ADVANCED BIOFUELS ASSOCIATION

Michael J. McAdams
President
202.747.0518 tel
202.296.7009 fax
mmcadams@bhfs.com

MEMBERS

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April 22, 2009

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

Dear Board Members:

The members of the Advanced Biofuels Association ("ABFA") submit these comments in response to the California Air Resources Board's ("CARB") proposed Low Carbon Fuel Standard ("LCFS" or "Standard").[1] Over the last year concerns have been raised about the lifecycle greenhouse gas ("GHG") benefits of various biofuel feedstocks. We understand these concerns and we strongly support the move towards more sustainable and environmentally-advantageous feedstocks. Thus, we applaud CARB for undertaking this herculean effort to codify life-cycle emission rates into a performance standard that will proportionally encourage the development of much lower carbon feedstocks and biofuels.

While we maintain significant concerns with the inclusion of ILUC factors in the Standard and with the currently-proposed ILUC factors, we understand CARB's purposes and goals to address ILUC and offer certain recommendations that we believe would address the need to account for ILUC within the Standard without subjecting the biofuels industry to the uncertainty that accompanies a premature ILUC value. Stability in the marketplace is fundamental to encourage investment in advanced biofuels, but we are very concerned that the science of ILUC in its infancy will threaten market stability resulting in less investment and less innovation in the very clean technologies that the State of California is seeking to promote. Finally, we would urge CARB to vigorously engage impacted stakeholders in the biofuels arena to ensure that valuable and sincere opinion is both heard and considered.

By way of introduction and background, the ABFA represents 17 second-generation companies that hold the promise to deliver significant scalable volumes of high-performance, environmentally-advantageous fuels to California and the rest of the world. These companies represent a diverse array of technologies and plan to produce a range of fuels, including jet fuel, diesel fuel, gasoline and gasoline additives. At the outset we wish to remind CARB that not all fuels are created equal, not all advanced technologies are feedstock specific, not all advanced fuels are ethanol, and that this country needs to transition and balance its feedstocks over time.

As an organization, we recognize that there is no "magic bullet" that will replace the use of petroleum in the short- or medium-term and that there must be a mix of biofuel feedstocks available in this nation. It would be a mistake at this time to focus any regulatory efforts on promoting or punishing any individual feedstock without a robust scientific justification for why such action is necessary. We believe

[1] ABFA Member Unica submitted individual comments to CARB on its proposed LCFS, available at http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=lcfs09&comment_num=129&virt_num=107.

that the future biofuels industry will rely on a balance of today's efficiently produced feedstocks and future feedstocks. Thus, it is in the best interest of the nation to enable a growth of new feedstocks without penalizing the successes of the current biofuels industry.

With the recent release of the LCFS Initial Statement of Reasons ("ISOR"), we would like to focus our comments in the following areas: 1) the reliability of current ILUC modeling and alternatives that could achieve the same goals; 2) the need for much greater transparency and stakeholder input as this process moves forward; 3) the process and time-line for LCFS carbon intensity ("CI") revision; 4) the importance of providing benefits to better-performing fuels; and, 5) the timing of this Standard and its interaction with EPA's pending Renewable Fuel Standard ("RFS2").

Indirect Land Use Change as Part of the LCFS:

Innovative concepts cause controversy. CARB's effort to assess the ILUC impacts of certain biofuel feedstocks and factor those impacts into the respective feedstock's CI value is innovative. It is also quite controversial.

To date, efforts to quantify ILUC impacts on carbon emissions have relied upon the nascent science of applying existing economic models to predict and simulate complex changes in land patterns and the potential associated carbon emissions. To date there has only been one peer-reviewed publication on the matter. Models such as GTAP, while useful in initiating a discussion about ILUC impacts and values, are simply not complex enough to accurately determine how various biofuel feedstocks will affect land-use decisions worldwide and, therefore, should not be the basis for a regulatory action. From over-simplifying the myriad of elasticity factors that affect land-use decisions to underestimating the importance of global yield improvements over time, the existing models represent more of a starting point for the conversation but cannot be counted upon to provide accurate ILUC carbon impacts for a given fuel feedstock. This becomes more evident every day as more individuals focus on the issue of ILUC and more respected scientific studies, articles and reports are published.[2]

Recognizing the weakness of ILUC science, two schools of thought have emerged. The first school argues that since the modeling is not accurate or generally accepted among the scientific community, no ILUC factor should be considered for any feedstock as part of the Standard, at least until such time as better and more comprehensive models are available. The other school argues that, while the modeling is not perfect, the ILUC must logically be greater than "zero." While the scientific community is not yet capable of determining that factor precisely, it can establish a best-estimate and that best-estimate should be used until better models are available.

Further, since the existing models produce inexact results that are likely to vary significantly in the short term as better models are developed, the use of ILUC values creates significant market uncertainty at a time in our nation's history when stability must be promoted to encourage investment and innovation.

The ABFA takes the position that, instead of focusing on ILUC values and the zero/non-zero debate, CARB should focus on ways to encourage the biofuels industry to evolve toward what would be an industry-wide "zero" ILUC value. CARB should consider developing and implementing policies that will achieve CARB's goals for this regulation without the great uncertainty of using an ILUC value. This can be accomplished both inside and outside the LCFS through:

[2] *See*, for instance, Mathews, J., and Tan, H., 2009, "Biofuels and indirect land use change: the debate continues," published online by *Wiley InterScience* (www.interscience.wiley.com) and in *Biofuels, Bioproducts and Biorefining*; O'Hare, M., *et. al*, 2009, "Proper Accounting for time increases crop-based biofuels' greenhouse gas deficit versus petroleum," *Environmental Research Letters*; and, Kline, K., Oladuso, G., 2009, "Using Economic Models to Simulate Land-Use Change for Biofuels – Issues for Discussion," Power Point Presentation from a Workshop on ILUC and GTAP, Purdue University.

- Strengthening Direct Land-Use Regulations. For instance, instituting policies that recognize and monetize increases in yields or the development and implementation of innovative practices that result in decreased land-use for a given crop and reward the development of new crops that use land even more efficiently; and,
- Promoting Better Land Management outside of the LCFS. For instance, encouraging agricultural practices that will result in increased carbon capture such as the use of certain cover-crops, and developing policies that will discourage practices resulting in deforestation, both in the United States and around the globe.

ABFA understands that CARB is attempting to address the perceived market-mediated indirect land-use impact associated with biofuels expansion through the use of ILUC values. Those perceived problems, however, if they do exist, may be best addressed through more traditional direct land use regulation and through the enforcement of existing environmental regulations globally. Given that CARB appears determined to push ahead on including an ILUC value in the Standard despite the concerns expressed by many regarding the unreliability of such a value at this time, we would urge CARB to craft the LCFS in a manner that will allow the Board to change course to more traditional land-use regulation to achieve its goals if, as the process moves ahead, it becomes apparent the science behind ILUC values is not reliable or that the perceived land-use impacts of biofuels are not as significant as some currently believe.

Transparency and Stakeholder Input:[3]

We are aware that the LCFS Program will likely be adopted at the Board Hearing later this week. However, we understand that specific CI levels are not expected to be finalized until the end of the current calendar year, at the earliest. We strongly encourage CARB to actively engage stakeholders in the CI determination process. Those who will be regulated, and those who will be making significant investments in the development of second-generation biofuels, must have a chance to review and comment on the models and the assumptions applied to their respective feedstock. To date, this opportunity has not been provided. In order to develop the most accurate and effective Standard, the CI determination process must be transparent and it must be collaborative.

To this end, we urge CARB to consider establishing a blue-ribbon advisory board of academics, scientists and policy experts, and a separate technical working group of stakeholders who will be implementing the Standard, to provide forums for both a rigorous analysis of the efficacy of ILUC factors as a basis for regulation of biofuels, and to allow for technical engagement with those who will be regulated by the Standard. A process should be established whereby these groups would have an opportunity to provide substantive comment and recommendations for consideration by the Board, and the Board should commit to acting on substantive recommendations transparently and in due course.

Finally, at the very least, we would urge CARB to avoid extremes given current science. An ultra-conservative approach to the selection of ILUC values, if that is the Board's determination as the best way to regulate carbon emissions from fuel, could have significantly negative affects on investment in various promising feedstocks and fuels.

Revising Carbon Intensity Estimates:

Management of ILUC values carries risk. If ILUC values can be revised significantly given new information or modeling processes, companies and facilities that have invested in a given technology only to have that technology or feedstock suddenly invalidated or deemed less-viable will face significant economic losses. Conversely, if the process for revising ILUC values downward is unnecessarily lengthy, certain environmentally-friendly fuels may be unable to participate fully in the California market despite

[3] The Association's remaining comments are based on the assumption that CARB will be moving forward with a Standard that includes an ILUC value. With the goal of improving such a Standard, we offer additional suggestions.

new scientific evidence. Consensus needs to be reached on how often changes should be allowed, who is authorized to make those changes, whether public comment will be sought prior to a change, and how investors may be protected if ILUC values invalidate a previously valid feedstock.

The Association would urge CARB to consider the following approach when adopting or revising ILUC values:

- Upon finalizing ILUC values, commission intensive research on each value.
- Within one year of establishing final ILUC values, review each value to assess whether it remains consistent with existing science.
- For a new feedstock, provide a 2-year warning prior to adoption of a new value and allow for public input prior to finalizing the value.
- For new facilities, always adopt the latest value.
- For existing facilities, always allow immediate adoption of lower ILUC values but delay adoption of higher ILUC values by 20 years for advanced feedstocks or conversion processes.[4]

Finally, we would urge CARB to allow the use of existing 2A and 2B programs for the establishment of new ILUC values. For feedstocks with existing certification programs that claim to have no ILUC as part of their certification, CARB should evaluate the program and consider a default pathway for these certified biofuels. For feedstocks with no certification program, CARB should work with the state's agriculture department to establish best practices associated with establishing ILUC values.

Providing Incentives for Better Performance:

As a policy matter, those feedstocks and fuels that perform better should gain some benefit over those that do not perform as well, and producers of better-performing feedstocks should be rewarded. While we recognize that the Standard developed by CARB includes mechanisms to reward efficiency and performance, there are additional options available for incentivizing better performance that we would suggest CARB consider.

For instance, the Standard should reward positive environmental impact, such as air quality impacts, in addition to attempting to penalize carbon emission impacts. While certain feedstocks may have a relatively high CI value, they may also result in significant decreases in Criteria Pollutant emissions. This overall benefit should not be ignored. Further, we would encourage CARB to consider the development of a banking and trading program. Such a program could help to monetize better performance, as well as encourage better-performing fuels to combine with worse-performing fuels to still meet a reasonable standard.

While CARB should be commended for incentivizing better performance, there is more that could be done and the Association would urge CARB to consider additional options.

Interaction with RFS2:

Finally, while it may seem obvious and logical, we strongly urge CARB to work closely with EPA and Congress. CARB must acknowledge and accept responsibility for, essentially, setting precedent for a national GHG emission policy for transportation fuels. CARB must understand how this Standard will interact with both RFS2 and legislation now pending before Congress, and it must include a mechanism in the Standard that will allow revisions to the Standard if certain provisions are either in direct conflict with subsequent federal policy, or the situation arises where investment or innovation is stifled because of an unanticipated conflict between California and federal policy.

[4] Without protection, it will be extremely difficult for innovative biofuel companies to obtain the credit necessary to build new facilities.

Conclusion:

The scientific community has begun to seriously investigate the ILUC impacts of crop-based fuels. As more attention is focused on the science behind ILUC impacts, it becomes clearer that existing methodologies are not sufficiently complex to accurately assess these impacts. While the ABFA appreciates CARB's efforts to include this emerging theory as part of its LCFS, ABFA members urge CARB to be realistic in its reliance on the existing science. In other words, do not attribute greater weight to the existing models than they seem to deserve given the growing public and academic concern over the accuracy of using economic models to determine ILUC impacts. Instead, we urge CARB to work collectively with stakeholders in the pursuit of more accurate models and more efficient land-use practices.

Thank you for your consideration and we look forward to working closely with you on these issues.

Sincerely,

Michael McAdams
President