April 15, 2009

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

Dear Chairwoman Nichols,

We, the undersigned advanced and cellulosic biofuel companies, are writing to provide our collective comments on the Proposed Regulation to Implement the Low Carbon Fuels Standard (LCFS).

First, we commend the state of California for its exemplary vision and leadership in developing energy policies that aspire to reduce greenhouse gas emissions, decrease our reliance on fossil fuels, and stimulate the economy. The Initial Statement of Reasons (ISOR) says the LCFS is designed to "…create a lasting market for clean transportation technology, and stimulate the production and use of alternative low-carbon fuels in California." We agree that these policy goals are both admirable and absolutely critical to the future of our nation. However, we are greatly concerned that because the draft regulation creates an unlevel playing field for both first- and second-generation biofuels, these goals ultimately will not be reached.

Because the LCFS is structured as a performance-based regulation, fair determination of a fuel's lifecycle carbon intensity is critically important. Lifecycle analysis serves as the foundation of any performance-based, technology neutral regulation. As such, it is essential that ***all*** regulated fuels are evaluated using the same analytical boundaries. Unfortunately, the Air Resources Board's (ARB) analysis uses asymmetrical boundaries to assess the carbon intensity of various fuels. Specifically, biofuels from any feedstock grown on land are penalized for a highly uncertain and unproven market-mediated effect known as indirect land use change, while petroleum and other fuel types are assumed not to cause any indirect carbon effects or market-mediated impacts. One important indirect petroleum effect that must be acknowledged is the long-term impact of not immediately beginning to diversify away from fossil fuels. Failure to transition away from fossil fuels will result in increased demand for conventional oil, which depletes those sources faster today and accelerates the need for higher greenhouse gas fossil hydrocarbons (e.g. tar sands and oil shale) tomorrow.

Supporters of enforcing indirect land use effects against biofuel often suggest that this policy decision is necessary to help encourage advanced biofuel production. In fact, in a November 2008 news article, ARB member Dan Sperling stated, "I really think these biofuels producers should appreciate that this is going to help them, especially those that use cellulosic or biomass feedstocks."[1] We have a distinctly different point of view. We are concerned that the inclusion of

[1] Lamb, Celia. "Biofuels makers object to state's proposed standards for cleaner fuel." Sacramento Business Journal. November 7, 2008.

indirect effects penalties for biofuels, and other inequalities in the LCFS, will erode investor confidence and market certainty for both first *and* second-generation biofuels. Contrary to the belief held by some, producers of next generation biofuels such as cellulosic ethanol are *not* supportive of selectively including indirect effects in the LCFS. The successful development, commercialization, and sustained production of second-generation biofuels is largely contingent upon continued market opportunities for the first generation of biofuels. Securing financing for second-generation biofuels projects in today's economy is challenging enough; but the negative signal sent to potential investors by the enforcement of selective and questionable penalties against biofuels may be insurmountable.

Artificially limiting the use of first generation biofuels may inadvertently close the door to future renewable fuels. 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 level related to introducing renewable fuels into a market dominated by fossil fuels. It is also critical to understand that some conventional biofuel companies are also some of the largest investors in cellulosic ethanol. We view the transition to second-generation biofuels as being evolutionary rather than revolutionary.

Many of us were signatories of an October 2008 letter to ARB Chairwoman Mary Nichols from second-generation biofuels companies, researchers, and organizations. The letter clearly stated, "…we do not agree that throwing uncertain numbers at selected fuels under the LCFS will create a positive outcome for either the environment or the LCFS policy itself."[2] The letter further suggests, "…no model today comes close to capturing the interplay of economic, institutional, technological, cultural and demographic variables inherent with quantifying the indirect impact of any fuel." Our position on these issues has not changed.

ARB's use of vastly different boundaries for different fuels is clearly demonstrated by the cursory assessment of the direct land impacts of crude oil operations. ARB examined the direct land impacts of *only* California oil fields, while ARB's boundaries for biofuels analysis are *global* in scope and include indirect carbon effects. ARB's analytical boundary for oil's direct land impacts might be justifiable if California produced all of the oil it consumes. However, more than 60% of the oil consumed in California is imported from outside of the state. Further, there is no evidence that ARB conducted a comprehensive analysis of the indirect, market-mediated impacts of oil imported or produced in the state. Preliminary analysis presented by Life Cycle Associates to ARB in January indicated several potential sources of indirect and direct GHG emissions associated with oil production that have been overlooked in ARB's analysis and most other traditional lifecycle analyses. Examples of these emissions include methane from flaring, methane from tailing ponds, and emissions associated with some refinery byproducts. The report said that other fuels could—and should—be run through economic models and other analytics to test for indirect effects. This has not been done.

Next-generation biofuels producers agree with the 111 scientists and academics from California and other states who recently submitted a letter to 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

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

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…"[3]

We think it is important to recognize that due to the highly uncertain nature of indirect land use change modeling and the lack of consensus on methodology, European institutions recently decided to postpone inclusion of indirect land use change as a factor in determining the carbon intensity of biofuels in the European Union (EU) Renewable Energy and Fuels Quality Directive.[4] Rather, the EU institutions directed the initiation of a two-year study aimed at gaining a better understanding of the land impacts of biofuels and methods for minimizing land effects. We believe ARB should consider a similar two-year study period and coordinate fully with EU officials and U.S. Environmental Protection Agency to develop a methodology for analyzing indirect effects that is uniform, validated, and scientifically sound.

We are also greatly concerned by the ISOR's premature presentation of insufficient and questionable analysis on the land use change impacts of cellulosic feedstocks. In the ISOR, cellulosic crop-based biofuels are assumed to induce indirect land use change emissions of 18 g CO2-eq./MJ. There is very little research and virtually no modeling to support this initial conclusion. In fact, ARB's indirect land use change assessment for cellulosic biofuels relies almost entirely on a few pages of information from an unpublished, un-reviewed paper by Purdue University researchers. The Purdue authors themselves characterize the analysis as a "very rough picture" of the potential land impacts of cellulosic feedstocks. While ARB characterizes the cellulosic indirect land use change value as preliminary in nature, publishing the result at all will establish a view of cellulosic biofuels that may be significantly disconnected from reality. We also question ARB's selection and use of specific assumptions. For example, ARB assumes average cellulosic feedstock ethanol yields will be 250 gallons/acre. Published literature and data from field trials suggest commercial-scale ethanol yields will be much higher.

In closing, we strongly encourage the ARB to continue to refine and improve its lifecycle modeling framework. We also believe the methodology and ARB's results must be further peer-reviewed by a multi-disciplinary group of disinterested economists, climate change scientists, soil scientists, plant biologists, and other experts. This has not yet been done. We strongly recommend the delay of inclusion of indirect effects in the LCFS regulation until more appropriate analytical tools are developed and rigorous peer review is conducted. Additionally, if ARB is truly committed to fairly enforcing market-mediated effects on a level playing field, the Board should immediately initiate a comprehensive research effort that examines the indirect effects of all fuels.

We sincerely appreciate the opportunity to provide comment and look forward to continuing to work with ARB to develop a workable policy that achieves the state's ambitious, but attainable, carbon reduction goals.

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

[4] See http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2008-0613+0+DOC+XML+V0//EN&language=EN#BKMD-27

Sincerely,

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BioEnergy International, LLC
BlueFire Ethanol Fuels, Inc.
California Ethanol & Power, LLC
Ceres, Inc.
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Pacific Ethanol
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