March 6, 2014

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

Dear Chairwoman Nichols,

We, the undersigned scientists and researchers, are writing to encourage the California Air Resources Board (CARB) to strongly consider recent developments in the analysis of indirect land use change (ILUC) when contemplating potential amendments to the Low Carbon Fuel Standard (LCFS). We understand CARB is considering potential changes to the LCFS regulation's current carbon intensity (CI) values, and that these possible adjustments are the subject of an upcoming stakeholder workshop on March 11.

Many of us were members of the CARB-appointed expert work group, which convened in 2010 for the purposes of critically reviewing CARB's ILUC analysis, identifying data gaps and areas in need of additional analysis, and recommending improvements. Upon completion of a year-long deliberative process, the work group recommended that CARB should revise its ILUC estimates using the latest version of Purdue University's GTAP model. Further, many of us have independently conducted additional data analysis and ILUC modeling in the years following the conclusion of CARB's expert work group process. In many cases, the findings from our research have been subjected to peer-review and published in the scientific literature.

While ILUC analysis continues to suffer from a relatively high degree of systematic and data uncertainty, the quality of both the models and input data chosen for use by CARB have substantially improved since the Board formally adopted the LCFS. These improvements have resulted in corn ethanol ILUC emissions estimates that are much lower than CARB's current estimates for the LCFS. The improved ILUC emissions estimates result from the availability of more robust data and enhanced understanding of: 1) the types of land most likely to be converted; 2) the likely location of predicted conversions; 3) crop yields on newly converted lands; 4) crop yield responses to changes in prices; 5) carbon stocks and emissions from land conversion; 6) the feedback effects of animal feed co-products on land use; and 7) crop switching, double-cropping, and cross-commodity effects. Alternative methodologies for accounting for land use change emissions over time (i.e., "time accounting") have also been established.

Many of us continue to believe the use of point-estimate ILUC factors is inappropriate for the purposes of regulation. However, to the extent that CARB continues to rely upon the use of ILUC factors in calculating CI scores for the LCFS, we believe the Board should be familiar with the most recent independent modeling results. In general, our recent work—and analyses conducted by other experts in the field—indicates that CARB's existing CI factors significantly overestimate the GHG emissions associated with potential ILUCs resulting from corn ethanol expansion. Analyses conducted since CARB adopted the LCFS in 2009 show that potential ILUC emissions associated with corn ethanol are more likely in the range of **6-15** grams per megajoule of CO2 equivalent (g/MJ), compared to CARB's estimate of 30 g/MJ. A bibliography of relevant corn ethanol ILUC studies conducted in recent years is provided in the attachment.

Nearly three and a half years have passed since the Board adopted resolution 10-49, which directed CARB staff to prepare amendments to the LCFS by the spring of 2011. Among the amendments directed by the Board were CI revisions that would reflect "[u]pdates to the land use values for corn ethanol, sugarcane ethanol, and soy biodiesel, and other feedstocks…" Given this directive and CARB's commitment to using the "best available science" to "determin[e] the total direct and indirect emissions associated with…all fuels,"[1] we believe CARB staff should give serious consideration to immediately adopting a lower ILUC factor for corn ethanol based on the studies included in the attachment.

Sincerely,

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[1]California Air Resources Board, Staff Report: Initial Statement of Reasons, Proposed Regulation to Implement the Low Carbon Fuels Standard: Vol. I (March 5, 2009), Page IV-48

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