Renewable Fuels Association

August 19, 2009

Mary D. Nichols
Chairwoman
California Air Resources Board
Headquarters Building
1001 “I” Street
Sacramento, CA 95812

Dear Chairwoman Nichols,

The Renewable Fuels Association (RFA) respectfully submits the attached comments on the California Air Resources Board’s (CARB) suggested modifications to the Proposed Regulation to Implement the Low Carbon Fuels Standard (LCFS). As the national trade association for the U.S. ethanol industry, RFA appreciates the opportunity to comment on the information presented in the documentation released July 20, 2009.

While responding directly to the recently proposed modifications to the regulation, our attached comments also address a number of unresolved technical concerns that we have raised throughout the LCFS development process. In general, we continue to believe CARB’s analysis of indirect land use change is wholly insufficient. We continue to believe the Global Trade Analysis Project (GTAP) model employed by CARB for this analysis requires significant refinement and validation before it can be reasonably used as a regulatory tool to establish single-point enforcement parameters for the LCFS.

We sincerely appreciate CARB’s consideration of these comments and look forward to further interaction with the agency as it continues development of the LCFS regulation. We welcome further dialog and look forward to responses to any of the comments offered in the attached documentation. We will continue to analyze the GTAP model, review the information provided by CARB, and respond with comments as appropriate.

Sincerely,

Bob Dinneen
President & CEO
Renewable Fuels Association

Comments of the Renewable Fuels Association (RFA)

In Response to

Suggested Modifications to the Proposed Regulation to Implement the Low Carbon Fuel Standard

On July 20, 2009, the California Air Resources Board (CARB) released modified regulatory text and several supporting documents related to the proposed regulation to implement the Low Carbon Fuels Standard (LCFS). In Attachment B ("Staff's Suggested Modifications to the Original Proposal"), the staff is recommending that Section 95486 be modified to make the carbon intensity Lookup Table part of the regulation. The Lookup Table (Table IV-20) includes an indirect land use change (ILUC) emissions estimate of 30 grams CO2-equivalent/mega joule (g/MJ) for all ethanol produced from corn.

RFA believes that CARB *should not* adopt an ILUC carbon intensity (CI) value for ethanol as part of the Lookup Table at this time. This recommendation is based on the numerous unresolved technical concerns raised by stakeholders throughout the LCFS rulemaking process regarding development of the ILUC estimates. This issue is discussed in more detail in Section I of these comments.

Further, RFA believes that if CARB is intent on adopting an indirect CI value for ethanol as part of the Lookup Table, staff *must not* adopt the current 30 g/MJ estimate for corn ethanol because of an obvious technical oversight in the Initial Statement of Reasons (ISOR). This technical oversight involves CARB's failure to revise the 30 g/MJ estimate downward based on the inclusion of a carbon storage derating factor that acknowledges some of the above-ground carbon remains sequestered in wood products when a land use change occurs on forest land. The ISOR clearly states that CARB considered and included this factor, yet the change is not reflected in the 30 g/MJ ILUC estimate for corn ethanol. Therefore, we believe CARB must not adopt the 30 g/MJ figure until this error is corrected. This issue is discussed in more detail in Section II of these comments.

In addition, RFA has other concerns with Section 95484 (Requirements for Regulated Parties) and 95486 (Determination of Carbon Intensity Values) that RFA believes are overly burdensome and offer no additional regulatory benefit. These additional concerns are discussed in more detail in Section III.

I. CARB should not adopt ILUC emissions values for corn ethanol at this time

RFA believes that there are many issues not fully considered by the CARB staff that would make the CI of corn ethanol much lower than the current estimate of 30 g/MJ. These issues fall into two categories: (A) issues RFA has already raised with CARB that remain unresolved; and (B) new issues which have recently come to light. Both are discussed below.

A. Unresolved Issues Already Raised by RFA

On April 17, 2009, RFA submitted detailed written comments responding to the ISOR. In particular, our comments focused on what we perceived to be the many shortcomings of CARB's analysis of ILUC effects using the GTAP model. RFA's comments explained that CARB's ILUC emission for corn ethanol could justifiably be reduced to 8 g/MJ, based on a number of adjustments that were documented in the comments in extensive detail.

To date, RFA still has not received a satisfactory response to the questions raised in those comments or feedback from CARB on why it has rejected the recommended modifications to its GTAP analysis. It is disappointing that in its haste to enact a landmark regulation, the CARB staff and Board failed to answer unresolved questions and chose to disregard numerous major technical concerns raised by stakeholders. We are hopeful that these unresolved issues could be resolved in coming months, and this would allow CARB to adopt a technically defensible indirect emissions value for corn.

1. On March 12, 2009, RFA President Bob Dinneen submitted to CARB Chair Mary Nichols and other California officials a 56-page study by Thomas Darlington of Air Improvement Resource, Inc. (AIR) entitled "Land Use Effects of U.S. Corn Based Ethanol."[1] The paper concludes that expansion of corn ethanol production to 15 billion gallons per year in 2015 is unlikely to result in the indirect conversion of non-agricultural lands in the U.S. or abroad. This finding stands in stark contrast with CARB's modeling results. In the March 12 correspondence to Ms. Nichols, we requested "…a comprehensive and timely response from CARB to the AIR paper…" Unfortunately, we never received a response or even acknowledgement that the paper had been received and/or reviewed by CARB. This paper was briefly discussed at the April 23, 2009, hearing and CARB staff was asked by Board member Prof. Dan Sperling and Ms. Nichols to comment on the validity of its findings. In response, CARB staff did not question the soundness of the findings of the Darlington paper.

2. RFA and other stakeholders have repeatedly raised concerns about the exclusion of certain land types in the GTAP land database. This problem was identified early in the stakeholder process. Specifically, Conservation Reserve Program (CRP) lands, idle cropland, and cropland/pasture are excluded from the GTAP model's database. This is particularly problematic because these lands would most likely be the first to be converted to crops if expansion of biofuels production necessitated land conversion. Because these excluded lands are predominantly grassland or pasture, the carbon emissions from conversion would be much lower than those associated with conversion of forest. On numerous occasions, we have raised this concern with CARB staff and asked that these lands be added to the GTAP database. CARB staff acknowledged in the summer of 2008 that this was a potentially significant omission and pledged to examine the effect of including these lands. Yet, these lands were never added to the database and the ISOR states, "ARB staff and GTAP modelers are updating GTAP to include Conservation Reserve Program land, as appropriate. We will then analyze the effect that this change has on the estimate for amount and location of land converted within the U.S." We believe adding these lands to the

[1] "Land Use Effects of U.S. Corn-Based Ethanol", Darlington. February 24, 2009.

database will have a significant effect on the overall ILUC value.[2] CARB has provided no explanation for failing to add these lands to the database and cannot finalize the rule without providing some explanation and analyzing the effect of doing so. Because CARB staff has provided no rational basis for excluding these lands in the GTAP database, the rule appears arbitrary and lacks evidentiary support for the ILUC values derived for corn ethanol. *Prior to sending this rule to OAL, CARB should update the GTAP land database, perform new model runs based on the inclusion of these lands, and make corresponding adjustments to ILUC values.*

3. During a discussion with CARB staff and Prof. Tom Hertel of Purdue on April 16, 2009, RFA staff, consultants and economists from Informa Economics presented information showing that one of the key GTAP elasticities has a significant effect on overall calculated land use changes. This elasticity is known as the "crop productivity elasticity with respect to area expansion" (hereafter referred to as the "expansion elasticity"). The information presented by Informa showed the real-world crop yield response on newly converted lands in areas where agricultural land se has recently expanded is significantly higher than currently assumed by CARB in GTAP modeling for corn (and other ethanol feedstocks). Prof. Hertel acknowledged that the Informa data and analysis were valuable. Prof. Hertel also acknowledged receiving feedback from other parties on another GTAP elasticity – the "price-yield elasticity." He suggested that the model inputs be changed such that the expansion elasticity could be set as close to 1.0 as possible and the price-yield elasticity could be as close to zero as possible. The current expansion elasticity range being used by CARB is 0.5 to 0.75 (mean of 0.59) and the current price-yield elasticity is 0.25 to 0.4. Prof. Hertel indicated that updating these values would better represent the available data, and furthermore would better reflect traditional life cycle analysis practices.[3] RFA ran the GTAP model after changing these two elasticity values to the levels suggested by Prof. Hertel. The results show a corn ethanol ILUC value of between 15.7 and 17.1 g/MJ, as opposed to 30 g/MJ from the current CARB analysis. These results were shared with Ms. Nichols and other state officials in a memorandum dated April 23 from AIR. To date, CARB has disregarded this data and has provided no explanation for why it is not adopting the recommended approach. As such, the rule appears arbitrary and lacks evidentiary support. The two elasticity values should be revised as discussed with CARB staff.

4. RFA and others have consistently raised concerns with CARB's treatment of exogenous improvements in crop yields in the ILUC analysis. In response, CARB's team developed a method of accounting for exogenous yield improvements. The method relies on a key assumption that yields improve at the same rate in the rest of

[2] At the American Coalition for Ethanol conference in Milwaukee, WI, in August 2009, Purdue Prof. Wallace Tyner indicated that Purdue had incorporated 60 million acres of "cropland pasture" into the GTAP model, and this resulted in lower ILUC values, as expected.

[3] During testimony before the CARB Board on the April 26, 2009, Prof. Hertel indicated that "it (incorporating a lower price-yield elasticity and a higher expansion elasticity) does not change the results dramatically, because these are offsetting effects." (see pages 60 and 61 of the transcript). Our results indicate that while they offset each other somewhat, the primary effect is the change in the expansion elasticity, which results in significantly lower overall LUCs. Prof. Hertel did not present his results showing that they are offsetting effects at the Board Hearing.

the world as they do in the United States. This method is far from perfect, but RFA is willing to accept the method until such time as a more detailed analysis is performed comparing yield growth in the U.S. to the rest of world. However, mistakes appear to have been made in the application of the method. The 13.25 billion gallon ethanol shock applied by CARB to the GTAP model is meant to estimate land use effects corresponding with ethanol volume increases from 2000/01 (the base year of the GTAP model) to 2015/16, when corn ethanol volumes were expected to be 15 bgy. Over this period, the USDA indicates yields will increase 23.4%, from 136.9 bu/acre in 2000/2001 to 169 bu/acre in 2015/16. In making its exogenous yield adjustment, CARB is adjusting only from 2001 to a 2006-2008 average yield (the increase in yield over this period is 9.5%; much lower than the 23.4% growth from 2001 to 2015 projected by USDA). This is inconsistent with the years of the ethanol shock. Thus, CARB's 30 g/MJ estimate logically only applies in 2007, not in 2015. If CARB were to use the 23.4% yield improvement projected by USDA over the same period of the CARB ethanol shock, the corn ethanol ILUC emissions would be 26.6 g/MJ rather than 30 g/MJ. This also suggests CARB's best estimate of average corn grain yields in 2015 is that they will be unchanged from 2006-08. CARB has not justified its reasoning for assuming crop yields will be static from 2006-08 to 2015, which is one-half the period of the associated GTAP ethanol shock. Again, failing to take into account the appropriate yield data substantially affects the rule's outcome, is arbitrary, and deprives the rule of evidentiary support.

5. RFA has also provided a significant amount of third-party research to CARB staff regarding the land use credit associated with distillers grains (DG), the animal feed co-product of ethanol production. The assumptions used on DG feeding practices have a large effect on the ILUC value of corn ethanol. For example, utilizing the proper credits for distillers grains would reduce the land use emissions of 15 to 17 g/MJ (from point 3 above; i.e., accounting for revised expansion elasticity) to about 8 to 10 g/MJ. CARB disregarded detailed analysis on DG feeding practices from the Department of Energy's Argonne National Laboratory, as well as information and data from internationally recognized animal scientists from the Universities of Arkansas, Minnesota, Illinois, and Missouri. Several of these professors recommended that CARB alter its DG assumptions and many suggested using Argonne's DG assumptions. CARB still has not provided a defensible reason for disregarding this information and the ISOR appendix on this issue is severely lacking in justification. For the foregoing reasons, CARB should revise its approach to the DG credit and should at least consider the information from Argonne Lab. CARB has provided no valid reason for disregarding this data. Such action is both arbitrary and deprives the rule of the evidentiary support required for finalization.

B. New Issues That CARB Should Consider

There are three new issues that CARB should incorporate into its analysis for corn ethanol, as follows:

1. The GTAP model does not substitute DDGS for soybean meal. This can be remedied somewhat by increasing the elasticity of substitution among feedstuffs in GTAP, and when this is done even to a modest degree, the corn ethanol ILUC emissions value drops by 16%.

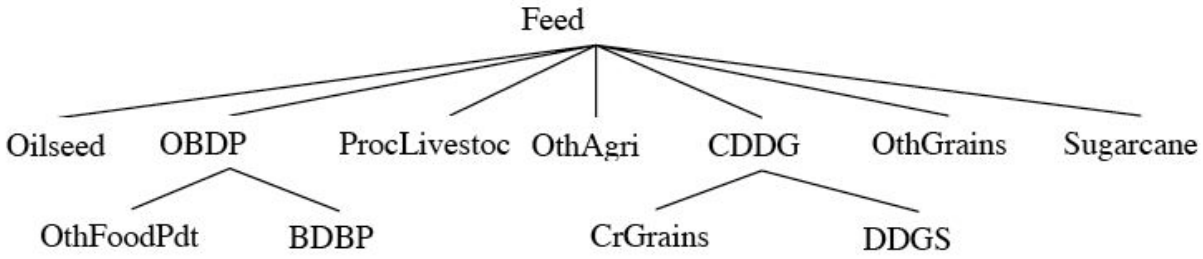
2. The Winrock emissions data released by U.S. EPA as a part of RFS2 shows much lower forest emissions in the U.S. than the Woods Hole data used by GTAP. CARB should consider the use of this more current data, as opposed to the Woods Hole data.

3. The U.S. EPA analysis for RFS2 shows significant reductions in livestock and rice methane for increased ethanol, which CARB's GTAP analysis ignores.

These issues are addressed in more detail below.

a. DDGS Substitute for Soybean Meal

The GTAP report by Taheripour et al. describes the method for incorporating byproducts (DDGS) for ethanol plants into GTAP.[4] While the Argonne and Shurson analyses have clearly showed that DDGS are replacing soybean meal, especially in dairy cattle, swine, and poultry, this report shows that DDGS in GTAP are substituting only for coarse grains (see figure below from the GTAP report). The elasticity of substitution between coarse grains (mainly corn) and DDGS is high, at 30, indicating a lot of substitution between these products. But the model is not substituting any DDGS for soybean meal. The elasticity of substitution at the higher-level nest is set at 0.9, and this is from a 2005 Keeney-Hertel report.[5]



We examined the 2005 Keeney-Hertel report, and found that the 0.9 estimate was developed from data collected in 1990 (Surry) for wheat, corn, barley, high protein, and brans. There was little or no DDGS used at that time, and none was considered in the 1990 study by Surry. The elasticity of substitution was estimated as the market share weighted average of substitutions between these different feedstuffs. The Keeney-Hertel report indicated:

> "From the Peeters and Surry (1997) review of approaches, it is clear that a best representation would be to incorporate a separate feed cost-minimizing linear program in the model for each livestock type and each region to capture the responsiveness of crop ingredient demand in livestock production….Instead, we seek to capture the average degree of feedstuff substitution in a single,

[4] "Biofuels and their By-Products: Global Economic and Environmental Implications", Taheripour, Hertel, Tyner, Beckman, and Birur. June 2008.

[5] "GTAP-AGR: A Framework for Assessing the Implications of Multilateral Changes in Agricultural Policies", Keeney and Hertel, GTAP Working Paper 24, August 2005.

constant elasticity of substitution among crop and food products used in livestock production……"

Interestingly, the DG substitution analyses by both Argonne and Shurson, while perhaps not cost-minimizing models using elasticities of substitution, are analyses that develop a model of DDGS and feedstuff use for each livestock type. In other words, they are a first approximation of exactly what Keeney-Hertel were suggesting in this report. The elasticity data in the 1990 Surry report referenced by Keeney- Hertel ranged from -0.46 to 9.24. Using the method described in the report, we attempted to duplicate the 0.9 average, but instead obtained a market-share weighted average of 1.48. [6]

In response to our questions about how the GTAP model is accounting for DDGS, Dr. Taheripour has suggested that one approximation of the effect of DDGS substituting for soybean meal would be to increase the elasticity of substitution above 0.9. The un-weighted raw data has an average of 2, with 90% confidence limits of $\pm$ 1. We therefore decided to use a value of 2 to test a higher level of substitution of DDGS for feedstuffs other than coarse grains. A reasonable baseline GTAP run would be the run utilized in GTAP Working Paper No. 55, where the price-yield elasticity is set to 0.25, and the yield elasticity with respect to area expansion is set to 0.66.[7] When we ran GTAP for this scenario (15 bgy ethanol shock), with the land use emission factors in the ARB spreadsheet "ef_tables.xls" (which include the 10% storage derating factor), and also corrected for the 9.3% yield increase (8.5% reduction in area converted), we obtained 26 g/MJ. The authors of GTAP Working Paper No. 55 obtained 27 g/MJ for this scenario. While our result was quite close to the result produced for Working Paper No. 55, the reasons for these differences are not clear and are being investigated by AIR. In any case, the slight difference is not important in this test. When we then modified the upper nest feedstuff elasticity of substitution from 0.9 to 2.0, the corn ethanol land use emissions dropped from 26 g/MJ to 21.75 g/MJ, a 16% reduction.

This clearly underscores RFA's concern that DDGS are currently not properly accounted for in the model with respect to substitution for soybean meal, and this factor is significantly overestimating the land use change effect. The model needs to be revised so that DDGS are replacing both coarse grains and soybean meal. The elasticity of substitution among feedstuffs being used in GTAP is based on very old (1990) data that is not appropriate today, and a revision of this parameter utilizing contemporary data would reduce the land use impact of corn ethanol.

b. Winrock International Carbon Emissions Data

RFA has been conducting further research on the "Woods Hole" carbon data for forests and grassland (pasture), and has also begun evaluating the Winrock data as well, which EPA

[6] We also did not include the "diagonal" values, as outlined in the method in the report. We are investigating the reasons for this difference.

[7] "Global Land use and Greenhouse Gas Emissions Impacts of U.S. Maize Ethanol: The Role of Market-Mediated Responses", Hertel, Golub, Jones, O'Hare, Plevin and Kammen, GTAP Working paper No. 55, 2009.

released as a part of the RFS2 proposed rule.[8] Our first effort was to compare forest and grassland carbon above ground in countries where a direct comparison was possible (the Winrock and Woods Hole data aggregated different countries, making some direct comparisons more difficult).

While Winrock used recent estimates of biomass carbon for various regions, Woods Hole relies on estimates of carbon in undisturbed vegetation and soil for the various ecosystem types. The footnotes to Table D-1 of the Searchinger et al. supporting material document that the estimates of carbon in vegetation and soil are for undisturbed ecosystems. Since current forests around the world have been logged extensively, and many are highly managed, most are not undisturbed ecosystems.

Direct comparisons of above-ground carbon stocks between Woods Hole and Winrock are possible for Europe, the U.S. and Russia. The results in Mg/ha are shown in the following table and demonstrate major discrepancies between the two sources. The carbon stocks for these three regions for both forest and grassland are lower for Winrock than for Woods Hole.

Region	Winrock Forest	Woods Hole Forest	Winrock Grassland	Woods Hole Grassland
Europe	57	111	6	6
U.S.	61	154	4	9
Russia	44	134.9	4	6.3

The GTAP modeling for corn ethanol conducted by CARB and presented in the ISOR shows that conversion of forest in the U.S. is a major contributor to the corn ethanol ILUC emissions. To test the sensitivity of the corn ILUC values to the U.S. forest carbon estimates, we first ran GTAP in the same baseline configuration as described in the previous section, with a result of 26 g/MJ. Then, we changed the forest carbon factor from the Woods Hole level to the Winrock level, and obtained 20.3 g/MJ, a reduction of 22%. (Forest emissions in Europe and Russia are assumed by GTAP to be zero for the baseline case, so we did not change those. We also did not change the grassland emissions for the three regions, which would have lowered the number further.)

Our concern here is that CARB's estimate of ILUC for corn ethanol uses carbon stock data for the U.S. (and perhaps other areas of the world) from undisturbed ecosystems, where any land that would be converted would probably be previously disturbed. A good example of this is cropland pasture in the U.S., which is certainly not undisturbed. Even CRP land is not undisturbed, since all CRP land was farmed at one time.

c. Reductions in Livestock Methane and Rice Methane

In its analysis of GHG effects of corn ethanol, U.S. EPA has concluded that with increased grain prices, there would be a reduction in the livestock inventory and a reduction in rice production. These two reductions also take place in GTAP when the model is shocked for an ethanol increase. However, the GTAP model currently only focuses on CO2 emissions.

[8] "GHG Emission Factors for Different Land-Use Transitions in Selected Countries of the World", Harris, Grimland, Brown. October 2008.

RFA believes the reduction of livestock methane and rice methane should also be estimated as a part of CARB's GTAP analysis.

In summary, RFA thinks that CARB should postpone adopting a corn ethanol indirect CI value at this time for at least 6 months or such time as these issues can be resolved. RFA believes much of the information needed to improve CARB's analysis will be available in this timeframe, and will enable a better estimate of the indirect land use emissions from corn ethanol utilizing GTAP.

II. CARB *must not* adopt 30 g/MJ for corn ethanol ILUC due to technical errors in the number intended by CARB

The ISOR indicates (page IV-21) that "in applying the Woods Hole emission factors, CARB assumed that 90% of the above ground carbon and 25 percent of the below ground carbon is emitted over the fuel production period." On April 16, 2009, RFA met with CARB, and showed evidence that the above ground carbon is not being multiplied by 90%, and therefore the benefit of this "storage derating" assumption is not included in the 30 g/MJ estimate. This is shown in the table below.

Corn Ethanol ILUC Emissions Values (g/MJ) with and without 90% Above Ground Factor								
CARB Scenario→	A	B	C	D	E	F	G	Mean
CARB ISOR Table IV-10	33.6	18.3	44.3	35.3	27.1	27.4	24.1	30.0
GTAP (AIR)	33.6	18.2	44.4	35.4	27.1	27.5	24.2	30.1
GTAP with EFs from ef-tables.xls	31.6	17.2	41.7	33.2	25.4	25.9	22.9	28.3

The first row of the table above shows values for the seven scenarios directly from Table IV-10 of the ISOR, where the mean emissions estimate is 30 g/MJ. The second row shows emissions estimated by Air Improvement Resource, Inc. (AIR) from GTAP for each scenario, using the identical GTAP inputs that CARB used for these scenarios, and the default emissions in GTAP, which *do not* include the 90% storage derating factor. The mean emissions as estimated by AIR are within 0.1 g/MJ of CARB's estimate, showing very close agreement. However, the third row shows AIR's GTAP runs with emissions from CARB's emission tables "ef_tables.xls". These CARB tables include the 90% above ground storage derating factor. When that factor is included, as intended by CARB (according to the ISOR), the mean emissions are 28.3 g/MJ. The above table clearly shows that CARB's 30 g/MJ ILUC estimate for corn ethanol does not include the 90% storage derating factor that the ISOR indicates was intended to be included.

Therefore, at a minimum, the 30 g/MJ should be revised to 28.3 g/MJ to be consistent with the CARB's intent in the ISOR. CARB staff did not disagree with this assessment in an April 16 meeting with RFA. We note that RFA has repeatedly sought clarification from CARB on whether the agency inadvertently omitted this factor. CARB staff has not responded to our request for clarification on this issue. *It appears likely that this was an oversight and if it was, it must be corrected prior to sending the rule to the Office of Administrative Law (OAL).*

There are two important implications to this change. One is that the mean value for corn ethanol ILUC emissions is actually 7% less than the current number. The second, and perhaps more important implication, is that the carbon intensity of California average ethanol would be 93.96

g/MJ instead of 95.66 g/MJ. CARBOB is currently estimated by CARB at 95.86, so the corrected carbon intensity (CI) of California average ethanol would be 2% lower than CARBOB. Since California average ethanol is lower than CARBOB with the corrected CI, it would stand to reason that the LCFS baseline should be 2006 gasoline with 6% ethanol instead of 2010 gasoline with 10% ethanol.[9] The change in baseline gasoline would allow the increase in the volume percent ethanol from 2006 to 2010 and the resulting reduction in CI of the fuel caused by this increase in volume to be accounted under the LCFS.

III. Other Concerns with Section 95484 and 95486

CARB staff released on July 20, 2009, several suggested modifications to the originally proposed regulatory text released March 5, 2009. These suggested modifications were set forth in Attachment B to the staff report, which was released April 23, 2009. While most of the suggested modifications are minor in scope and are unlikely to have significant impacts on the structure and spirit of the original regulatory proposal, RFA offers comments on two specific modifications.

A. Modifications to section 95484, Requirements for Regulated Parties

While we understand the rationale for the suggested changes to section 95484(d)(2) ("evidence of physical pathway") and believe the modifications could indeed streamline the demonstration process, we are somewhat concerned about the notion of this regulatory burden being pushed down to fuel producers that are not regulated parties. Certainly, the non-regulated producers and marketers of the low carbon fuels that will be used by regulated parties to comply with the LCFS will play an important role in providing evidence of the physical pathway. However, the pathway demonstration is ultimately the responsibility of the regulated party and we are concerned that this modification may enable regulated parties to effectively circumvent this responsibility simply by requiring non-regulated fuel producers to produce the pathway demonstration. We encourage CARB to ensure that this modification does not have the undue consequence of indirectly attempting to regulate parties that do not fall within the definition of "regulated parties."

B. Modifications to section 95486, Determination of Carbon Intensity Values

CARB staff recommended several changes to the carbon intensity lookup table based on recently completed additional fuel pathway analyses. We are still reviewing the new pathway GREET documentation used to establish the direct carbon intensity values for the newly established pathways. Overall, we are highly concerned that CARB accepted industry-derived data for development of the two new sugarcane ethanol pathways, but wouldn't accept industry-submitted data for establishment of direct carbon intensity values for other forms of ethanol earlier in the LCFS development process. While we do not question the legitimacy of the data supplied by UNICA, we are questioning CARB's criteria for acceptability and integration of data from stakeholders. There is no rational basis for

[9] CARB originally proposed 2006 gasoline (assumed to include 5.7% ethanol by volume) as the baseline gasoline formulation. This was later changed by CARB to 2010 when it was clear that ILUC emissions, as calculated by CARB, would render ethanol CI near or worse than the CI value of gasoline.

rejecting the data supplied by RFA[10] regarding energy use, co-product generation and other production factors for U.S. ethanol facilities but accepting the data supplied by UNICA regarding co-products and electricity generation for Brazilian ethanol plants.

Further, we are curious as to if or when CARB plans to release its updated carbon intensity analyses of cellulosic ethanol pathways. For its examination of possible compliance scenarios, Table VI-3 of the ISOR presented preliminary carbon intensity values for cellulosic ethanol (from farmed poplar trees) and advanced renewable ethanol (from forest waste). CARB staff acknowledged that these carbon intensity estimates were preliminary in nature and that further research was needed. Does CARB plan to include cellulosic ethanol pathways in the lookup table that is included in the final regulation? Or will regulated parties who source cellulosic ethanol be required to establish new pathways under Method 2B? We encourage CARB to complete pathway analyses for several basic cellulosic ethanol pathways and include them in the lookup table so that regulated parties may use these fuels under Method 1, which is clearly the simplest means of certifying a fuel's carbon intensity. Failing to do so likely discourages the use of cellulosic ethanol.

Finally, regarding the suggested modifications to section 95486, we are concerned by the fact that CARB is proposing that all new or modified pathway applications go through the full formal rulemaking process. The rule should provide the ability for new or modified pathways to be approved upon application by a member of the public. Rulemaking should not be required and will have several negative consequences, as described below.

1. The length and complexity of the full rulemaking process is likely to unnecessarily delay the deployment of new technologies to the market. Subjecting each and every new or modified pathway application to the requisite public comment periods, public hearings, and review by Office of Administrative Law appears overly burdensome and unnecessary.

2. A rulemaking process creates the risk of disclosure of trade secrets and proprietary information about unique processes/technologies. So far, CARB staff has not provided a satisfactory explanation of how it will manage trade secrets and proprietary information/data that are submitted as part of the Method 2 process. Without an assurance from CARB that this information will be handled properly, low carbon fuel producers are very unlikely to disclose the information required by CARB to establish a new or modified pathway.

3. Because no two low carbon fuels production processes are exactly the same, CARB should expect to receive a large amount of applications for new or modified pathways (provided that the issues surrounding confidentiality of trade secrets/proprietary data are resolved). Subjecting each application to the full rulemaking process will undoubtedly place a significant additional administrative burden on the agency.

Due to these concerns, we strongly urge CARB to revisit the process for considering applications for new or modified pathways. The current proposal would undoubtedly discourage low carbon fuel providers from applying for certification of a new or modified

[10] See, for example: 1.) **"**U.S. Ethanol Industry Efficiency Improvements, 2004 through 2007", Christianson. August 5, 2008. 2.) "Analysis of the Efficiency of the U.S. Ethanol Industry 2007", Argonne National Laboratory. April 21, 2008.

pathway, which runs counter to the stated goal of the LCFS to stimulate innovation and new low-carbon fuel technologies in California.

IV. Conclusion

We note that CARB is obligated under its own rules to include the most recent and accurate available data. Further, CARB has repeatedly stated that it will use the most up-to-date information in its rulemaking. Therefore, we strongly encourage CARB staff to consider and incorporate the recommendations outlined in these comments. *Further, RFA urges CARB to correct the deficiencies noted above before it sends the rulemaking package to OAL for review.* We would be pleased to meet with you again to discuss these concerns and provide any further assistance needed in fulfilling your obligations to issue a regulation with proper evidentiary support.