-5 The commenter expresses that there was “Failure to Analyze CFO, ZEV and LEV III Actions As Separate “Projects. Three separate regulatory actions are before ARB: amendments to the CFO regulations and also to the Zero Emission Vehicle (ZEV) and Low Emission Vehicle (LEVI III) regulations. These three actions are collectively referred to as the Advanced Clean Cars (ACC) Program. They are also collectively analyzed in the EA for environmental impacts, as though they were a single “project” for purposes of CEQA. See EA, p. 35. However, the EA’s characterization of the single “project” is inconsistent with ARB’s Notice of Public Hearing to Consider Amendments to the Clean Fuels Outlet Regulation (Nov. 29, 2011), which does not propose a single ACC project. Instead, the proposed regulatory action in the Notice is a stand-alone action on the CFO amendments. The Notice, p. 3, merely notes in passing that the CFO project is “part of the Advanced Clean Cars regulatory proposals” – note that “proposals” is plural – that are to be heard on the same day. Similarly, ARB’s website at <http://www.arb.ca.gov/regact/2012/cfo2012/cfo2012.htm> lists the CFO amendments as a stand-alone proposed regulatory action, and the January 26-27, 2012 meeting agenda lists three separate, albeit consecutive, public hearings rather than one hearing covering three subjects; see <http://www.arb.ca.gov/board/ma/2012/ma012612.htm>.”

ARB disagrees that the CFO regulation should have a stand-alone analysis. The CFO regulation is a complement to the ZEV program, and without it, the ZEV targets may not be met. Further, because the ZEV regulation would be flexible in that manufacturers could fulfill their requirements by marketing hydrogen FCVs, as well as other types of vehicles, it cannot be determined ahead of time exactly when the CFO regulation would be activated by the regional or statewide trigger levels. This is not a case where one regulation should preclude another. The proposed ACC Program will result in a fleet of vehicles with supporting infrastructure. One cannot occur without the other.

As for noticing, ARB posted a Notice of for the Staff Reports (Initial Statement of Reasons) prepared for the LEV III, ZEV and CFO amendments, which included notice of the coordinated analysis of the potential for environmental impacts and benefits presented in the Appendix B to each staff report. The EA assesses all impacts associated with the entire proposed ACC Program, which is the proposed project. The EA describes the project in Chapter 2 of the EA. The “project” is the collective and integrated set of proposed regulatory amendments that would affect manufacturer design of vehicles and the fueling of a segment thereof to meet these ARB regulations, while also meeting other regulatory requirements. The regulatory amendments are described in detail for CEQA purposes starting on page 33 of the EA. Separately or together, the impact analysis related to the CFO regulation would be the same.

The commenter also expresses that “Certainly, it was appropriate for the EA to consider the cumulative impacts of the three separate CFO, ZEV and LEV III projects. Cumulative impact analysis is the correct means of evaluating the

effects of past, present and reasonably foreseeable future projects that overlap in time and may combine to exacerbate their respective impacts.

However, nothing in the Notice or the EA states that ARB will only adopt the CFO amendments if it also simultaneously adopts the ZEV and LEV III changes. Nor does the EA inform the public and decision-makers of the potential environmental consequences should ARB choose to separately adopt the CFO amendments. Accordingly, the EA does not provide a basis for action on the CEQA “project” that is actually proposed.”

ARB agrees that it was appropriate for the EA to consider the cumulative impacts of all regulations in the ACC Program. The EA includes a cumulative assessment of impacts on the environment that could result from the incremental impacts of a proposed project when added to other past, present, and reasonably foreseeable future actions. Such impacts can result from individually minor, but collectively significant actions taking place over time.

The EA provides a detailed description of the project being proposed for approval, which includes the three regulatory actions. The project description should not be a smaller portion of the entire proposed project being considered for approval as the commenter suggests. The EA informs the decision makers of the potential environmental impacts associated with the CFO amendments while providing an integrated, coordinated impacts analysis of all the proposed ACC Program’s amendments. ARB has the authority to define the proposed project. ARB disagrees that the EA does not provide a basis for action by the Board on the proposed ACC Program. The entire ACC has been fully analyzed and the Board has the discretion to approve the entire project or some portion thereof.

- 26-6 The commenter expresses that there was “Lack of Clarity on Numbers of New Hydrogen Fueling Stations. A CEQA document must contain a clear, stable and complete project description, in order to provide the essential basis for review of the project’s impacts. The EA project description, pp. 33-35, describes the CFO regulation changes themselves but does not describe the reasonably foreseeable means of compliance; i.e., the numbers and locations of new hydrogen fueling stations. Not until pp. 131-133 of the EA is the “compliance response” discussed. Even here, an example for the South Coast is provided, followed by a statement that “Starting in 2016 in the Upper Bound [i.e., fast entry of fuel cell vehicles into the California market] Scenario, the number of vehicles statewide would exceed the 20,000 statewide trigger requiring the construction of 39 additional stations.” But that figure is for a single year, without stating the total effect of the rule provided. The reader must hunt for that information in the ISOR, Table IV-2 on p.50.

However, even there it is not even clear exactly how many new hydrogen fueling stations ARB attributes to the CFO amendments. ISOR Table IV-2b, p. 50, includes a column for Total Stations and a column for Total New Stations

Installed Per CFO under the fast-entry Upper Bound FCV Scenario. In the Total New Stations column, 31 stations are indicated prior to the rule and 488 stations by 2024, the difference representing 457 new stations attributable to the rule. However, the sum of the Total New Stations Installed Per CFO, adding the numbers for each year from 2015 to 2024, is 461. This discrepancy is not explained in the document.

The total number of new fueling stations is one of the main drivers of the magnitude of CEQA impacts. The failure to clearly disclose the total number of stations within the EA does not comport with CEQA's informational purposes."

The scenario presented on Table IV-2b includes the assumption that four of the hydrogen fueling stations present in 2014 will be decommissioned in the 2015-2020 timeframe. For example, in the 2015 row on this table nine new stations are added bringing the 2015 total to 38, but the total stations in 2014 was 31. This indicates the assumption that two stations would have been decommissioned between 2014 and 2015. Staff made the assumption that some of the stations currently in operation today or under construction would close in this timeframe because of inability to meet increasing fueling demands in the future, and that these smaller capacity stations would be replaced by higher volume newer stations nearby.

As for the total number of new fueling stations being one of the main drivers of the magnitude of CEQA impacts, ARB disagrees with the commenter's statement that the failure to clearly disclose the total number of stations within the EA does not comport with CEQA's informational purposes,. The EA appropriately provides a programmatic level of analysis of the potential impacts that would be expected from implementation of the proposed regulation. The number of stations has little or no bearing on the impact analysis, as each station would be subject to local determination of whether there would be adverse environmental impacts, or whether the project would be exempt.

- 26-7 The commenters expresses that there was "Unsupported Assumptions Regarding Locations of New Hydrogen Fueling Stations. The other main driver of the magnitude of impacts is the location of the fueling stations. The EA downplays location-based impacts, assuming that "new individual hydrogen fueling facilities would be constructed at existing public retail gasoline service stations that are already managed by the retail branches of the respective refiners/importers of gasoline. These locations would also likely be in urban areas where they are positioned to serve the most drivers. Thus, it is unlikely that new hydrogen fuel outlets would be located at greenfield sites (land not previously developed), and that they would be built in locations consistent with local zoning.

EA, p. 133. Nothing in the proposed CFO amendments requires this result and the EA cites no evidence to support these assumptions. Instead, since the

existing CFO regulations would have directly required gas station owners and operators to locate facilities on their property, ARB simply assumes that the same thing will occur despite shifting the obligation to refiners and importers. This unsupported speculation is the critical basis for conclusions of limited impacts throughout the EA.

In fact, there is reason to doubt the EA's assumptions. Even today, gas stations are the sites of only a small proportion of CFO facilities. The attached spreadsheet identifies 27 hydrogen fueling facilities which currently operate in California and another 15 that are planned. Of the total of 42, only 12 are located in gas service stations. The other 30 are not, including facilities operated by transit agencies, municipalities (for city vehicles) and universities, many not open to the general public.

Moreover, just as ARB does not control the behavior of local governments, the refiners and importers do not control the behavior of station owner/operators. The overwhelming majority of service stations in California are now owned by independent operators who only have a supply contract with a refiner or distributor. There are few remaining lessee dealers who lease service stations owned by refiners. Except in those few cases, a refiner has no ability to require station owner/operators to install equipment to dispense hydrogen. The expense would likely be considerable, both to pay for the equipment and to induce station owner/operator to cooperate and surrender its property for a new line of business without a track record of profitability. Moreover, refiners and importers will be reluctant to install costly equipment at locations where they have no control but may be subject to liability in the event of accidents. Accordingly, refiners may be more likely to contract with other parties, such as the existing providers who are already in the hydrogen business and with whom refiners already have business relationships, to establish new outlets specializing in hydrogen. At this point, that prospect too may be speculative, but it appears to make economic sense. But those new outlets are unlikely to be sited at existing retail service stations. At the least, ARB has provided no justification for assuming that the development of outlets in new locations will not occur.

In sum, the facts suggest that it is reasonable to expect a significant number of CFO facilities may be located outside existing retail service stations, contrary to the assumption in the EA. As a result, there is no substantial evidence to support the EA's conclusions that are predicated on the restriction of CFO facilities to existing stations, in order to avoid impacts in new locations."

ARB disagrees. The EA discloses that some facilities would be located at existing facilities, some may be located outside existing facilities, or on otherwise developed property, so the commenter's perception of the environmental analysis is not correct. It is reasonable to predict that these locations are likely to be in urban areas where they are positioned to serve the most drivers, and therefore sell the most fuel. Thus, it is unlikely that new hydrogen fuel outlets

would be located in non-urban areas on “greenfield” sites (i.e., land not previously developed). Outlets would also be reasonably expected to be built in locations consistent with local zoning, because local governments anticipate fueling stations as allowable uses in appropriate zone districts (e.g., commercial or industrial zone districts).

Regardless of whether a facility is sited at an existing fueling facility versus other locations, the EA discloses the impacts associated with site preparation and construction at a programmatic level.

- 26-8 The commenter expresses that there was “Improper Use of “Hypothetical Future Conditions” Baseline. ARB assumes that the existing conditions or “baseline” for purposes of determining impacts of the CFO amendments (as well as the ZEV and LEV III provisions addressed in the EA and EIA) consists of:

existing vehicle and related fuel emissions programs, policies, and regulations. The existing regulatory condition includes the existing LEV regulation (LEV II), including the GHG requirements that are part of LEV II (known as the Pavley regulations), the EPL regulation, and the existing ZEV regulation, as well as other relevant, previous California rulemakings, such as the LCFS and all comparable federal regulations. . . . In the context of regulatory programs, impacts on the physical environment are the result of compliance responses to regulations. Compliance responses to the existing LEV II, ZEV, and CFO regulations are already in place and underway. The environmental effects of proposed amendments to regulations that reduce CAP and/or GHG emissions from light- and medium-duty vehicles would build upon the compliance responses to these existing regulations.

ISOR Appendix B, pp. 24-26. On the contrary, the CEQA baseline consists only of the physical environmental conditions that actually exist. Hypothetical conditions that do not physically exist are not properly included in the CEQA baseline, no matter how reasonable the expectation that those conditions will come to pass. Similarly, anticipated future conditions that will exist on completion of plans, rules and compliance responses cited by the EA cannot be included in the baseline here. Instead, impacts of the CFO amendments must be determined by comparison to the physical environment that now exists. By improperly including regulatory developments which are still in progress in the baseline, the EA obscures the actual impacts required to be disclosed under CEQA, by understating changes compared to conditions that exist today.”

As noted by the commenter, the CEQA Guidelines state that the baseline for determining the significance of environmental impacts is normally the existing physical conditions at the time the environmental review is initiated. (See CEQA Guidelines, section 15125 (a).) The existing conditions at the time the EA was initiated include the existing vehicle and related fuel emissions programs,

policies, and regulations. Regulations that are currently in place are assumed to be implemented and complied with, and are therefore properly included in the existing conditions.

The EA properly analyzed the potential environmental impacts of the reasonably foreseeable methods of compliance related to the proposed amendments under the ACC Program with the current methods of compliance related to the existing State and federal regulatory framework. (See Black Property Owners Assn. v. City of Berkeley (1994) 22 Cal.App.4th 974, 985 [in updating general plan, city needed only to assess the impacts of the changes or amendments to the plan].)

Situations appearing in the case law relating to hypothetical future conditions are not comparable to the conditions in the EA. The existing conditions include the compliance responses to the existing LEV II, ZEV, and CFO regulations already in place and underway. These are not hypothetical future conditions. The cases concerned with the reliance on hypothetical future conditions are concerned that an illusory baseline masks the severity of impacts of the proposed project. (See Communities for A Better Environment v. South Coast Air Quality Management Dist. (2010) 48 Cal.4th 310, 322.) This is not the case with the approach to baseline used in the EA analysis. The EA analysis that looks at the potential environmental impacts of the reasonably foreseeable methods of compliance related to the proposed amendments under the ACC Program compared with the current methods of compliance related to the existing State and federal regulatory framework, does not mask or obscure the potential severity of the potential impacts of implementation of the regulatory amendments. The impacts of the CFO amendments are determined by comparison to the physical environment that now exists by analyzing (at a programmatic level) the potential impacts of the new fueling stations expected by the amendments. Commenter's general assertions about baseline fail to demonstrate specifically how the EA baseline approach obscures impacts required to be disclosed under CEQA.

Other reasonably foreseeable actions that are approved or proposed to take place in the time frame of the proposed ACC Program, but are not yet in effect, are referred to in the EA as "complementary measures" (e.g., Environmental Standards for Hydrogen Production [requires GHG reductions and use of renewables in accordance with SB 1505]). These help define the future, cumulative scenario of reasonably foreseeable compliance measures. The complementary measures are designed to reduce CAPs and GHGs by increasing the efficiency with which California uses all forms of energy and by reducing dependence on the fossil fuels.

- 26-9 The commenter expresses that there was "Failure to Correctly Analyze Air Emissions. Even if ARB were justified in considering the future conditions resulting from compliance with the pre-amendment regulatory regime as the CEQA "baseline", it failed to correctly implement this approach. The Emissions Impact Analysis, ISOR Appendix D, compares scenarios of fast and slow fuel cell

vehicle (FCV) deployment to gasoline vehicles only. However, compliance with the existing regulatory regime, including existing ZEV regulations, should result in the deployment of battery electric vehicles (BEVs) instead. Accordingly, the CFO amendments, fostering the development of the FCV market by ensuring the availability of hydrogen fuel, would be expected to result in the replacement of BEVs with FCVs. Therefore, the EIA should have focused on the differences in air emissions between BEVs and FCVs, the emissions associated with the generation and distribution of electricity and hydrogen, and any secondary issues associated with the use of conventional vehicles for long-distance travel by owners of both BEVs (which require frequent battery charging) and FCVs (which require proximity to hydrogen fueling stations). In particular, utilizing the EA's claimed baseline, the EIA should have compared hydrogen production to electricity generation emissions, rather than to those of gasoline production. These comparisons not only affect the claim of overriding benefits to justify significant and unavoidable impacts, but also have implications for the analysis of adverse impacts. Hydrogen generation, whether at central facilities or at fueling stations, generally can be expected to occur in developed areas, which are more likely to be in non-attainment of ambient air quality standards. By contrast, electricity in California is often generated outside urban and developed areas and in some cases outside the state. Emission increases associated with hydrogen thus may be more likely to cause significant air quality impacts."

Please refer to the response to Comment 26-8. The baseline for the EA was determined for the entire ACC Program, which includes the CFO regulation.

ARB disagrees that air emissions were incorrectly analyzed for the CFO regulation. ARB believes that the commenter misinterpreted the EIA presented in the CFO ISOR, which clearly identifies all assumptions and baseline values. The CFO's EIA evaluated the penetration of FCVs into the existing transportation fuel pool that is dominated by gasoline vehicles. In both the Lower and Upper-Bound scenarios, the number of FCVs anticipated as a result of the ZEV regulation was shown. The Lower-Bound scenario can be interpreted as the number of FCVs that is anticipated if OEMs chose to produce more BEVs. Similarly, the Upper Bound Scenario can be viewed as the case in which they chose to produce fewer BEVs. When the ZEV regulation becomes effective FCVs and BEVs will together be used by OEMs to meet the regulation's requirement. For the CFO EIA, the goal is to a) measure the emissions resulting from the production, transport and use of hydrogen in response to the number of FCVs projected and b) to determine the emissions reductions if the projected number of FCVs successfully penetrated the transportation market and replaced the comparable gasoline counterparts. Regardless of the number of FCVs deployed, whether high or low, it is critical that the emissions measurement be made against the current baselines, which are gasoline and gasoline vehicles. Measuring emissions of one alternative fuel versus another only demonstrates which alternative fuel is cleaner, whether or not the alternative fuel has any

emission benefit within the existing transportation sector that is and will continue to be dominated by gasoline vehicles in the timeframe evaluated.

26-10 The commenter expresses that there was “Failure to Analyze and Disclose Air Quality and GHG Impacts from Construction of New Hydrogen Fueling Stations. The EA air quality section, p. 142, states: “Based on typical emission rates and default parameters for above mentioned equipment and activities, construction activities could result in hundreds of pounds of daily NOx and PM, which may exceed general mass emissions limits depending on the exact location of generation.” The short-term construction impact (which is not so “short term” when considering construction of over 450 fueling stations) is considered potentially significant, and mitigation is left to the local permitting authorities during project-level CEQA review. However, the EA does not say what those casual references to “typical emission rates” and “default parameters” may mean, nor explain the “general mass emissions limits” which may apply. Neither the EA nor the EIA (ISOR Appendix D, the emissions impact technical analysis) provides any quantitative estimates of air pollutant emissions beyond the vague acknowledgment of “hundreds of pounds of daily NOx and PM.” Readers are given no information to understand or comment on whatever basis ARB may have for that order-of-magnitude figure. Moreover, other construction air quality impacts (e.g., toxic air contaminants) are not even described with order-of-magnitude estimates, and neither the EA nor the EIA even mentions greenhouse gas (GHG) emissions from fueling station construction.

As discussed above, the programmatic nature of the EA and the anticipated future project-level review (at least, for those projects not found exempt from CEQA) are not a shield from CEQA’s disclosure obligations. Determining the readily identifiable magnitude of emission impacts was not properly left as an exercise for the reader.”

The commenter asserts that the air quality analysis should provide quantitative estimates of air pollutant emissions. See response to Comment 26-2 for an explanation of the appropriate level of review for the ACC Program. As stated in that response, the EA analysis is necessarily general, programmatic and qualitative in nature. A more detailed analysis is not reasonably feasible at this time because it is unknown what specific future actions will be and any site-specific impacts, including quantitative estimates of air pollutant emissions for the construction of as of yet unidentified future stations, cannot be known and assessed with any level of specificity at this time.

The Commenter also asserts that neither the EA nor the EIA mentions GHG emissions from fueling station construction. Fueling station construction is just one compliance response of the amendments and the EA analyzes the GHG impacts for the entire ACC Program. Page 149 of the EA indicates that the proposed ACC Program would result in an emissions benefit as compared to current regulations. Table 5-4 shows the GHG emission benefits in 2020, 2025,

2035, and 2050. By 2025, CO₂ equivalent emissions would be reduced by almost 14 MMT/yr, which is 12 percent from baseline levels. The reduction increases in 2035 to 32 MMT/Year, a 27 percent reduction from baseline levels. By 2050, the proposed regulation will reduce emissions by more than 42 MMT/yr, a reduction of 33 percent from baseline levels. Viewed cumulatively over the life of the regulation (2017-2050), the proposed ACC Program would reduce emissions by more than 870 MMT CO₂e. Please refer to discussion of construction impacts in the EA starting on Page 141.

- 26-11 The commenter expresses that there was “Failure to Evaluate Construction and Operation Impacts of New Hydrogen Generating Capacity. The EA (pp. 134-145) acknowledges that compliance with the CFO requirements would require an increase of up to 9.2% in the state’s currently projected supply of merchant hydrogen. The EA also notes that increased hydrogen purity may be required for merchant hydrogen to be suitable for use as fuel for FCVs. Accordingly, the EA explains: “For delivered gaseous hydrogen, modifications of the central plants may be necessary to further purify the hydrogen so that it meets the purity standards required for fuel cell vehicles” and goes on to rely on other agencies for mitigation as it does elsewhere, noting that “the construction work associated with these plant modifications would have to satisfy State and local requirements for permitting, hazardous materials, and other resource areas, which are typically handled by local agencies” (EA, p. 135).

However, the EA fails to indicate what percentage of currently available or forecast merchant hydrogen complies with existing specifications for hydrogen as an alternative vehicle fuel. More important, it does not provide any justification for assuming adding up to 9.2% of higher purity hydrogen to the existing supply can be accomplished merely by “modifications” to existing hydrogen generating plants. In fact, in every reference to impacts associated with meeting hydrogen demand, the EA is careful to assert that the demand will be met with “modifications” of existing plants. See, e.g., EA pp. 139, 141, 148, 151, 152, 155, 158, 161-163, 167-169, 171 (each asserting that “New hydrogen fueling stations could also be constructed and operated along with modifications to existing hydrogen production plants”).

By assuming only modifications to existing facilities, the EA can avoid any impacts from construction and operation of new hydrogen generating capacity, which can be substantial. New merchant scale hydrogen plants are major industrial facilities whose construction and operation, like that of other industrial plants, can have significant environmental impacts requiring evaluation under CEQA. (Among other things, hydrogen generation itself produces GHG emissions, which must be mitigated or offset.) However, the EA provides no basis for the assumption. In fact, it seems unreasonable that so great an increase in supply can be accomplished without new facilities. Moreover, as the EA also notes, pursuant to SB 1505, once statewide demand for hydrogen as a transportation fuel reaches certain levels, state law requires that 33.3 percent of

this hydrogen be made from renewable resources. There is no estimate of the amount of hydrogen available from existing sources that meets both this requirement and vehicle fuel specifications. Yet under these circumstances, it seems inevitable that there will be more than a modification of existing facilities.

Just as the EA's unrealistic assumption that all fueling facilities will be located on existing retail service stations serves to understate impacts from new facilities, so does the assumption that only modifications of existing generating capacity are needed. However, given the far larger footprint and environmental effects of new hydrogen generating capacity, the omission has greater consequences for the inadequacy of the EA."

The commenter asserts the EA analysis underestimates impacts by assuming only modifications to existing facilities and understating the construction and operation of new hydrogen facilities. Contrary to commenter's assertion, the EA impact analysis does address construction and operation of new hydrogen generating capacity. The EA (at page 135) indicates that recently California has favored hydrogen fueling stations using delivered hydrogen with central production over stations that produce hydrogen on site (CEC 2011). The EA also indicates that new hydrogen fueling stations could also be constructed and operated along with modifications to existing hydrogen production plants (see EA page 135). The EA found that these new facilities would likely occur within existing footprints or in areas with consistent zoning. This analysis does not mask or hide potential impacts of new facilities. The commenter is reminded that the EA provides a programmatic level of analysis and discloses impacts associated with the foreseeable compliance responses by the regulated community (see response to Comment 26-2).

- 26-12 The commenter expresses that there was a "Failure to Analyze Hydrogen Hazards. The EA, p. 158, summarily dismisses impacts related to hazardous materials transport and use, asserting that "New hydrogen fueling stations [and] . . . modifications to existing hydrogen production plants. . . would likely occur within existing footprints or in areas with consistent zoning." As discussed above, there is reason to doubt these speculative and unsupported assumptions. The EA (pp. 158-159) goes on to address explosion risk from electric vehicle batteries (for the ZEV portion of the ACC initiative) but, remarkably, omits any mention of explosion risk from hydrogen transport and use. Still more remarkably, the only risk of spills the EA discusses is minor diesel spills from fueling construction equipment. No potential impacts (not even insignificant impacts) are recognized for hydrogen transport to fueling stations and operations at stations. No mitigation measures are provided for hydrogen hazards, not even recommended measures to be implemented by local authorities in project-level CEQA review for permitting or approvals."

The commenter asserts the EA failed to discuss the explosion risk from hydrogen transport and use. The Existing Conditions and Regulatory Setting sections of

the EA do address the ignitable characteristics of explosive material. The EA also identifies the respective governing laws that, when complied with, would avoid or reduce this potential impact (see EA at pages 80-83)

The EA starting at page 158 discloses that the project could potentially create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and that this impact would be potentially significant. This EA found that this impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but the authority to impose mitigation is beyond the authority of the ARB. The commenter asserts additional analysis of the potential for explosion risk from hydrogen transport and use should have been addressed but provides no evidence supporting this type of impact. In fact, the notices of exemptions for hydrogen fueling stations submitted by commenter rely on categorical exemptions, and the submitted mitigated negative declaration support finding no potential for significant impacts from explosion risk from hydrogen transport or use (see response to Comment 26-3). Therefore commenter's submissions contradict commenter's assertion that the EA should have addressed in more detail potential hazards from hydrogen.

The commenter also expresses that there was “failure to discuss hazards or the impacts of hazard mitigation strategies in relation to hydrogen transport and refueling facility operation is a significant omission in the EA. The California Energy Commission (CEC) evaluated potential failure modes and the effects of those failures at hydrogen refueling stations, which include failure modes associated with hydrogen delivery vehicles and on-site generation. The U.S. Department of Energy developed an on-line tool for hydrogen hazard and risk analysis. As indicated in these references, the outcomes of many potential failure modes are explosion and fire. Some of the analyzed scenarios have low or moderate frequency but, if they do occur, would have severe consequences.” Both of these references also address potential mitigation measures that are not addressed at all in the EA which might address hazards but could create other potential environmental impacts not to mention impact refueling facility design, throughput, cost, and other important factors.

The CEC report (p. 6-3) concludes that:

hydrogen is relatively leak prone, particularly considering the fact that it is usually stored at high pressures, flammable mixtures are easily ignited, and it is difficult to detect. These characteristics may make hydrogen less safe than other fuels in some accident scenarios. While hydrogen's industrial-use safety record is good, this application does not include all vehicle fuel and lay person issues. Fortunately, safety research is underway and codes and standards are being developed to address hydrogen vehicle fuel applications.

However, neither the Existing Conditions section (pp. 79-83) nor the Hazards and Hazardous Materials section (pp. 158-160) of the EA describes any such codes and standards, either as part of the regulatory setting or as a source of mitigation measures. Moreover, as recognized in the CEC's allusion to "lay person issues", customers at hydrogen fueling stations cannot be expected to observe safety procedures as rigorously as trained personnel."

Please refer to response 26-12, above.

- 26-13 The commenter expresses that there was "Failure to Consider Fire Protection/Public Service Impacts. As in the Hazards and Hazardous Materials section, the EA's Public Services section contains no discussion of hydrogen risks. Given that the impacts of failure modes at hydrogen refueling facilities are frequently fire, explosion, or both, the EA's conclusion (p. 168) of a less than significant impact on fire protection public services is untenable.

As shown in the ISOR, Table I-1 (p. 10), there are only ten public hydrogen refueling stations currently open in California. The largest of those ten stations has a capacity of 100 kg/day of hydrogen. Given the lack of existing stations, most fire departments would not be expected to be familiar with nor trained to deal with emergencies at hydrogen refueling stations. These departments could be faced with the need to purchase new equipment, engage in additional training or add additional fire fighters. Moreover, ARB assumes that hydrogen stations attributable to the CFO amendments will be designed for throughputs of 400 kg/day, or four times the capacity of the largest existing station. Even fire departments that are familiar with and trained to deal with emergencies at existing hydrogen stations will be faced with much larger potential fires and explosions at facilities with larger volumes of stored hydrogen and/or the increased number of hydrogen delivery vehicle trips. Finally, the increase in hydrogen transport vehicles on the state's roadway network would introduce increased risks, necessitating training and, potentially, new equipment for fire departments in locations that do not have fueling stations, as well as those that do.

If the EA were to follow its usual pattern, relying on the authority of local agencies to address increased demands on local fire protection service, then the impact should be found significant and unavoidable, not less than significant. At the least, the impact must be acknowledged and recommended mitigation measures provided. The EA should also recognize that agencies responsible for disaster response (e.g., in the event of earthquake), as well as local fire departments, likely would be affected by the risks associated with over 450 new hydrogen outlets and the delivery trucks necessary to service them."

Commenter asserts that "given that the impacts of failure modes at hydrogen refueling facilities are frequently fire, explosion, or both, the EA's conclusion (p.

168) of a less than significant impact on fire protection public services is untenable.” The EA found that hydrogen fueling facilities would be expected to be sited at existing facilities, or in appropriately zoned areas and addressed the potential for hazards (see response to comment 26-12). The EA found that emergency systems for these kinds of projects would already be in place. Commenter asserts refueling facilities are subject to fire and explosion but has not submitted any evidence to support this assumption and the resulting potential for impacts on public service that would result from such fires and explosions. On the contrary, the documents provided by the commenter (categorical exemptions and negative declaration) support a finding of no impact from such facilities including alleged impacts to public services (see response to comment 26-3).

- 26-14 The commenter expresses that there was “Failure to Analyze Population and Housing and Related Impacts. Typical impacts in several areas – e.g., population and housing, land use, recreation, utilities, public services in addition to fire protection, and growth-inducing impacts – relate to the numbers of workers involved in construction and operation of hydrogen facilities. The EA makes broad, unsupported assertions that worker numbers will be low and impacts related to worker numbers accordingly insignificant (see, e.g., EA p. 168). Again, the reader has no basis to know how well-founded such assertions are and it was ARB’s responsibility to provide support for public review and comment.”

The EA concludes that the potential for impacts to population and housing would be less than significant because construction activities associated with new fueling facilities would be anticipated to require relatively small crews as new plants, stations, and modifications would likely occur within existing footprints or in areas with consistent zoning. In addition, demand for these crews would be temporary (e.g., 6-12 months per project). Therefore, it would be anticipated that the need for a substantial amount of construction worker migration would not occur and that a sufficient construction employment base would likely be available. Furthermore, it would not be anticipated that a substantial amount of new personnel would be needed to operate the facilities and that sufficient employment base would likely be available because these would likely occur within existing footprints or in areas with consistent zoning. The commenter has not submitted any information to contradict the EA analysis of potential for impacts on housing and population. In fact, the documents provided by the commenter (categorical exemptions and negative declaration) support a finding of no impact from such facilities on population and housing (see response to comment 26-3).

- 26-15 The commenter expresses that there was “Failure to Consider a Reasonable Range of Feasible Alternatives. Alternatives analysis is a central aspect of the CEQA review process. A lead agency must consider and evaluate a range of potentially feasible alternatives that will foster informed decision-making and public participation. To accomplish this, the CEQA document must develop and

evaluate a range of reasonable alternatives that would feasibly attain most of the basic objectives of the project, but “would avoid or substantially lessen any of the significant effects of the project.” However, with respect to the CFO amendments, the EA fails to meet even the “reasonable range” standard.

Other than the statutorily required no project alternative, the sole alternative to the CFO amendments considered is the Memorandum of Agreement (MOA) with major gasoline refiners and importers to carry out the exactly same objectives provided in the CFO amendments.

Accordingly, the EA concludes (pp. 195-196) that its impacts would be the same or less than those of the proposed project, since potentially “varying levels of commitment” by MOA participants could lead to fewer hydrogen fueling stations being constructed.

WSPA strongly disagrees with the implication that MOA participants would breach the agreement. ARB has no grounds to impugn the intent of MOA participants to fully comply with requirements to which they have committed. Moreover, intent aside, compliance would not be optional. As the EA (p. 195) states, the “MOA would have the binding power of a contract and be legally enforceable.”

The unsupported presumption of inadequate MOA compliance also has an important consequence for the CEQA review of alternatives. The MOA alternative is designed to and can be expected to achieve the same results as the CFO amendments. Accordingly, the EA fails to consider any CFO alternative that is designed to “avoid or substantially lessen any of the significant effects of the project” as required by CEQA. Not every feasible alternative that an agency (or a commenter) can conceive of need be considered. Nevertheless, ARB is obligated to revise the EA to contain, and must then fully and fairly consider, some other alternatives that reasonably can be expected to accomplish actual reductions in significant impacts.

While it is ARB’s obligation to develop a reasonable range of alternatives that can avoid or less impacts, at least two potential alternatives appear feasible.

First, as discussed above, the EA analysis assumes that hydrogen fueling facilities will be constructed at existing gasoline service stations. However, ARB could accomplish the same objective, promoting the availability of hydrogen fuel and so encouraging the manufacturing and purchase of FCVs, without assuming that hydrogen fueling will only occur at public fueling stations. Deployment of FCVs could also create a market for in-home hydrogen fueling. In-home fueling for natural gas vehicles already exists. Hydrogen fueling could be accomplished through exchange of canisters, such as is already being tested on light electric vehicles with fuel cells (such as scooters) in Taiwan. FCV fueling by this method could occur at some public fueling stations, but canisters also could be purchased at retail outlets and installed at home. Under this alternative, far fewer

than the 450 public hydrogen dispensing facilities assumed by the EA would be necessary, and associated impacts would be reduced.

Second, refiners and importers could be provided the option of meeting CFO obligations through hydrogen dispensing or electric vehicle charging facilities. Electricity is also a clean fuel that could satisfy CFO requirements. The regulatory language in proposed 13 Cal. Code Regs. section 2300(a)(2) defines “clean alternative fuel” as “any fuel used as the certification fuel in a zero-emission vehicle” which includes both electricity and hydrogen. Since this alternative would have the effect of promoting a mixed fleet of FCVs and BEVs, the CEQA evaluation would include consideration of impacts associated with BEV batteries. Nevertheless, BEVs are a more mature technology with which consumers are more familiar than FCVs. At the least, hazard impacts and firefighting public service impacts associated with the use of explosive hydrogen fuel could be reduced. In particular, hydrogen handling by “lay persons” as opposed to trained personnel was recognized as an issue by the CEC (see above). Accordingly, this alternative merits consideration by ARB in a revised EA.”

In accordance with the substantive requirements of CEQA, the alternatives in the EA represent a “reasonable range” that could potentially attain most of the basic project objectives while having the potential to reduce or eliminate significant environmental effects. The range of alternatives analyzed in the EA was governed by the “rule of reason,” requiring evaluation of those alternatives “necessary to permit a reasoned choice.” (See CEQA Guidelines, section 15126.6(f). The candidate alternatives must have the potential to meet the project objectives and be potentially feasible, based on technical, legal and regulatory grounds, to be considered for evaluation.

The project consists of a set of regulations that comprise the proposed ACC Program, of which the CFO regulation is one component. The EA examined the “No Project”, a More Stringent Emissions Standard in the Low Emission Vehicles and the Zero Emission Vehicle Regulations, a Less Stringent Emissions Standard in the Low Emission Vehicles and the Zero Emission Vehicle Regulations, a Clean Fuels Outlet Regulation Based on a Memorandum of Agreement with Major Refiners and Importers of Gasoline, and three other alternatives that were considered by rejected as infeasible. These include a Feebate Regulation, Targeting High-Emitting Vehicles in the Existing Fleet and targeting Battery Electric Vehicles or Hydrogen Fuel Cell Vehicles Only.

The commenter suggests two additional alternatives for the CFO regulation that commenter believes ARB should analyzed in an EA. These include an alternative where hydrogen fueling could be accomplished through exchange of canisters and another that targets BEVS. The commenter suggests an “exchange of canisters for light electric scooters and micro cars alternative” as a viable alternative to hydrogen fueling infrastructure by automobile manufacturers,

government and academic agencies, or other parties involved in researching the advancement of hydrogen and fuel cell vehicles.

The alternative suggested by the commenter is rejected for a number of reasons. First, it would not meet the overall objective of the Advanced Clean Cars program and would not serve the same purpose as the proposed regulation. The suggested alternative would reduce the overall scale of the regulation, and would result in different safety issues and a different suite of potential environmental impacts. Additionally, there could be feasibility issues that could be challenging to address. The alternative would require that NHSTA approve the full-function, highway legal vehicles to use detachable canisters of high pressure hydrogen. FCVs are designed to achieve a driving range similar to today's vehicles. The mass of storage systems required to achieve this range can be greater than 100 kg. The idea of routinely swapping storage containers weighing greater than 100 kg obtained at retail outlets would likely be impractical to perform at home. In addition, drivers and vehicles used for transporting high-pressure gas canisters would likely be required to obtain special permitting and licensing, thereby preventing the average fuel cell vehicle owner from purchasing canisters, transporting and storing them for use in their vehicles.

Please refer to response 26-15 above. The BEV alternative that the commenter is advocating includes electric vehicle charging and CFO. BEV-only ZEV scenario would place more focus on public fast-charging facilities, and presents several challenges surrounding the necessity for a mandate, the parties who incur the cost, and the establishment of a standard for fast-charging the plug. The CFO ISOR analysis found that a charging infrastructure mandate is unwarranted and could hinder the current development of public charging infrastructure. Staff also found that more information is needed to determine what should be done to from a regulatory perspective to increase BEV sales and electric miles traveled as BEVs are experiencing a successful commercial launch today without a public charging mandate. For this reason and with the support of and input from auto manufacturers and electric vehicle advocates, staff's regulatory proposal included the public charging infrastructure needs assessment (section 2302(c)). At this time, it is uncertain that regulatory mandate for charging infrastructure is necessary to promote BEVs, but ARB intends to find out via the assessment proposed in section 2302(c). If the commenter is suggesting that regulated parties be allowed to choose to build charging stations instead of hydrogen stations, the end result would be insufficient hydrogen stations necessary to promote commercialization of FCVs. If they are suggesting an alternative that mandates fueling infrastructure for all ZEVs, then they would be required to provide both charging infrastructure and hydrogen dispensers based on on-road ZEVs and automaker projections.

Further, and although highly unlikely, battery fires have occurred and the EA discloses the potential for that impact. This contention is in contrast with the documents provided by the commenter that show that no impact would result

with hydrogen fueling, per the NOEs and the mitigated negative declaration submitted.

Finally, the commenter repeats several concerns regarding hydrogen safety and public interaction with a new fuel that have been addressed in the EA. At this point, the commenter should be well aware that, regardless of the vehicle or fuel type, commercial introduction of any new technology will depend on strict adherence to codes and standards designed to protect the “lay person” against exposures, fires, explosions, or electrocution.

The commenter also expresses that “However, even there it is not even clear exactly how many new hydrogen fueling stations ARB attributes to the CFO amendments. ISOR Table IV-2b, p. 50, includes a column for Total Stations and a column for Total New Stations Installed Per CFO under the fast-entry Upper Bound FCV Scenario. In the Total New Stations column, 31 stations are indicated prior to the rule and 488 stations by 2024, the difference representing 457 new stations attributable to the rule. However, the sum of the Total New Stations Installed Per CFO, adding the numbers for each year from 2015 to 2024, is 461. This discrepancy is not explained in the document.”

As indicated earlier in response to comment 26-6, the scenario presented on Table IV-2b includes the assumption that four of the hydrogen fueling stations present in 2014 will be decommissioned in the 2015-2020 timeframe. For example, in the 2015 row on this table, nine new stations are added bringing the 2015 total to 38, but the total stations in 2014 was 31. This indicates the assumption that two stations would have to be decommissioned between 2014 and 2015. Staff made the assumption that stations currently in operation today or under construction would close in this timeframe because of inability to meet increasing fueling demands in the future, and that these stations would be replaced by higher volume newer stations nearby. This clarifies the discrepancy mentioned in the comment.

- 26-16 The commenter expresses a need for “Revision and Recirculation of the EA. Correcting the deficiencies discussed above would require extensive revisions to the EA. Substantial changes (including the addition of feasible new alternatives that clearly would lessen significant impacts) must be made available for public review and comment. Accordingly, the EA should be revised and recirculated for additional public comment before ARB takes action on the proposed CFO amendments.”

ARB disagrees. The EA is not deficient and need not be recirculated. As explained in response to commenter’s detailed comments above, the commenter has raised no new issues or provided new information about potentially significant impacts that require ARB to revise the EA. Since no significant new information is being added to the EA after public review, no recirculation is required (see e.g. CEQA Guidelines CCR section 15088.5).

26-17 The commenter expresses “Comments on Appendix B: Environmental Analysis Environmental Analysis Related to Hazards, Hazardous Materials, and Public Services WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents. As part of the ARB’s Environmental Analysis for the Advanced Clean Cars Program (Appendix B to the Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation), the potential impacts of the CFO regulation on Hazards, WSPA combined CFO comments 1-24 legal.doc 32 Hazardous Materials, and Public Services are analyzed along with means to mitigate potentially significant impacts.

Beginning with Hazards and Hazardous Materials ARB analyzed three issues. These are:

1. Routine Transport, Use, or Disposal of Hazardous Materials
2. Upset and Accident Conditions, and
3. Hazardous Emissions, Materials, or Substances Near Schools, Hazardous Material Site, Airport Land Use Plan, Private Airstrip, Emergency Response Plan or Emergency Evacuation Plan, and Wildland Fires.”

With respect to Public Services ARB analyzed only the following issue:

4. Response Time for Fire Protection, Police Protection, Schools, Parks, and Other Facilities.

See response to 26-16 above for why the EA does not require any revision. With respect to issues 1 and 4, the EA concluded that impacts would be less than significant. More generally, the public was not deprived of a meaningful opportunity to comment. Please refer to the description provided in the Introduction of this document of the public review process.

With respect to issue 2, the EA identified the potential for fuel spillage associated with the refueling of construction equipment as a potentially significant impact but went on to indicate “...this impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but is beyond the authority of the ARB.”

The EA identifies laws and regulations (Regulatory Setting) that assumes but cannot guarantee compliance. Compliance with these laws and regulations are enforced at the local level. These laws apply to transport of hazardous materials, which include flammable substances. Further, since the fueling stations would likely be located in an appropriately zoned area, public services would already be in place. The EA found the impact to be less than significant and no mitigation is required.

The commenter also expresses “With respect to issue 3, ARB indicates that “impacts...may be significant and unavoidable”. It appears that ARB ignored germane factors that should have been included in the Environmental Analysis for issues 1, 2 and 4 that could have also lead to findings of significant impacts and unavoidable impacts. These factors are related to the potential failure modes and the effects of those failures at hydrogen refueling stations which include failure modes associated with hydrogen delivery vehicles and on-site generation. These factors have been studied extensively and documented, for example, in a report prepared for the California Energy Commission and in an on-line tool for hazard and risk analysis available from the U.S. Department of Energy. As indicate in these references, the outcome of many potential failure modes are “explosion and fire”. This seems to directly contradict ARB’s conclusion that risks with respect to issues 1 and 2 are not significant and do not require mitigation.

Given that the impacts of failure modes at hydrogen refueling facilities are frequently fire, explosion, or fire and explosion, it is difficult to understand how ARB arrived at the conclusion that there would not be significant impacts with regard to fire protection services which are included in issue 4. As described below, it is clear that there will be significant impacts on fire protection services which will require either mitigation or which will have to be deemed to be significant and unavoidable.”

ARB disagrees. Please refer to responses 26-17 above.

The commenter also expresses “As shown in Table I-1 of the CFO ISOR (page 10), there are only ten public hydrogen refueling stations currently open in California and of those ten stations, the highest capacity is 100 kg/day of hydrogen. This is important for at least two reasons. The first is that given the lack of existing stations, most fire departments would not be expected to be familiar with, nor trained, to deal with emergencies at hydrogen refueling stations. These departments could be faced with the need to purchase new equipment, engage in additional training or perhaps add more fire fighters. A similar issue could be raised by the introduction of hydrogen transport vehicles operating in their jurisdictions which could raise new threats necessitating new equipment and/or training. The second reason is that ARB assumes that hydrogen stations created by the CFO will be designed for throughputs of 400 kg/day or four times the capacity of the largest existing station. Given this, even fire departments that are familiar with and trained to deal with emergencies at existing hydrogen stations will be faced with much larger potential fires and explosions owing to the larger volumes of stored hydrogen and/or the increased number of hydrogen delivery vehicle trips created by the operation of the station.”

Please refer to responses above (e.g., 8-1, 26-3) related to siting assumptions and applicable existing regulations.

The commenter also expresses “Another potential factor that could impact public services that was not identified or analyzed by ARB is the impact of hydrogen refueling stations on disaster response requirements. Given that their numbers are currently very small, the increases required under the CFO regulation could affect public agencies responsible for earthquake response requirements as well as responses required for prolonged outages of electric service potentially resulting from high wind events and other types of disasters.

Returning to issue 3, where ARB did indicate that potentially significant and unavoidable impacts could exist, one way to mitigate the risk associated with a hydrogen refueling station could be for the local lead agencies (which ARB states will be responsible for approving construction of those stations) to simply reject applications for station construction submitted by refiners subject to the CFO regulation precluding their ability to comply with the CFO regulation.”

Please refer to responses above (e.g., 8-1, 26-3) related to siting assumptions and applicable existing regulations.

The commenter also expresses that “As review of the CEC and DOE references cited above quickly indicates, there are different potential failure modes and hence risks associated with different hydrogen refueling station designs. Given this, another potential mitigation measure would be to dictate station design. Given that ARB’s economic model presented in Appendix E to the CFO ISOR indicates significant differences in the cost of station construction as a function of their design, these local lead agency actions could have significant impacts on the costs of compliance with the CFO regulation that CARB staff has failed to take into account.

This comment will be responded to in the FSOR for the CFO regulation. It does not pertain to the EA. However, please see response to 26-17.

With regards to the CFO Environmental Analysis Related to Hydrogen Production, “WSPA recommends ARB staff review the deficiencies and issues identified below and augment/correct them in the final regulatory documents.

As part of ARB’s Environmental Analysis for the Advanced Clean Cars Program (Appendix B to the Initial Statement of Reasons (ISOR) for the 2012 Proposed Amendments to the Clean Fuel Outlet (CFO) Regulation), the compliance response of increased hydrogen generation for fuel for fuel cell vehicles (FCVs) is recognized and discussed. The impacts associated with the compliance response are analyzed with respect to air quality but not with respect to greenhouse gas (GHG) emissions.

With respect to air quality, ARB concludes that compliance with CEQA would ensure that all impacts associated with the construction and operation of hydrogen production facilities are mitigated to a “...less-than-significant level”. However, it appears as discussed below that ARB ignored a number of factors in

analyzing the air quality and GHG impacts associated with the required increase in hydrogen production for compliance with the CFO regulation.”

Please refer to responses above (e.g., 8-1, 26-3) related to siting assumptions and applicable existing regulations.

The commenter expresses that “ARB’s discussion of hydrogen production is embedded on pages 134 and 135 of the EA. ARB notes that compliance with the CFO requirements would require increases in the supply of up to 9.2% in the state’s currently projected supply of merchant hydrogen. The EA also notes that increased hydrogen purity may also be required for merchant hydrogen to be suitable for use as fuel for FCVs. However, ARB does not indicate what percentage of currently available or forecast merchant hydrogen complies with the agency’s existing specifications for hydrogen used as an alternative motor vehicle fuel or what the environmental impacts associated with changes required at hydrogen production facilities to produce sufficiently pure hydrogen could be.

ARB also notes that pursuant to SB 1505, once statewide demand for hydrogen as a transportation fuel reaches certain levels, state law requires that 33.3 percent of this hydrogen be made from “eligible renewable resources as defined in subdivision (a) of section 399.12 of the Public Utilities Code.” However, ARB provides no estimate of the current amount of hydrogen that is available that meets both this requirement as well as its motor vehicle fuel specifications and does not include any forecasted estimates.

Finally, ARB assumes the required hydrogen will be available (and in its economic analysis, at prices equivalent to those associated with local production at centralized steam methane reforming facilities). However, no basis is provided for that assumption.”

This comment is the same as comments 8-1 and 26-3. Please refer to responses above (e.g., 8-1, 26-3) related to siting assumptions and applicable existing regulations.

The commenter expresses that the “first problem with the ARB analysis is the assumption that all potential air quality impacts will be mitigated to be non-significant as a result of the need for CEQA compliance, and the simultaneous assumption that all of the increase in hydrogen production capacity required for CFO compliance will occur in a timely fashion.

Looking first at central hydrogen production facilities producing local merchant hydrogen, ARB has provided no evidence that refiners either have direct control over these plants or that refiners can somehow compel the expansion of their capacity. Therefore, the decision with regard to whether or not to expand hydrogen production will likely be made based on economics by the plant owner who will factor the costs of CEQA compliance into that analysis and may well conclude that expansion does not make economic sense, particularly in areas

such as the South Coast Air Basin where necessary emissions offsets are difficult to obtain or expensive. If merchant hydrogen meeting ARB's hydrogen fuel specifications is in short supply, costs will likely rise and to the extent that supply is unable to satisfy FCV demand, FCV owners would have to turn to other modes of transportation, most likely conventional vehicles with the result being increases in emissions of both air pollutants as well as GHG emissions.

Similarly, existing merchant hydrogen plants are subject to the AB32 cap-and-trade regulation, which will likely require reductions in GHGs from those plants. Expansion of those plants would increase GHG emissions and force plant operators to purchase additional offsets. Again, this fact would be accounted for in the economic decision-making of hydrogen plant owners and tend to discourage decisions to increase capacity.

ARB also fails to identify the potential impacts of the need to increase hydrogen supply and the specific production methods used on hydrogen prices which in turn may have environmental impacts. As noted by the California Hydrogen Highway Network (see Attachment H) and as CARB staff is aware, the cost of hydrogen produced by different methods varies dramatically, in this case ranging from \$1.44 to more \$7.00 per kilogram. As hydrogen fuel prices will be related to the marginal cost of the source of the last increment of hydrogen needed to satisfy demand, it is crucial that CARB identify the sources of supply it assumes will be added to satisfy the increased demand. The price of hydrogen will be critical to decisions made regarding supply increases and also to FCV purchase decisions made by consumers."

This comment is the same as comments 8-1 and 26-3. Please refer to responses above (e.g., 8-1, 26-3) related to siting assumptions and applicable existing regulations.



Miles T. Heller

Senior Advisor, Regulatory Fuels Issues



BP West Coast Products LLC
4 Centerpointe Drive
La Palma, California 90623-2503

January 25, 2012

California Air Resources Board
1001 I Street
Sacramento, CA

Re: BP West Coast Products, LLC Comments on the Clean Fuels Outlet Regulation for public hearing at the January 26-27 CARB Board Meeting

Dear Chairwoman Nichols and board members:

The proposed amendment to the Clean Fuels Outlet regulation (CFO) is a legally tenuous, heavy-handed, fundamentally flawed attempt to direct private investment in the most inappropriate and unjustified manner. The regulation and proposed amendments compel private companies to invest hundreds of millions of dollars in infrastructure to manufacture, distribute and sell a product that they do not currently produce and, based on all evidence thus far, consumers are unwilling to buy. Ostensibly, the CFO is designed to promote zero emission vehicles in furtherance of California environmental policy. Yet, the facts clearly show that hydrogen fuels and vehicles are high cost options and not zero carbon. Forcing private companies to invest in high cost infrastructure that may not be used does nothing to advance the environmental interests of California. Accordingly, CARB should reject this proposal as fundamentally flawed public policy.

BP recently celebrated 100 years in business and we plan to be in the business of selling transport fuels for the next hundred years. To be successful in the long run, our products have to be increasingly sustainable, lower in carbon and ultimately accepted by consumers without subsidy. To that end, we are constantly looking at the future of all transport fuels – with a short, mid and long term investment horizon.

BP was one of the largest investors in hydrogen fueling research, demonstration and infrastructure build-out. We have built, in partnership with others, 15 hydrogen fueling sites around the world. Five of those sites have been in California. The most recent one - the so-called SMUD site along highway 50 – was built for renewable generation of hydrogen. That site is now closed for lack of use.

BP has extensive experience in siting, constructing and operating hydrogen fueling stations. In addition to our global research and siting experience, we actively participated in the California Fuel Cell Partnership for six years. Our detailed research and experience has led us to the conclusion that hydrogen for transport will not be a viable transportation pathway in the long term, if

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ever. BP is instead focusing on what we believe to be more viable pathways – including advanced low carbon biofuels used in highly efficient conventional engines and vehicle hybridization.

“In order to get significant [hydrogen fuel] deployment, you need four significant technological breakthroughs.... If you need four miracles that’s unlikely: saints only need three miracles”. Dr. Stephen Chu, US Secretary of Energy, Interview with MIT’s Technology Review, May 14, 2009.

There are many barriers to the hydrogen future as alluded to by Secretary Chu. First, on a well to wheels (WtW) basis, hydrogen fuel has a higher carbon footprint than electric vehicles and hybrid vehicles since the fuel would likely be reformed from natural gas. Despite the renewable hydrogen requirements of SB1505, there is no certainty that renewable hydrogen will be available in sufficient quantities, or at a reasonable price, during the period covered by this regulation.

Second, the extremely high costs of the hydrogen vehicle’s fuel cell and storage tank make vehicle costs prohibitive. BP estimates that the current cost of an FVC is about \$180,000 (for a 60kW fuel cell module). Moreover, BP sees little prospect for significant technology cost reductions gleaned from learning that accompany “doublings” of manufacturing capacity. In order to achieve the Department of Energy’s fantasy cost target of \$51 per kW (at production of 500,000 units), there would need to be 18 “doublings” of capacity via production of over 6 million FVCs, with an extremely aggressive and unlikely experience curve factor of 80%. BP estimates that the subsidies required to manufacture the first one million FVCs will range between 29 and 67 billion dollars, far greater than the approximately 14-16 billion dollars in subsidies required to produce electric vehicles.

Finally, BP does not believe that anticipated hydrogen fuel cost savings will offset the higher fixed costs of making a FCV. Assuming natural gas prices at \$4.00 per mmbtu and other costs associated with the hydrogen production and fuelling infrastructure, we estimate the cost of hydrogen would be between \$5 and \$7 per kg. A kilogram of hydrogen in energy terms is equivalent to one gallon of gasoline. Therefore, unlike hybrid and plug-in hybrid vehicles where the cost of fuel is lower than for a conventional gasoline vehicle, for a fuel cell vehicle the cost of fuel will be higher than a conventional gasoline vehicle. Therefore an FCV user won’t have a chance to recoup some or all of the higher vehicle cost through lower fuel costs.

Our decision to exit the hydrogen for transport business was made at the highest levels of the company and supported by significant on-the-ground experience and research. At the time we exited the business, BP’s hydrogen efforts exceeded the efforts of all other energy corporations in the U.S. combined. Furthermore, we are not aware of any company that invested more in California hydrogen fueling at the time of our exit.

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We believe it is extremely perilous for policymakers, including CARB, to believe that they can pick and choose technology winners and losers better than the open marketplace – and to compel private investment in fledgling, unproven technology. Policymakers do not have a good track record for picking winners and losers in technology or fuels. CARB has seemingly understood this concept in their design and promotion of the LCFS. CARB members have touted the LCFS as performance based and fuel neutral. For all its faults – the LCFS at least recognizes the benefits of letting the market pick winners and strives for neutrality. It is incongruous, to say the least, for CARB with one hand to tout the benefits of a technology neutral fuels policy, while with the other hand plucking a single technology out of that “fuel neutral” policy and in the most heavy-handed way, mandating its deployment.

CARB staff has chosen to overlook the fact that there are entities who are voluntarily investing in this infrastructure and companies that will directly benefit from development and deployment of these technologies (Linde, Air Products, etc.). These companies have been most involved in the AB118 grants for refueling stations in California – and have been involved in hydrogen infrastructure build out in other countries. Rather than compel unwilling investment in this technology, CARB should work with those who are interested in deploying the technology to remove the hurdles to more investment.

CARB staff argue that the vehicle manufacturers have invested billions of dollars in alternative fuel drive trains and now the fuel providers must do likewise. This alleged parity ignores the billions of dollars the oil industry has spent over the years on reformulated fuels (multiple times) pursuant to CARB’s regulations; and the billions more estimated to be spent to comply with the California LCFS and the federal Renewable Fuels Standard. At the same time, CARB now wants to require the industry to spend more money to displace the same fuel we have invested in reformulating.

Fuel providers and station owners deserve the fundamental protection and the freedom to elect the business opportunities in which they choose to invest. As staff has acknowledged, most retail stations are no longer owned and operated by the fuel providers and even further divestments by refiners/importers are anticipated. The amended regulation requires fuel providers develop and invest in hydrogen fuel outlets and presumes that this will occur on other people’s property. Most retail stations are owned by an individual who only owns one station with an annual net income of about \$40,000 on a national basis. The owner could face significant business loss from the lack of on-going hydrogen fuel sales should the vehicles not materialize, or from displaced business when forced to site the hydrogen equipment.– or more significantly, if the plot space required for the hydrogen storage and dispensing infrastructure requires displacement of conventional fuel dispensers, convenience store space, car washes and the concomitant loss of associated revenue.

In another scenario, retail station owners may deny access for fuel providers to construct and operate hydrogen dispensing facilities. In this case, infrastructure

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required by this regulation would have to be built and operated at new retail sites – adding substantially to the costs and environmental impacts of the proposal. This potential outcome is completely ignored by staff.

The CFO would require fuel providers to commit hundreds of millions of dollars based on very uncertain projections of vehicle sales from vehicle manufacturers. The Clean Car rule appears to be a flexible, performance-based approach which results in giving automakers choices in which technologies they use to comply. In theory, the LCFS is supposed to be the equivalent, performance-based regulation for fuel providers –and the mechanism by which the market will deliver the most efficient lower carbon fuels. However, CARB has chosen to take the unprecedented step of regulating one sector based on the choices and whims of another sector. As previously stated, the CFO would require refiners and importers to invest hundreds of millions of dollars based on projections – not actual vehicle sales – by automakers. This means CARB is requiring refiners and importers to invest based on the compliance pathway that automakers may choose to take. Ultimately, automakers may not chose the pathway (without penalty), consumers may choose not to purchase the vehicles, or automakers may choose to take advantage of the regulation's provision (travel provision) that allows them to comply by delivering these vehicles outside of California – even though the regulation would require build out of fueling infrastructure within California.. What is CARB's plan to reimburse refiners and importers should the investments in fueling infrastructure be required and the cars don't show up? What is CARB's plan to reimburse operators of fueling outlets should they continue to operate at a loss (whether or not the cars show up)?

While the latest version of the regulation adds a penalty for car companies who do not produce 80% of the number of vehicles they projected, the penalty is inconsequential (\$35,000) compared to the cost of building and operating even a single hydrogen fueling outlet (let alone the 500 required by the regulation); and the penalty is only based on what is manufactured and not what is sold to a customer. Moreover, fuel providers are subjected to a penalty of \$35,000 or higher for every day that the station is late in coming on-line or not operating properly. A single problem or missed deadline could result in penalties an order of magnitude higher than what CARB proposes to levy on the auto manufacturers.

CARB staff and vehicle manufacturers claim that the underlying surveys and projections are accurate, however, the projections are all based on secret discussion between CARB and individual automakers. None of the assumptions that go into these projections, nor the individual automaker projections have been publicly made available – yet CARB is compelling hundreds of millions of dollars of private investment based on these secret projections. Recent experience involving battery electrical vehicles suggests that there should be considerable skepticism leveled at automaker projections of sales of these new technologies. Fuel providers and retail station operators should not be required to invest, construct, and operate such facilities with this

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level of uncertainty. There is no discussion in the regulation regarding the probability and circumstances associated with stranded assets.

BP's recommendations for a sound policy and regulatory approach

- Due to the early stages of development of hydrogen for transport, policy should focus on helping those who are interested in and will benefit from deployment of this technology. Policy should not force unwilling participants into this business.
- Continue public funding of retail stations through programs like AB118 and ensure that in the AB118 reauthorization process, adequate money is allocated for hydrogen refueling stations in the geographic areas desired. The public should share in the risk of this early commercialization phase.
- Seek public-private partnerships and creative financing approaches to extend the use of the public money in contrast to the grant programs that are prevalent now.
- Seek incentives for fleet conversions (public and private) that reward operators who make their fueling facilities accessible to the public.

In addition to the overarching policy concerns expressed above, BP has concerns about specific regulatory language and the supporting staff documentation for the regulation that is included in an appendix to this letter. BP also supports the comments submitted by the Western States Petroleum Association (WSPA) In summary, BP recommends that the board oppose the proposed CFO amendment, direct staff to rescind current regulation, and pursue the public incentive based concepts outlined above. BP appreciates CARB's consideration of these comments regarding the CFO regulation and we look forward to your response.

Sincerely,

Miles T. Heller
Senior Advisor, Regulatory Fuels Issues

c.c w/attachment.

CARB Board Members
CARB Executive Officer
Tom Cackette – CARB
Analisa Bevon – CARB
Leslie Goodbody - CARB

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APPENDIX 1

Regulatory Order

1. The regulation defines a major refiner/importer as being an entity that produces or imports more than 32,616 bbl/day (based on 500 mmgl/year) and then applies the requirements for retail outlets to major refiner/importers. However, CARB proposes to use BOE data based on sales volume for determining the percentage of outlets assigned to a particular company. To be consistent with the definition of producer/importer, and other CARB regulations like the AB32 Admin Fee regulation, the basis for share of regulatory burden should be the volume a company produces and imports.

2. Both the current and the existing regulation includes provisions for fleets. It is assumed that 25% (subject to change) of fleet vehicle fuel demand will be provided by retail outlets so this quantity plays into the calculation for number of stations. What basis did CARB use to determine 25% factor?

3. The regulation is very prescriptive regarding station requirements including a requirement to provide H2 at both 5,000 psi and 10,000 psi. It is our understanding that the 10,000 psi pressure is likely the preferred pressure going forward. It would be best to standardize on one pressure to prevent customer confusion and to bring more consistency to costs. BP suggests CARB analyze the cost increment of offering two pressures as opposed to just one.

4. Please confirm that while CARB utilizes 400 kg/day to determine a retail station count based on projected hydrogen demand, CARB does not specify that all stations must be 400 kg/day. If CARB is specifying this capacity per retail station, it needs to be clear in the regulatory language and CARB must analyze the costs, with ample contingency, of a 400 kg/day refueling station which notably is larger than any station built to date in California.

5. While it is helpful that CARB provide notification nearly 3 years in advance, this can contribute to less accurate projections. It appears that CARB will reconcile progress on the annual projections about 2 years out and make adjustments to the retail station counts. BP suggests that this same exercise also be done about 12 months ahead of when stations are required. Furthermore, stations should be able to be installed and brought on-line ratably across the calendar year in which they are required. This is necessary to ensure that engineering and construction resources are available. In addition, both of these changes will help ensure that the stations built most closely match vehicle roll-out and anticipated fuel demand.

6. It appears that existing retail stations not owned by producers/importers are accounted for against the projected need if they meet the design standards and pledge to operate for a year. In addition, stations owned/operated by third parties can be 'constructively allocated' to obligated parties under this regulation for credit under specified conditions. BP suggests that any stations

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funded by AB 118, or similar public incentive funds, be credited up-front, with little restriction, to ensure that these stations are used fully before incremental stations are required by the regulation.

7. The regulation requires that if a subsequent calculation shows no incremental retail stations are required, then the existing stations have to remain in operation. However, this section does not define how long. There needs to be a finite amount of time that stations are required to be kept open when the vehicles and fuel demand are not progressing. The ISOR indicates 1-year of O&M costs (page 62) in this scenario where stations shutdown and are decommissioned. For consistency, the time horizon for continued operation of under-utilized retail stations should be no longer than 1-year in the regulation.

8. The regulation provides for very limited relief from operating requirements under breakdown provisions. However, it appears that there is no relief when construction and start-up of stations is delayed. This can occur for a number of reasons beyond the control of the regulated party – for example, permitting delays, equipment availability and delivery. Language outlining a procedure should be added to enable companies to avoid penalties when there are circumstances beyond their control occur.

9. The regulation contains penalty provisions, including a new provision to penalize an OEM that does not deliver (vs. sale) 80% of the vehicles they projected. While adding a penalty for OEMs that do not make their projections is a good step, this proposal does not go far enough. First, it is preferable that it be based on amount sold since it is vehicles sold that will generate the fuel demand to enable stations to recover their costs. If CARB retains the provision based on delivered vehicles, then it should be based on 100% of their projections and not 80% projections. There are substantial per day penalties also for refiner/importers who do not complete the stations in time, or do not operate them in accordance with the standards (barring breakdowns/malfunctions covered in other parts of the reg). However, the penalty for the OEMs is a small fine only assessed each time a projection is missed – not per vehicle or per day that the OEM fails to deliver or sell a vehicle. The penalty provisions should comparably penalize the OEMs to what is proposed for retail stations.

ISOR

1. The regulation contemplates the option to fulfill the requirements with a stand-alone hydrogen fueling station in lieu of equipping existing retail sites. In fact, if no retail station owners allow a fuel provider to build and operate a dispenser on their site, all fueling infrastructure required by this regulation would have to be built on new sites – incurring huge incremental costs relative to the premise of the regulation. Do the analyses include the additional costs (land and other improvements) required to build a freestanding station? Do the environmental analyses include the consideration of additional impacts for the construction, traffic, etc. for such stations?

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2. The ISOR asserts (on page 2) that hydrogen vehicle roll-out is hampered by the lack of publically available hydrogen refueling infrastructure. The citation referenced to substantiate this assertion is a New York Times Article (footnote 2). Is the staff really using a newspaper article citation as justification for compelling private entities to invest hundreds of millions of dollars ahead of market demand? Perhaps the article cited includes underlying data or studies, but those primary references should be included in the staff analysis – not a newspaper article.

3. On page 11, CARB staff discusses additional future stations funded by AB118 and that stations are required to operate for a minimum of 3 years. After 3 years, if a station elects to shutdown, it is unclear whether the regulators are going adjust the number of stations that are required to be constructed and operated under CFO. If it is anticipated that parties regulated under CFO (fuel providers) will be required to operate an unprofitable station beyond the 3 years, what incentive does the current owner/operator have to try and stay in business. Fuel providers should not be required to “take-over” or make-up the capacity of AB118 funded stations that fail. Moreover, if stations are failing, this suggests lack of demand for the vehicles and fuel – necessitating a system-wide review of the need or wisdom of the CFO regulation.

4. On page 24, we would appreciate confirmation that when the projections for each year are added together that these are the incremental projections for each year and that there is no double-counting of vehicles. This is not clear in the staff report or the regulation. Similarly, it is not clear why the 1/3rd factor is used for the year that is three years prior to the year that is being projected. Since this factor is applied during that year that the forward-looking projection is being made, it would seem logical that the amount of vehicles actually sold in the first part of the year should be extrapolated over the balance of the year verses using one-third of a dated projection value.Date

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CFO – L27 Response

- 27-1 The commenter supports the comments submitted by WSPA. Appendix 1 under the ISOR heading of the comment letter inquires “Do the environmental analyses include the consideration of additional impacts for construction, traffic, etc. for such stations?”

Please refer to responses CFO – L26. Regarding the EA and the impact analysis, Chapter 5 “Impacts and Mitigation” provides a full analysis of potential impacts that may result from establishment of CFO facilities and identifies mitigation.

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MEETING
STATE OF CALIFORNIA
AIR RESOURCES BOARD

METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
BOARD ROOM
700 NORTH ALAMEDA STREET
LOS ANGELES, CALIFORNIA

FRIDAY, JANUARY 27, 2012
8:52 A.M.

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Ms. Sandra Berg

Ms. Doreene D'Adamo

Mr. Hector De La Torre

Mr. Ronald Loveridge

Mrs. Barbara Riordan

Dr. Daniel Sperling

Mr. Ken Yeager

STAFF

Mr. James Goldstene, Executive Officer

Mr. Tom Cackette, Chief Deputy Executive Officer

Mr. Bob Fletcher, Deputy Executive Officer

Ms. Lynn Terry, Deputy Executive Officer

Ms. Mary Alice Morency, Board Clerk

Ms. Anna Wong, Air Pollution Specialist, Zero-Emission
Vehicle Implementation Section, MSCD

ALSO PRESENT

Mr. Jay Bajaria

Mr. Harvey Eder

Mr. Edward Olson

Transcript – Edward Olson and Jay Balaria Public Comments

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PROCEEDINGS

CHAIRPERSON NICHOLS: Before we get started, I want to try to clarify where we are.

This is day two of our January Board meeting, and it's a continuation of the proceeding that we began yesterday dealing with the Advanced Clean Cars Program.

Yesterday, at the end of the day, or very close to the end of the day, I announced the record was closed because I believed that we had gone through the entire list of witnesses and that everyone who had signed up to testify had either testified or decided not to testify.

It turned out that there was some confusion on the part of two people who signed up who thought that when I indicated that we would be going over a second day that meant they could come back and testify. And so in the interest of keeping this proceeding as open as possible, I have agreed that they could come back today and that we would reopen the record for the very limited purpose of allowing those individuals to testify, which they would have done if they hadn't been confused. So I think it's just cleaning up an error that was made. And I don't believe that means that we need to or that we should reopen the record, otherwise, there would be no end. People could keep coming with more new ideas. So that's going to be the first thing we're going to do.

1 But right now what I'm going to do is call the
2 meeting to order. And we'll do the Pledge of Allegiance
3 as we normally do, and the roll call. And then we'll just
4 get going.

5 (Thereupon the Pledge of Allegiance was
6 Recited in unison.)

7 CHAIRPERSON NICHOLS: The Clerk of the Board will
8 please call the roll.

9 BOARD CLERK MORENCY: Dr. Balmes?

10 BOARD MEMBER BALMES: Here.

11 BOARD CLERK MORENCY: Ms. Berg?

12 BOARD MEMBER BERG: Here.

13 BOARD CLERK MORENCY: Ms. D'Adamo?

14 BOARD MEMBER D'ADAMO: Here.

15 BOARD CLERK MORENCY: Mr. De La Torre?

16 BOARD MEMBER DE LA TORRE: Here.

17 BOARD CLERK MORENCY: Mayor Loveridge?

18 BOARD MEMBER LOVERIDGE: Here.

19 BOARD CLERK MORENCY: Mrs. Riordan?

20 BOARD MEMBER RIORDAN: Here.

21 BOARD CLERK MORENCY: Supervisor Roberts?

22 Dr. Sherriffs?

23 Professor Sperling?

24 BOARD MEMBER SPERLING: Here.

25 BOARD CLERK MORENCY: Supervisor Yeager?

Transcript – Edward Olson and Jay Bajarria Public Comments

3

1 BOARD MEMBER YEAGER: Here.

2 BOARD CLERK MORENCY: Chairman Nichols?

3 CHAIRPERSON NICHOLS: Here.

4 BOARD CLERK MORENCY: Madam Chairman, we have a
5 quorum.

6 CHAIRPERSON NICHOLS: Let's then continue the
7 public hearing, which as everybody will recall is dealing
8 with amendments to the California greenhouse gas and
9 criteria pollutant exhaust and evaporative emissions
10 standards and test procedures. I won't read out the whole
11 rest of what it is. It's a package of rules that we're
12 working on.

13 And here are the two names of the people who left
14 yesterday under the mistaken belief that the record was
15 going to be open, Edward Olson and Jay Bajarria. If you
16 would come forward and we will give you each the three
17 minutes that you would otherwise have been entitled to.
18 So whichever order you'd like to speak in, there is a
19 podium right here.

20 MR. OLSON: Board members, my name is Edward
21 Olson with (inaudible) Enterprises. I have been in gas
22 station business and car wash business over 30 years,
23 owning several gas stations in both Orange County and San
24 Diego county.

25 The first major concern I had with hydrogen pumps

Olsen

1 is the safety of my customers and employees. The pumps
2 will contain like 5,000 to 10,000 PSI. The risk of
3 explosion, especially with the customers is using a cell
4 phone while pumping or if a customer forget the nozzle in
5 their car and drive off is very scary.

6 We live in a busy and fast-paced world, and we
7 have this issue of people driving off with the nozzles
8 occur often at my stations. If this occur with the
9 hydrogen pump, this will not only be costly to the place
10 but can be extremely dangerous to my station and to the
11 customers of our stations.

12 The second major concern I have is the time it
13 will take to install the pumps and how much business it
14 will lose during construction. I may have to shut down
15 for some time and install them. And even if I can't stay
16 open, the space would take by the construction would be a
17 big inconvenience to my customers and it may drive them
18 away.

19 A gas station that has installed hydrogen pumps
20 in south Orange County was shut down for over a year
21 during construction. This be very bad to my business and
22 my ability to provide to my family.

23 The final concern I have is the lack of demand
24 for the product. It's not economically feasible for a gas
25 station owner like myself to take up real estate and tank

Olsen
cont'd

1 space to commit to hydrogen pumps. Currently, very few
2 manufacturers are making cars that run on hydrogen. If
3 there is a high business demand, let the market decide the
4 need. For us, adding these pumps, the government
5 shouldn't be forcing small business owners, such as
6 myself, to place unnecessary and unwanted pumps in my
7 station.

8 Thank you very much.

9 CHAIRPERSON NICHOLS: Okay. Thank you, Mr.
10 Olson.

11 Ms. D'Adamo.

12 Before you go, excuse me, if you could stay for
13 just a second.

14 BOARD MEMBER D'ADAMO: I just wanted to say,
15 there have been a number of small business owners that
16 have provided similar testimony. And I don't see anything
17 in this regulation where you would be required to install
18 this infrastructure. And I think you're absolutely
19 correct; that small business owners should not be required
20 to do so.

21 So I hope you leave today with maybe a little
22 more assurance that this regulation is -- the purpose of
23 it is to provide an incentive for a small number of these
24 projects to begin with. Hopefully, you can continue to
25 follow it and have your fears alleviated somewhat.

Olsen
cont'd

Transcript – Edward Olson and Jay Bajarria Public Comments

6

1 MR. OLSON: Thank you.

2 CHAIRPERSON NICHOLS: Mr. Bajarria.

3 MR. BAJARRIA: Let me first thank all members of
4 the Board for hearing my comments.

5 Hello. My name is Jay Bajarria. I own several
6 gas stations with full service car washes in Los Angeles.

7 Let me start by saying I'm just as much in favor
8 of having clean air as anybody here. However, I believe
9 there is a right way to achieve it and a wrong way to
10 achieve it. At my gas station, the primary profit center
11 is the car wash. For me to install hydrogen in my
12 locations require me to close down the car wash to
13 accommodate the footprint of the hydrogen equipment.
14 Effectively, this will put me out of business.

15 Business owners should be able to determine what
16 they do sell and what they don't sell. It should be at
17 the discretion of the business owner whether or not he or
18 she takes existing space and dedicates it to a product
19 that has no demand as of yet.

20 And as for the safety of hydrogen, I would not be
21 comfortable having it on my property from a safety and
22 liability perspective. Often see cars driving away from
23 the pump with the nozzle in their car. I can only imagine
24 the damage and destruction that would be caused by a car
25 driving off with a hydrogen nozzle that is under pressure

Olsen
cont'd

Bajarria

1 up to 10,000 PSI.

2 I would ask that you please let business owners
3 and property owners to decide what services to provide
4 rather than forcing it on them.

5 Thank you for your time.

6 CHAIRPERSON NICHOLS: Thank you for coming back
7 and for taking the time. It's been helpful to us to hear
8 these concerns, because I think someone has been out
9 attempting to convince people that this regulation that
10 we're considering would have the effects that you're
11 talking about. And I have to agree with Ms. D'Adamo that
12 there's absolutely nothing in this rule that would require
13 you or any other service station owner to install hydrogen
14 on your property. There is nothing in the rule. Let me
15 say it as clearly as I possibly can that would require any
16 service station to have hydrogen on their property that
17 didn't want it.

18 And the other thing I would say, by the way, is
19 that we also agree with you very strongly that hydrogen,
20 as with gasoline, is a fuel that requires very careful
21 handling. And we do not want to be and don't intend to be
22 a party to anything that is going to increase safety
23 risks. I don't think we would be allowed to be, even if
24 we wanted to, because unfortunately there are other
25 agencies in state government and local fire marshals, et

Bajarria
cont'd

Transcript – Oral Public Comments and Responses

Edward Olson

The commenter expresses “I have been in gas station business and car wash business over 30 years, owning several gas stations in both Orange County and San Diego County. The first major concern I had with hydrogen pumps is the safety of my customers and employees. The pumps will contain like 5,000 to 10,000 PSI. The risk of explosion, especially with the customers is using a cell phone while pumping or if a customer forgets the nozzle in their car and drive off is very scary. We live in a busy and fast-paced world, and we have this issue of people driving off with the nozzles occur often at my stations. If this occurs with the hydrogen pump, this will not only be costly to the place but can be extremely dangerous to my station and to the customers of our stations.”

Jay Bajarria

The commenter expresses “...And as for the safety of hydrogen, I would not be comfortable having it on my property from a safety and liability perspective. Often see cars driving away from the pump with the nozzle in their car. I can only imagine the damage and destruction that would be caused by a car driving off with a hydrogen nozzle that is under pressure up to 10,000 PSI. I would ask that you please let business owners and property owners to decide what services to provide rather than forcing it on them. .

ARB agrees that hydrogen, as with gasoline, is a fuel that requires very careful handling. The EA Environmental and Regulatory Setting chapters describe hazards associated with hydrogen as well as all applicable laws and regulations. The EA starting at page 158 discloses that the project could potentially create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment and that this impact would be potentially significant. This EA found that this impact could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, but the authority to impose mitigation is beyond the authority of the ARB. The potential for hazard related to customers driving off with the nozzle still attached would be alleviated because the cars and fueling stations are designed so that they communicate electronically (e.g. when there is a fueling connection, the car and pump communicate electronically and cannot be started up) minimizing the potential for adverse impact.

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