NEW FUELS ALLIANCE

January 14, 2010

Mary Nichols, Chair
California Air Resources Board
Headquarters Building
1001 I Street
Sacramento, CA 95812

RE: New Fuels Alliance Comments Regarding Modifications to Soy-based Biodiesel in the CA Low Carbon Fuel Standard

Dear Chairwoman Nichols,

The New Fuels Alliance (NFA) appreciates the opportunity to provide written comments to the California Air Resources Board (ARB) relative to modifications to the Low Carbon Fuel Standard (LCFS) for the carbon score of soy-based biodiesel released December 15, 2009.

NFA is a national, not-for-profit organization that educates political leaders, regulators, public interest groups, businesses, and the general public about the economic, environmental and other benefits of non-petroleum fuel production and use. Its organizational purpose is to bring together the wide range of groups and sectors that are stakeholders in the development of non-petroleum fuels to build a broad and diverse base of support for a more sustainable fuel-energy future in the United States.

As discussed in comments to ARB on April 22, 2009, NFA supports the LCFS in concept.[1] However, NFA and numerous other stakeholders voiced strong objection to the carbon accounting methodologies used by ARB staff to determine the carbon intensity (CI) values of the different fuels, including inconsistent lifecycle assessment (LCA) system boundaries, modeling deficiencies, and the selective enforcement of market-mediated effects.

Unfortunately, the latest modification to the regulation relating to soy biodiesel maintains the original course designed by ARB. As such, we are opposed to the inclusion of indirect land use change (iLUC) for soy biodiesel at this time. In addition, there is very little information to provide comment. The 4 pages of supporting documentation provides almost no insight into how ARB staff determined key factors for soy biodiesel, including but not limited to the treatment of co-products.

Please find below comments related to ARB's assessment of soy-based biodiesel as part of the LCFS.

1. **SOY-BASED BIODIESEL IS DEBITED FOR A CATEGORY OF EMISSIONS NOT ENFORCED AGAINST OTHER FUELS, INCLUDING THE PETROLEUM BASELINE**

[1] http://www.arb.ca.gov/lists/lcfs09/396-coleman.pdf

As you know, the Governor's Executive Order creating the California LCFS did not establish a specific methodology for determining the carbon intensity value of each of fuel, except that it generally required that all fuels "shall be measured on a full fuels cycle basis."[2] For reasons still unclear to NFA and numerous stakeholders, ARB has chosen to selectively assess carbon emissions penalties against bio-based fuels for market-mediated, indirect carbon effects. No other type of fuel under the LCFS is debited for indirect effects.

To review, a fuel's lifecycle carbon score is traditionally determined by adding together the carbon emissions occurring as a result of producing and burning the fuel. These emissions, also called "direct" or supply-chain emissions, include significant upstream emissions such as fertilizer use and land conversion for biofuel feedstock and oil extraction and refining for petroleum. In theory, producers of fuel have some level of control over their direct carbon emissions, because they have a direct causal linkage to producing the fuel. It is important to note that the land used to produce biofuel feedstock is direct land use (not indirect land use).

In 2007-08, the concept of iLUC was first introduced. Critics of biofuels argued that the increased demand on agriculture for fuel production would increase the price of agricultural goods, which in turn would spur the clearing of pristine lands in response to higher crop prices. They argued that these economically-derived impacts are significant, based on preliminary modeling runs, and should be added to the carbon score of a gallon of biofuel that uses any type of land for feedstock. In early 2008, ARB announced its intent to add an iLUC adder to biofuels under the LCFS, without committing to assess the market-mediated effects of other fuels. In so doing, ARB expanded the LCA system boundary for biofuels without also expanding it for other fuels, which runs afoul of an established ISO Standard (14040) and skews the relative value of biofuels to its competitors.

Several stakeholder groups expressed concern about selective enforcement of indirect effects, including more than 110 PhDs and a range of respected environmental, academic and clean-tech investment entities.[3] The rationale provided by ARB staff was that other fuels do not appear to have significant indirect effects at this time. However, notwithstanding claims to the contrary, ARB staff has not conducted economic modeling of any other fuel, according to the public record. This means that they are debiting biofuels for indirect effects selectively, and assigning zero for indirect effects for other fuels without scientific support. NFA has repeatedly asked ARB staff for all materials related to investigating the market-mediated effects of other fuels, and has not received a response. ARB leadership nonetheless insisted that regulators were still using the traditional "cradle to grave" lifecycle approach.[4] This is not the case.

As such, and irrespective of the iLUC modeling outcomes provided by ARB staff for soy biodiesel, ARB has developed a system in which soy-based biodiesel pays for a category of emissions not enforced against other fuels, including the petroleum baseline that soy biodiesel is valued against, thereby skewing the results and leaving the regulation vulnerable to scientific criticism and legal action. NFA urges ARB to stop advancing the agenda of selectively enforced indirect effects, and asks ARB staff to answer the following questions in its amended FSOR:

[2] http://gov.ca.gov/executive-order/5172/
[3] http://www.newfuelsalliance.org/LCFS%20Public%20Record%20Summary.pdf
[4] http://www.arb.ca.gov/newsrel/nr030509.htm

1) **Did ARB conduct an analysis, <u>formally or informally</u>, of the indirect, market-mediated effects of other fuel pathways?** To be clear, such an analysis would require the use of economic models; estimating the direct land use impact of petroleum is not the corollary to assessing the indirect, market-mediated land use effects of biofuels. If an analysis was conducted, it should be a part of the record. Again, we request that any analysis conducted be made publicly available immediately.

2) **If economic modeling of other fuels was not conducted, how was the determination made that other fuels, including petroleum, do not have significant indirect effects?** Please provide a detailed analysis for how it was determined that other fuels, including petroleum, do not have significant indirect effects.

3) **Specifically, what additional research is ongoing in the general area of liquid fuel LCAs for the LCFS?** Our inquiry encompasses work underway at ARB, funded by ARB with outside institutions, or funded by outside institutions such as ITS and EBI in collaboration with ARB staff under the auspices of the LCFS regulation.

We are aware that ARB is leading an Expert Working Group to further analyze many key issues as they relate to carbon accounting and indirect effects. We look forward to this process. However, it should not be considered a proxy for providing the information discussed above.

2. ARB Does Not Provide Sufficient Information To Enable a Substantive Public Review Of The Soy Biodiesel Pathway

The supplemental package posted December 15, 2009 does not provide sufficient information for public review of the soy biodiesel pathway. The supplemental package *quadruples* the CI Value for soy-biodiesel, with the potential to fundamentally change the market value of soy biodiesel and related investments in the liquid fuel marketplace.

Of equal concern is the fact that iLUC modeling, by definition, is based largely on assumptions made by modelers and run through a CGE model about yields, energy density per acre, and type of land theoretically converted. This reality puts a high value on transparency and supporting documentation. However, there is virtually no discussion about how the assumptions are made in key areas and the rationale for making them. For example, the 4-page land use change document posted on the ARB website states: “Because almost all of the land that is well-suited to crop production has already been converted to agricultural uses, yields on newly converted lands are almost always lower than corresponding yields on existing crop lands.” This type of assumption offered to support the use of a low yield factor fundamentally changes the iLUC outcomes created by GTAP. Yet there is no supporting documentation offered, and ARB staff does not discuss the statement in the supporting documentation.

ARB staff has been working on the soy biodiesel CI value for more than a year. While some preliminary conclusions are included in the Initial and Final Statement of Reasons, the bulk of the work supporting the current number was not released in these documents. The paucity of data and analytical work provided in the 4-page supporting documentation leaves the impression that the bulk of the work conducted over the last 12+ months was omitted from the record. It is not enough to provide a folder of generalized and highly technical modeling documentation, without explanation, which takes (at least) months of training to decipher and articulate in meaningful terms.

California law speaks to the need to create a clear record that is reviewable by the public. Government Code Section 11346.2 requires ARB to include in the Initial Statement of Reasons (ISOR): "[a]n identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the adoption, amendment or repeal of a regulation." Because the land use change assessment was not completed in time for the ISOR, the document references the GREET "direct effects" assessment of soy-biodiesel. ISOR, p. IV-7. This document specifically says that the land use change assessment for soy-biodiesel is not included in the analysis, and provides no further documentation. Unfortunately, the soy-biodiesel work was also not completed in time for the Final Statement of Reasons (FSOR). The FSOR states:

> It was and is ARB's intent that the regulation identifies carbon intensity values for two additional fuel pathways – biodiesel (fatty acid methyl esters – FAME) converted from Midwest soybeans, and renewable diesel converted from Midwest soybeans. However, by early November 2009 the development of the carbon intensity values had not yet been completed … [t]he Executive Officer determined it was appropriate to bifurcate adoption of the regulation so that the final regulation except for these two limited incomplete elements will enter into force as expeditiously as possible … [b]ecause of the bifurcation, this Final Statement of Reasons (FSOR) includes only comments directed towards the regulation other than the two fuel pathways and severability clause noted above. FSOR, p. 8.

As such, the FSOR also did not contain the support materials for the land use change outcomes for soy-biodiesel. So the entirety of the record supporting ARB's *quadrupling* of the soy biodiesel CI Value with an iLUC adder amounts to four pages of largely conclusory and unsupported statements. NFA strongly encourages ARB to amend the record to provide substantive discussion of and support for the major issues involved with predicting iLUC for soy biodiesel, and to establish compliance with state law. To facilitate this process, ARB should extend the comment deadline appropriately so that stakeholders can provide substantive review of the technical merits of the iLUC results.

3. ARB Appears to Arbitrarily Reverse the Product/Co-Product Relationship for Soy-Based Biodiesel, Does Not Provide Adequate Documentation to Support Their Treatment of Co-Products, And Does Not Account For Lower Output Scenarios

A threshold issue for attempting to determine the land use change value of soy-based biodiesel is how to deal with the fact that soybeans are grown for meal, and not oil. In other words, 80 percent of the soybean is used for food and feed, while 20 percent is used for the oil content, which is then produced into biodiesel if the economics are favorable. Taken further, farmers do not grow soybeans for biodiesel production because the oil content is too low.

The 4-page support document recognizes the importance of the co-product issue, stating that "the modeling now allocates a feed byproduct with the biodiesel sector. Biodiesel was assumed to consist of 20 percent oil and 80 percent soy meal by mass." However, the document fails to provide any insight as to how modelers made adjustments to account for the co-products.

NFA has the following specific concerns related to co-products:

1) ARB appears to have reversed the product/co-product relationship between soybean meal and oil. In other words, instead of treating the oil as a co-product of crushing soybeans for

meal, ARB appears to treat the meal as a co-product of crushing soybeans for oil. This difference may seem unimportant from a modeling perspective, as long as 80 percent of the bean is attributed to meal. But this reversal raises more fundamental questions related to causation. The whole causal link between biodiesel and iLUC breaks down if farmers plant soybeans for meal (and the oil is the co-product). In other words, the land use conversion occurs as a result of meal production, not biodiesel production, with oil being (at most) a value-add when the economics are favorable. ARB seems to simply ignore the causal issues by reversing the relationship and treating the primary product (meal) as the co-product. ARB does not support this decision with any documentation. **NFA requests answers to the following questions: (1) what is the rationale for reversing the product/co-product relationship for soybeans? (2) Presuming that reversing the relationship has little effect on ARB's co-product adjustment, is there any other component of the analysis that is sensitive to the real world relationship between meal and oil in soybean markets?**

2) With regard to the actual technical treatment of co-products, it is our understanding that GTAP does not have an input or treatment for co-products. As a result, any treatment of co-products would be exogenous to the model run. It would need to be performed by a consultant (or ARB staff, if trained) and based on highly subjective assumptions. As discussed, this puts a high value on transparency and a discussion of rationale. It is impossible to provide substantive review based on the current supplemental package, which provides almost no references and little discussion of the key assumptions and rationale. **NFA requests answers to the following questions: (1) Who did the GTAP runs for soy biodiesel? (2) Specifically, what methodologies were used for the co-product adjustment? (3) Was soy disaggregated from other oilseeds in the analysis? (4) How was unproductive, unmanaged, idle and marginal land treated in the analysis?**

NFA also seeks clarification on model runs conducted for soy-based biodiesel as it relates to forecasted volumes and its potential impact on land use change. NFA believes it is important for ARB to fully disclose any modeling, with detailed explanation, that was conducted as part of the biodiesel assessment process. Specifically, NFA requests responses to the following questions:

1) It appears that ARB used 1 billion gallons per year of soy-based biodiesel production (or a 750 MGY shock over 250 MGY) for its model runs, based on the federal Renewable Fuel Standard 2 program (RFS2). However, based on the current economy, this is a very high shock for biodiesel. **Did ARB consider the likelihood that the U.S. Environmental Protection Agency will downgrade the original RFS2 numbers for soy-based biodiesel? If so, did ARB run lower shocks through the GTAP model? If not, why not?** If ARB has not conducted a modeling approach to reflect a contracted RFS2 program, NFA strongly urges regulators to require such an assessment so that a more accurate picture can emerge prior to moving forward with the regulation. The obvious problem is biodiesel producers will be paying for a 750 MGY-induced iLUC penalty many years before reaching that level of output. This does not seem to be a reasonable application of the data in a direct regulation.

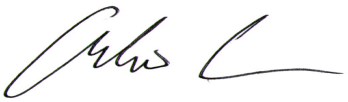
2) While ARB seems to have done a sensitivity run with 300 MGY fewer biodiesel gallons, all of its Scenarios A-G used to create the actual biodiesel iLUC average are based on the 750 MGY shock. Again, this biodiesel output is unreasonably high given real world conditions today and statements made by U.S. EPA. **Why did ARB use only the high input value for its model runs, particularly in light of the potential change to the RFS2 program? Did ARB conduct**

model runs (other than the sensitivity analysis) at lower volumes at any point over the last 18 months? How does ARB rationalize penalizing a gallon of biodiesel that is part of a hypothetical 300 MGY total U.S. production market for iLUC penalties generated with a 750 MGY shock?

As discussed above, we are aware that ARB is leading an Expert Working Group to further analyze many key issues as they relate to carbon accounting and indirect effects. We look forward to this process. However, it should not be considered a proxy for providing the information discussed above as a condition of moving forward with biodiesel iLUC penalties as part of a direct regulation.

Thank you for the opportunity to provide comments on the LCFS/soy-based biodiesel modification order. NFA looks forward to your response to the issues outlined above. Please let us know if we can answer any questions you may have about this important matter.

Sincerely,



Andrew Schuyler
Regional Director
New Fuels Alliance

R. Brooke Coleman
Executive Director
New Fuels Alliance