CARB 2011 LCFS Advisory Panel
Western States Petroleum Association's Comments on Draft Advisory Panel Report - Chapters 3 and 5

WSPA has provided below our comments on both of the draft Advisory Panel chapters. Our comments on the chapters have been submitted in two formats – a) markups of the actual draft text, and b) lengthier written comments (general and specific).

Chapter 3 - Harmonization

Markups

Advisability for Harmonization

This chapter addresses the advisability of harmonization of the California LCFS program with other international, federal, regional, and state LCFS-like programs, one of the topics of review required by the LCFS regulation.

A. Introduction

Harmonizing LCFS programs means bringing key elements of different LCFS regulatory frameworks into accord with one another, while recognizing that these elements will not necessarily be (or need to be) identical. For example, it is important for LCFS programs to consider the carbon intensity (CI) of alternative fuels, rather than simply consider alternative fuel volume requirements. Although the carbon intensities of fuels in differing LCFS programs may differ due to regional differences in the energy required for feedstock production, the feedstocks used for electricity production, and the transportation distances of feedstocks and fuels used for estimating CI, the inclusion of CIs in all LCFS programs will encourage the production of lower CI fuels. Depending on how the differences are manifested, it may make it difficult or impossible to blend corn ethanol under RFS2.

Harmonizing fuel programs between state, federal, and foreign jurisdictions is useful to ensure the optimum reduction of greenhouse gas (GHG) emissions. Similar fuel program frameworks reduce the possibility of fuel shuffling across different jurisdictions which would tend to increase net GHG emissions. Consistent programs would also reduce the administrative burden for both regulated parties and regulatory agencies. Program elements that should be considered for harmonization include LCA analysis, sustainability requirements, reporting requirements, and credit calculations. For LCA analysis, the model used for calculation (CA-GREET, GHGenius, etc.) is not important as long as all facets of fuel production (feedstock production, feedstock transportation, fuel production, fuel transportation and storage, and ILUC) and fuel use are similarly considered. The harmonization of LCFS programs is not without risks. Harmonization must not be achieved at the expense of actual GHG emissions or environmental considerations. For example, harmonizing the California LCFS with programs that do not fully consider ILUC could make it difficult to achieve real GHG emissions on a global scale, and programs lacking sustainability provisions could promote environmental damage. It should also be understood that if national and international programs are not

available to harmonize with, then shuffling and resulting GHG emission leakage is inevitable and real reductions in GHG emissions are uncertain.

The California LCFS is performance-based and is designed to reduce GHG emissions from transportation fuels by 10 percent by 2020. The regulation establishes annual performance standards that fuel producers and importers must meet beginning in 2011. The LCFS applies, either on a compulsory or opt-in basis, to all fuels used for transportation in California. These transportation fuels include California reformulated gasoline, California ultra-low-sulfur diesel fuel, E85, compressed or liquefied natural gas, biogas, electricity, and compressed or liquefied hydrogen.

Comment [gg1]: The use of "transportation" fuels is not entirely accurate since aviation fuels are transportation fuels but are not under the program.

Comment [gg2]: This widely used description of the program is misleading. The uninitiated would read this to say that all of the fuels listed in the next sentence must reduce their carbon intensity by 10 percent by 2020.

Written Comments

General Comments Chapter 3: Advisability for Harmonization

A fundamental flaw in Chapter 3 is the absence of discussion regarding the need to harmonize state and federal programs intended to promote biofuels and reduce CI, such that the programs do not create problems for adequate supplies of transportation fuels at reasonable costs across the country. For example, as has been noted repeatedly, the California LCFS is likely to result in the shuffling of low CI fuels that would otherwise be used elsewhere in the U.S or other countries to California, with the overall result being an increase in total GHG emissions and generally higher costs for transportation fuels due to the shuffling.

To the extent that other jurisdictions adopt LCFS programs and like California fail to create feasible/realistic programs or provide "safety valve" or "off-ramp" mechanisms to deal with situations such as the failure of low CI fuel production to develop as anticipated and/or consumers failing to purchase large volumes of specialized vehicles required for the use of specific fuels, this problem will be exacerbated. ARB staff must include an assessment regarding how changes could be made to the LCFS regulation that would avoid the need for the actual shuffling of fuels to California.

The bulk of Chapter 3 (pages 1 of 12 through the middle of page 9 of 12) is simply a summary of other programs intended to promote the use of biofuels or reduce the carbon intensity of transportation fuels that are either in place or under consideration. This material is of little or no relevance to the subject of the Advisory Panel's view of the California LCFS's (CA LCFS) harmonization and would be more appropriately contained in an appendix.

The discussion of "Priority Areas for Possible Harmonization" appears to be predicated on the assumption that other programs should be changed to harmonize themselves with the California program and fails to meaningfully assess whether or not there are beneficial changes that could be made to the CA LCFS to harmonize it with other programs - most notably the federal RFS2 program. For example, the RFS2 program differs from the California program in terms of scope, LCA, reporting and credit marketing. CARB claims that some of these issues are due to "programmatic

differences" but presents no analysis of why the CA LCFS structure in these areas is superior to that of the RFS2 program.

Specific Comments Chapter 3: Advisability for Harmonization

1. Page 3 of 12, Second Paragraph – The report claims that ARB staff "worked with U.S. EPA to harmonize" the LCFS and RFS2 programs. Given the fundamental differences in the two programs, (e.g., the RFS2 requires specific volumes of biofuels to be used on a nationwide basis and the LCFS requires specific CI reductions in fuels used in California regardless of the consequences in other parts of the country), there is no evidence that there is any consistency or harmonization between the two programs. ARB should explain in detail why harmonization of the LCFS with the RFS2 program cannot be achieved. For example, on a theoretical level, there is no reason why ARB could not add mandated volumes for electricity and natural gas use in the transportation fuel sector in California, or add a mechanism to update those and other required fuel volumes as necessary to account for actual market conditions.

2. Page 7 of 12, First Paragraph – The report claims, with no supporting documentation, that the RFS2 program will achieve only about 30% of the GHG benefits of the "proposed regulation" and that "California's LCFS complements the Federal RFS2." It is inappropriate to include unsubstantiated statements like these. Supporting analysis (such as a revised assessment of LCFS benefits, costs, and fuel supplies) or appropriate references must be provided. Furthermore, the references to the LCFS as a "proposed regulation" suggest that ARB staff is simply lifting text from documents prepared for the April 2009 hearing, rather than performing a real review of the current status of the LCFS program.

3. Pages 7 and 8 of 12 – The section labeled "Consideration of a National LCFS" does not belong in the LCFS review report. Given that none of the "research institutions" involved have any regulatory authority, this effort is at present nothing more than an academic curiosity. It will remain as such until states or the federal government indicate they are actively considering participation in or the creation of a "National LCFS" regulation.

4. Pages 9 and 10 of 12 – The harmonization of life cycle assessment (LCA) tools is something that would be of benefit to all parties concerned with reducing GHG from transportation fuels. However, given that numerous organizations continue work on revisions to both direct and indirect LCA assessment tools, it appears the main reason for lack of harmonization is a lack of consensus in the scientific community, rather than differences in CI values due to the effects of ultimate fuel use in different regions. Until at least a general consensus is achieved, it is likely that harmonization will be impossible. It is also unclear why ARB staff believes their approach to LCA

is superior to the approaches used by other states and organizations. Furthermore, there is nothing in Chapter 3 that supports the staff's contention that the ARB approach represents "best LCA practices."

5. Pages 10 and 11 of 12 – The discussion of HCICO needs to address why ARB staff is not recommending harmonization with other jurisdictions that recognize the need to focus on the primary goal of developing lower CI alternatives to gasoline and diesel fuel and to acknowledge that the results from shuffling of crude and finished petroleum products will increase overall GHG emissions.

6. Page 12 of 12 – Harmonization of GHG credit markets would be valuable, however, as ARB points out, it is something that ARB has not achieved even within its own regulatory programs. It would be useful for ARB to explain in this chapter why it is that AB32 emission allowances cannot be used within the LCFS program and why LCFS credits cannot yet be used as AB32 emission allowances, particularly in light of ARB's plans to include transportation fuels in the AB32 cap-and-trade program.

Chapter 5 – Advances in LCA

Markups

V. Advances in Lifecycle Assessment

A. Introduction

There are two components to the fuel-lifecycle assessment: direct and indirect effects. The direct effects include the emissions that come from the processes involved with; the production and transportation of feedstocks; the processing of the fuel from feedstocks; the transportation of the fuel; and the combustion of the fuel. In addition to the more obvious direct effects, the Board also asked that indirect effects be included in the lifecycle assessment. These are emissions that occur as an indirect effect of the production of fuels but are not caused by the production of the fuel. The analysis of this factor includes the continued development and review of land use change values, informed in part by the Expert Workgroup. Another important indirect effect which was not evaluated is the emissions impact of increasing crop yields on the existing land. The potential effects could be very significant since the price signal from the use of additional corn for ethanol production would affect all growers. They might choose to use more fertilizer or add a crop cycle in a dry period via irrigation. In areas where water is a limiting factor for growing crops, this could result in significant net emission effects if that water is taken away from other crops. It should be noted that these factors would tend to increase the CI of crop-based biofuels. So we will need to complete this evaluation to have a complete picture of what the net impacts of these fuels are.

These activities are a key element of the LCFS regulation, as they inform the carbon intensity for each fuel pathway, which in turn translates into the credits or deficits under the program as a function of volumes introduced into the transportation system.

When the Board approved the LCFS in April of 2009, it approved two fuel pathway Lookup Tables containing a total of 64 staff-developed pathways. Of those pathways, 37 were for gasoline (CARBOB) and gasoline substitutes, and 27 were for diesel and diesel substitutes. The carbon intensities (CIs) associated with those pathways were estimated using one or both of two models: version 1.8b of the California-modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model (CA GREET) and the Global Trade Analysis Project (GTAP) model[1]. CA-GREET was used to estimate the direct fuel life cycle ("well-to-wheels") emissions, while GTAP was used to estimate the emissions associated with indirect land use change (LUC). Although the direct well-to-wheels emissions associated with all of the original
64 pathways were estimated using CA-GREET, not all of those pathways were associated with identifiable LUC emissions. Thus, GTAP was used on only a subset of pathways: corn ethanol, sugarcane ethanol, soy biodiesel, and soy renewable diesel. As noted above, we will come back and evaluate the other indirect effect of farming intensity on base land to improve our estimate of indirect effects of these crop-based fuels.

Written Comments

General Comments on Chapter 5: Advances in Lifecycle Assessment

The point of LCA in the LCFS program is to ensure that CI values assigned to gasoline and diesel fuels as well as the substitutes are accurate. To the extent the status of LUC analysis is not sufficient to ensure accuracy, particularly between fuels produced from different feedstocks, ARB should consider delaying the implementation of the LCFS or elements of the LCFS until such time that reasonable accuracy can be ensured. To do otherwise, creates the potential for unintended consequences resulting from the LCFS regulation – specifically providing inappropriate incentives for fuels that do not provide the expected reductions in GHG emissions. This potential issue needs to be addressed explicitly in the Chapter.

ARB staff's dismissal of updates to the GREET model since 2009 as being insignificant and the decision not to use GREET updates to modify the CI values associated with the "default" values in the Lookup Table will leave those values artificially high and drive virtually all biofuel producers to prepare Method 2A/2B applications. ARB should strive to ensure that the CA GREET model reflects the best available scientific data and that it is applied to all fuel pathways even if this means revisions to existing default and Method 2A/2B CI values.

[1] The GREET was originally developed by Argonne National Laboratories and later modified for the development of California-specific fuel pathways by TIAX Associates and Life Cycle Associates. The GTAP was developed by Thomas Hertel and others at Purdue University

It appears that ARB's policy with respect to the Method 2A/2B process will ultimately lead to a different Method 2A/2B CI value being assigned to virtually every plant producing biofuels for use as gasoline and diesel substitutes used in the LCFS program. The evidence for this is Table 1, which indicates that ARB has already recommended approval of 105 different CI values for ethanol production alone. In this chapter, ARB should at least discuss potential ways to consolidate CI values for broad groups of plants using similar processes and the beneficial impact a return to "commoditization" of biofuels would have on the LCFS program (i.e. improved supply and reduced reporting for example).

The chapter presents far too much detail (approximately 18 of 24 pages) regarding the on-going work being performed in the area of land use change. This material needs to be summarized so that it can be understood by policy makers while ensuring that appropriate technical references and supporting information is available (in an appendix) for those interested in additional detail.

The chapter fails to address, even qualitatively much less quantitatively, the key issue associated with the land use change issue with respect to the LCFS which is how much and in what directions will LUC CI values change for different fuels. Certainly, at a minimum, chapter 5 should do more than simply state (page 17 of 24) that revised LUC estimates for "U.S. corn ethanol, U.S. soy biodiesel, and Brazilian sugarcane ethanol will be discussed with the Board in December." Chapter 5 needs to provide readers with at least a semi-quantitative indication of how much, if at all, ARB's LUC CI values are going to change as these changes could have significant impacts on the CI values of different fuels and therefore the compliance strategies of regulated parties.

Specific Comments on Chapter 5: Advances in Lifecycle Assessment

7. Page 1 of 24 – The title of the Chapter should be changed to, "Status of Lifecycle Analysis".

8. Page 2 of 24, First Paragraph – There is nothing in the chapter that supports a conclusion that ARB's process for dealing with Method 2A/2B applications have become "…well defined, standardized, and accepted by the regulated community."

9. Page 4 of 24, Paragraphs two and three – The chapter does not present any analysis supporting the case for the development of a "certification" process for Method 2A/2B CI applications and supports the current process which requires those values to be approved as part of the regulatory change process. WSPA supports staff's consideration for transparency when it comes to certification for alternative fuel pathways. However, the timing and the impact of the public comment period for pathway applications is unclear when applications become certified automatically based on predetermined criteria in the LCFS regulation making them "available for immediate use", as staff suggests in the draft chapter. Certifying alternate pathways should remain a regulatory process, or at a

minimum, allow for public comments and staff revisions before pathways are available for use by regulated parties and other LCFS market players.

10. Pages 4 and 5 of 24 – The discussion regarding modifications to the CA GREET model needs to contain specific examples of changes made to the latest version of the GREET model published by Argonne that staff feels do not need to be included in CA GREET along with explanations of why that is. Similarly, specific examples need to be provided that support the statement "ARB's experience to date has indicated that it makes more sense to concentrate pathway development efforts on adding new pathways to the Lookup Table than it does to update the pathways already there." It is not acceptable to ignore the best available data regarding CI values for specific pathways because it inconvenient for ARB staff to update them. It should certainly be a higher priority than making the model easier to use.

11. Pages 4 and 5 of 24 – The chapter contains no data, analysis, or explanation of why the "regulatory change framework" is more "resource-intensive" than the proposed certification process. The chapter should lay out exactly what the "benefits" of the proposed revision are and describe in detail how a level of public participation equal to that allowed for under the regulatory change process will be preserved under the proposed certification process.

12. Pages 6+ - Regarding land use change (LUC) modeling which is the basis for indirect GHG emissions impact on the CI value of biofuels, WSPA agrees with ARB's efforts to improve the generic 30 gCO2/MJ value with fuel-specific estimates. To date, only three fuels (U.S. soy biodiesel, Brazilian sugarcane ethanol, and U.S. corn ethanol) have been analyzed, yielding substantially different LUC values. It should be noted, however, that over 100 new pathways will likely be added to the Look-Up table after the December Board hearing and the question of ARB's generic indirect emissions impact assumption remains for the other pathways. WSPA encourages staff to continue efforts to improve GTAP model to enable assessment of all appropriate fuel pathways.

13. Page 24 of 24 – Although the need for "market certainty" is mentioned in passing, there is no real discussion of how ARB staff plans to achieve market certainty, what an appropriate period of stability is for direct and indirect CI values for different fuels and how the potential trade-offs between market certainty and actual CI values would be addressed in the context of the LCFS regulation. These issues need to be raised and discussed in some detail in the body of the chapter not simply mentioned at the end. Specifically, the chapter needs to lay out a process for addressing each of the "very important questions" listed on Page 24.