

May 28, 2010

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

Dear Chairwoman Nichols,

Thank you for your staff's response to my letter of April 28. We are encouraged to hear that the Air Resources Board (ARB) staff is reviewing the new Purdue University report. I'm sure the ARB staff will agree that the Purdue paper and modeling results represent a crucial advancement in the science of indirect land use change (ILUC). However, based on Mr. Robert Fletcher's May 10 response on your behalf and recent statements to the press, we are concerned that ARB is mischaracterizing the results of the new Purdue analysis and taking too lightly the significance of the research. We are greatly concerned that ARB is attempting to gloss over the new results, which are being hailed by the research community as a vital development and the best available science.

Mr. Fletcher's response to my letter states that Purdue researchers simply "varied a number of parameters" in the Global Trade Analysis Project (GTAP) model, which resulted in significant decreases to the carbon intensity values for corn ethanol. Similar statements have been made to the press.¹ The tone of this statement suggests that ARB views the new Purdue results as being akin to values obtained through standard sensitivity analysis, in which key elasticities or assumptions are varied primarily to test the sensitivity of model results to parametric changes.

To be clear, the Purdue researchers did *far more* than simply vary parameters. First, the research team updated the entire global economic database underlying the GTAP model from a 2001 condition to 2006. Additionally, the internal nesting structure of the model was adjusted to better account for the use of animal feed co-products. Further, Purdue added new land types to the model's database. Also, in recognition of the limitations associated with the static nature of GTAP, the authors integrated a means of accounting for crop yield growth and population expansion inside the model. These improvements and others all go far beyond just "varying parameters."

It is true that the researchers also varied certain key elasticities in the model. But they did so because they had developed information and data that better guided the use of those elasticities, not because they simply wanted to test the sensitivity of the results to parametric changes (e.g.,

¹ See for example: "Update: Study Finds CARB Overestimated ILUC Impact on Grain-Based Ethanol." April 30, 2010. Oil Price Information Service (OPIS) Biofuels Update.

Purdue's use of the elasticity of productivity with respect to area expansion is based on actual crop yield data specific to individual regions, whereas ARB used one overly conservative blanket value for this elasticity based on "best available professional judgment").

The new Purdue results aren't merely new sensitivity values to be added to ARB's existing range of results. Rather, they are new *average* values based on the best available science and tools. As I pointed out in my previous letter, the new Purdue work corrects several of the key GTAP deficiencies identified by stakeholders and *ARB itself* in the LCFS public record. Therefore, the Purdue analysis represents a new starting point for the understanding of ILUC. In this regard, the Purdue values should **replace** ARB's existing values, not simply **supplement** them as Mr. Fletcher's response to my previous letter seems to suggest.

In the response letter, Mr. Fletcher stated it would be "...premature to adopt Purdue's work as the 'right' number at this point..." We agree that the new Purdue value likely is not the "right" number. In reality, due to the tremendously uncertain nature of ILUC analysis, it is unlikely we can or will ever know the "right" number. However, as currently structured and adopted, it is clear ARB *will* choose a number for the ILUC penalty for the LCFS, whether it is scientifically "right" or not. (Indeed, by virtue of being enforceable by law, whatever ILUC number is entered into the regulation's look-up table becomes the "right" number in a regulatory sense, whether it is scientifically justified or not). While the scientific community likely will not ever know the "right" number, it can determine with relatively high confidence what represents the best available estimate and best available science. Without question, the new Purdue study represents the state of the art in ILUC analysis. I urged ARB to immediately adopt the new Purdue value in my earlier letter because we believe ARB has committed itself to efficiently adopting the best available science.

Further, we must take issue with the statement in the response letter that says, "...the [Purdue] values are generally within the range of results that we found in running various sensitivities." This statement also appears in the May 24 ARB staff memo to the Board, as well as various media reports. This assertion is deeply troubling for two primary reasons. First, for the reasons stated above, Purdue's results are not analogously comparable to ARB's sensitivity analysis results. Purdue's results do not represent the outcome of sensitivity analysis and they were obtained after several major improvements and structural changes were made to GTAP. Second, we believe the statement is, on its face, factually misleading. ARB varied five major parameters for its corn ethanol ILUC sensitivity analysis and produced upper and lower bound values for each of the varied parameters.² Accordingly, 10 values were generated by the ARB sensitivity analysis. As shown in the attachment, *only one of the 10* ARB sensitivity values falls within the range of Purdue's results. In fact, the highest sensitivity value is *six times larger* than the primary Purdue estimate. Yet, Mr. Fletcher's statement implies that ARB staff's sensitivity values are consistently in line with Purdue's numbers. This is not accurate. As such, we respectfully request that ARB staff refrain from characterizing the Purdue results as being "generally within the range" of ARB's sensitivity results.

² Table C5-1, page C-28 ("Sensitivity Analysis Results for Corn Ethanol"). Proposed Regulation to Implement the Low Carbon Fuel Standard: Volume II. Appendices. March 5, 2009.

Finally, we are concerned by ARB's decision to forgo immediate action on the Purdue research in favor of forwarding it to the Expert Workgroup for deliberation and possible inclusion in a report not due until the end of the year. While we believe the workgroup effort is critically important and we are optimistic that it will result in an improved understanding of ILUC, the timing of the workgroup's report and recommendations is such that regulated parties will have already made decisions about fuel procurement for 2011. In fact, some of those decisions are being made today against a tremendously uncertain LCFS backdrop. Changing the ILUC value for corn ethanol now to reflect the best available science would provide regulated parties with more certainty and significantly ease their ability to comply with the LCFS in 2011. One of the primary purposes of my April 28 letter was to urge immediate action on the Purdue research so that fuel producers, blenders, and other supply chain participants will have the certainty they need to adequately plan for the 2011 LCFS compliance cycle.

In our view, failure to revise the corn ethanol ILUC penalty immediately will result in unnecessary disruptions to the California gasoline market beginning in 2011. As the regulation is currently structured, regulated parties simply will not have sufficient supplies of low carbon fuels to meet their 2011 LCFS obligations. This view is further supported by the fact that only a handful of existing ethanol facilities has completed ARB's biofuel producer registration process; the lack of registrants is likely a signal that many ethanol producers are already giving up on the California marketplace and looking elsewhere for marketing opportunities. All of this begs the question: What low carbon fuels will be available in the next few years to fill the void left by the LCFS-induced removal of corn ethanol from the California marketplace? Adopting the Purdue value immediately would ensure adequate supplies of low carbon fuels are available to regulated parties in the first several years of the LCFS policy.

In conclusion, and for the reasons outlined in this letter, we are again requesting that ARB immediately adopt the Purdue value of 13.9 grams CO₂-equivalent per mega joule (g/MJ) in lieu of the current 30 g/MJ penalty. We are also requesting that ARB revisit its characterization of the Purdue report and refrain from describing the Purdue results as being "generally within the range" of ARB's sensitivity results. Finally, the May 10 letter from Mr. Fletcher expressed openness to setting up a meeting with you and pertinent staff to discuss the Purdue research and ARB's plans for incorporating the new numbers into the LCFS. My staff will be following up with Mr. Fletcher to schedule the meeting.

Sincerely,

A handwritten signature in black ink that reads "Bob Dinneen". The signature is fluid and cursive, with a long horizontal stroke at the end.

Bob Dinneen
President and CEO

Cc:

Robert D. Fletcher, Deputy Executive Officer

John R. Balmes, M.D., Board Member

Sandra Berg, Board Member

Dorene D'Adamo, Board Member

Lydia H. Kennard, Board Member

Ronald O. Loveridge, Board Member

Barbara Riordan, Board Member

Ron Roberts, Board Member

Daniel Sperling, Board Member

John G. Telles, Board Member

Ken Yeager, Board Member

Charyl Frazier, Board Member Liaison

Sandra Bannerman, Clerk of the Board

ATTACHMENT
ARB CORN ETHANOL ILUC SENSITIVITY RESULTS VS. PURDUE RESULTS

In the May 10 response letter to RFA, ARB staff wrote:

“...the [Purdue] values generated were generally within the range of results that ARB found in running various sensitivities.”

This statement is simply false. Only one of ten ARB sensitivity cases generated a bounding value (18.3 g/MJ) within the Purdue range of results.

