RFA RENEWABLE FUELS ASSOCIATION

November 5, 2009

Arthur Marin
Executive Director
NESCAUM
89 South Street, Suite 602
Boston, MA 02111

Dear Mr. Marin:

The Renewable Fuels Association (RFA) respectfully submits these written comments in response to the Northeast States for Coordinated Air Use Management's (NESCAUM) request for stakeholder input on a proposed regional Low Carbon Fuels Standard (LCFS) for 11 Northeast and Mid-Atlantic states.

As the national trade association for the U.S. ethanol industry, the RFA promotes policies, regulations and research and development initiatives that will lead to the increased production and use of fuel ethanol. RFA membership includes a broad cross-section of businesses, individuals and organizations dedicated to the expansion of the U.S. fuel ethanol industry. In 2009, more than 200 biorefineries in 26 states will produce approximately 10.6 billion gallons of ethanol, displacing the need for 370 million barrels of oil. By 2012, it is expected that the industry will have the capacity to produce about than 14 billion gallons of renewable ethanol, enough to displace the gasoline derived from 480 million barrels of oil. This is equivalent to more than half of the oil our nation imports annually from the Persian Gulf.

Our industry applauds the leadership of the states involved in the Northeast LCFS process for aggressively pursuing policies that seek to serve the dual purpose of reducing GHG emissions *and* reducing dependence on petroleum. As you well know, much of the oil processed and consumed in the Northeast and Mid-Atlantic comes from outside of the U.S. at a tremendous economic and environmental cost. In addition to decreasing GHG emissions and oil imports, we believe a properly structured LCFS will stimulate economic activity in both cities and rural communities by creating tens of thousands green jobs in the renewable energy sector.

While we support the overarching goals of a LCFS, we have significant concerns with the direction of the proposed Northeast LCFS as articulated by NESCAUM staff and officials from affiliated state air agencies at workshops recently held in Boston (Oct. 22, 2009) and Newark (Oct. 27, 2009). At both of these workshops, and in other public forums, NESCAUM indicated its desire to use the recently adopted California LCFS regulation as a model for the Northeast LCFS. Further, NESCAUM officials have vocally supported the California Air Resources Board's (ARB) decision to arbitrarily penalize biofuels for greenhouse gas (GHG) emissions thought to occur as the result of a conceptual market-mediated effect known as

indirect land use change (ILUC). Though NESCAUM officials have suggested that they don't expect the Northeast LCFS process to be constrained to the California model, it is clear that the California regulation has provided the foundation for your work to date. Given that ARB was broadly criticized by scientists, economists, biofuel producers, consumer groups, and others for embracing a concept that is not well understood and for which no suitable tools exist to properly analyze, we encourage NESCAUM to carefully evaluate the California LCFS analysis and the technical comments submitted by stakeholders before imprudently adopting the framework as the basis for the Northeast LCFS.

As described in our comprehensive technical comments to ARB[1], RFA is strongly opposed to the use of one analytical boundary for biofuels and the use of a distinctly different boundary for all other fuels. Because the LCFS is structured as a performance-based regulation, fair determination of a fuel's carbon intensity is critically important. In order to avoid inadvertently picking technology winners and losers, it is essential that *all* regulated fuels are evaluated using the same analytical boundaries. Unfortunately, the ARB's analysis uses asymmetrical boundaries to assess the carbon intensity of various fuels; specifically, biofuels are penalized for highly uncertain and unproven ILUC effects while petroleum and other fuel types are assumed not to cause any market-mediated impacts.

A market-mediated carbon effect is, in theory, the indirect GHG impact resulting from a demand-induced price increase for a particular energy source. Market-mediated effects are grounded in the fundamental economic principle that increasing demand for a specific energy source will absolutely increase the price. In the case of biofuels, the theory suggests using more grain-based ethanol for transportation will increase demand for grain and thus increase grain prices. According to the theory, higher grain prices send a signal to farmers around the world to expand crop production. Supporters of the theory believe carbon-rich soils and forests are converted to agriculture as a result of this cropland expansion. *Thus, the GHG emissions from ILUC ultimately result from a market response to higher crop prices.* While this string of economic logic makes sense theoretically, it is sufficiently more complex in reality. Additionally, as stated earlier, market-mediated GHG effects are being applied only to biofuels in the California LCFS.

---

[1] See, for example:

- http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/32-rfa_comments_to_carb_corn_ethanol_pathway_627.pdf
- http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/39-rfa_comments_to_0630_carb_workshop.pdf
- http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/51-rfa_rfa_comments_to_carb_on_oct__16_workshop.pdf
- http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/68-comments_from_rfa__to_ca-greet_corn_ethanol_pathway.pdf
- http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/73-comments_from_rfa__to_lcfs_workshop_on_013009.pdf
- http://www.arb.ca.gov/lists/lcfs09/270-rfa.pdf
- http://www.arb.ca.gov/lists/lcfs09/449-19aug09_rfa_lcfs_comments.pdf

If the same basic economic logic is applied to other energy sources, we quickly see that all fuels have potential market-mediated GHG impacts. In the case of electricity, for instance, a sharp increase in the use of electric vehicles would result in higher electricity demand and prices. In keeping with the line of logic used to justify ILUC penalties for biofuels, higher prices resulting from new electricity demand would prompt the market to produce more electricity. If that electricity is produced using lowest-cost feedstocks like coal, the additional GHG impacts of this marginal electricity production should be added to the carbon intensity score of average electricity used for electric vehicles in the same way that average corn ethanol is penalized for ILUC emissions assumed to be caused by the marginal gallon. The bottom line is that, in following economic theory, increased demand for any fuel will cause prices for that fuel to rise. The GHG impacts resulting from those price increases need to be thoroughly analyzed. All of the fuels being evaluated for an LCFS should be subjected to rigorous economic modeling and other analytics to test for possible price-induced GHG effects. This has not been done. One possible reason that this type of research has not been done is that it appears that the necessary analytical tools do not exist, are too crude in nature, or yield results that are simply too uncertain for regulatory application. As discussed later, this is also the case with the analytical tools being used to predict ILUC for biofuels.

We share the concern of 111 scientists and academics from California, other states, and even other countries who submitted a letter to California Governor Arnold Schwarzenegger, stating, "Leaving aside the issue of whether these [indirect] effects can be predicted with precision or accuracy, or whether such a penalty is appropriate for the LCFS, it is clear that indirect effects should not be enforced against only one fuel pathway." The letter's signatories, including members of National Academies of Sciences and Engineering, further stated that the proposal "…creates an asymmetry or bias in a regulation designed to create a level playing field. It violates the fundamental presumption that all fuels in a performance-based standard should be judged the same way…"[2]

Even if consensus existed on the critical public policy question of including indirect effects in this type of policy (which it clearly does not), regulators in the Northeast would need a sound, validated, and defensible scientific methodology for quantifying these secondary effects. Unfortunately, such a methodology does not yet exist. NESCAUM has indicated on several occasions that it does not intend to conduct original economic modeling on market-mediated effects and will instead rely upon preliminary ILUC estimates from ARB and the U.S. Environmental Protection Agency (EPA). This is highly problematic, given the widely acknowledged uncertainties and limitations associated with both the ARB and EPA analyses. It seems unfathomable that NESCAUM would readily adopt such controversial estimates for ILUC effects without first attempting to replicate, validate, and perform sensitivity analysis on the results generated by ARB and EPA.

[2] Letter to Gov. Arnold Schwarzenegger. http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/74-phd_lcfs_final_feb_2009.pdf

The RFA has several specific concerns with the modeling framework used by ARB to determine indirect land use change effects. ARB used Purdue University's Global Trade Analysis Project (GTAP) model to conduct its indirect land use change analysis. While GTAP has been somewhat useful in providing insight into the expected short-term impacts of certain global trade policy decisions, it was not initially designed to analyze the long-term, multi-year land use impacts of expanded biofuels production.

GTAP is a static model that does not include a time element. To simulate ethanol expansion, the model is "shocked" for a 13.25 billion gallon ethanol increase (simulating the increase in ethanol between 2001 and 2015). The model must "handle" this extreme adjustment instantaneously. In the real world, market conditions change, new technologies are introduced and dynamic adjustments are made every year. In other words, the "shock" is much slower and considerably more complex in the real world, with potentially much different effects than simulated by the model. The GTAP model has technical flaws and structural shortcomings that, in our opinion, currently prevent it from generating results that are usable for the development of the LCFS. RFA purchased the GTAP model early in 2008 and has been experimenting with the model for much of the last two years. In that time, we have identified a number of technical flaws and incorrect assumptions. We shared our comments and recommended adjustments with ARB staff, U.C. Berkeley, and Purdue University during the California LCFS stakeholder process. Our comprehensive record of comments on the California LCFS provides significant technical detail regarding the use of GTAP for ILUC calculations (see footnote 1).

RFA has also raised significant concerns with the methodology used by EPA to assign ILUC penalties to biofuels regulated under the Renewable Fuels Standard. RFA has obtained and exercised the FASOM model, which was used by EPA to estimate domestic GHG impacts of expanding the RFS. Unfortunately, the FAPRI model used by EPA to analyze international GHG impacts is not publicly accessible, so RFA has been unable to replicate EPA's results. Our technical concerns with EPA's lifecycle GHG analysis are described in great detail in our written comments submitted to the agency in September 2009.[3]

Supporters of enforcing indirect land use effects against biofuel often say that this policy decision is necessary to help spur advanced biofuel production. We have a distinctly different point of view. We are concerned that the inclusion of indirect effects penalties for biofuels and the other inequalities in the LCFS will erode investor confidence and market certainty for both first *and* second-generation biofuels. This point cannot be stressed enough. Contrary to the belief held by some, producers of next generation biofuels such as cellulosic ethanol are *not* supportive of including selective indirect effects in the LCFS. In fact, a November 2008 letter to ARB Chairman Mary Nichols from 30 second-generation biofuels companies, researchers, and organizations clearly stated, "…we do not agree that throwing uncertain numbers at selected fuels under the LCFS will create a positive

[3]Comments available at www.ethanolrfa.org/objects/documents/2650/rfa_appendices_to_rfs2_comments_part_2.pdf
Appendixes A-G available at www.ethanolrfa.org/objects/documents/2649/rfa_appendices_to_rfs2_comments_part_1.pdf
Appendixes H-P available at www.ethanolrfa.org/objects/documents/2650/rfa_appendices_to_rfs2_comments_part_2.pdf

outcome for either the environment or the LCFS policy itself."[4] To be clear, we are not aware of any public record support for the claim that indirect effects enforcement will help advanced biofuels.

In short, artificially limiting the use of first generation biofuels through the use of ILUC penalties may inadvertently "blow up the bridge" to future renewable fuels. Without a doubt, the commercial success of the second generation of biofuels will be contingent upon the continued success of first generation biofuels. Over the past 30 years, the first-generation ethanol industry has established robust transportation and storage infrastructure; cultivated an investment base and created financial networks; advocated policies that create market certainty; and, more generally, raised the nation's collective experience related to introducing renewable fuels into a market dominated by fossil fuels. Conventional biofuel companies are also some of the largest investors in cellulosic ethanol.

NESCAUM has indicated that a Memorandum of Understanding (MOU) for signature by governors in the region is currently being prepared. As you go about developing this important MOU, we offer the following recommendations:

1. If NESCAUM is committed to including market-mediated GHG impacts for biofuels, it must commit to holding *all* fuels accountable for their price-induced indirect GHG impacts.

2. Conversely, if NESCAUM deems it inappropriate or untenable to include market-mediated effects for all fuels, than fuels should be compared strictly on the basis of direct (supply chain) GHG emissions.

3. If NESCAUM does not have the resources to conduct original economic modeling on market-mediated GHG effects, it should, at the very least, conduct a rigorous review of the comments submitted to ARB and EPA by stakeholders *who have* experimented with the models and attempted to replicate the agencies' results.

Again, we appreciate the opportunity to provide comment on the proposed Northeast LCFS. It would be our pleasure to discuss in more detail any of the issues described in this letter. Please don't hesitate to contact us with questions or comments.

Sincerely,

Bob Dinneen
President

[4] Letter to ARB Chairman Mary Nichols. http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/46-arb_luc_final.pdf