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VIA Electronic Mail

Mr. Courtis and Mr. Duffy:

Growth Energy is the leading association of America's ethanol producers and supporters and as such wish to provide comments in response to the California Air Resources Board's (CARB) Public Workshop to discuss draft revisions of land use change carbon intensity values for U.S. corn ethanol, U.S. soy biodiesel and renewable diesel and Brazilian sugarcane ethanol. Representing a significant portion of the ethanol industry, Growth Energy has serious concerns about the latest data being considered by CARB for modeling land use change.

In particular, we have concerns about the discussion of lower price-yield elasticity values, and the resulting sensitivity on land use change. We also have concerns about the discussion of assuming food consumption will remain constant in developing countries based on the impact of corn ethanol. Overall, we are very disappointed by the accelerated process used for consideration of these new data assumptions and their potential impact on the production of ethanol to meet California's Low-Carbon Fuel Standard.

One of the presentations offered by CARB to alter the yield-price elasticity is Steve Berry's *Technical Report for the ICCT: Empirical Evidence on Crop Yield Elasticity* and earlier discussion, *Biofuels Policy and the Empirical Inputs to GTAP Models*. In his report, he concludes that crop yields do not necessarily improve with higher commodity prices – an assumption that flies in the face of any basic understanding of the history of commercial agricultural production. Berry's conclusion produces a significant reduction of yield-price elasticity values from the 0.25 used in the GTAP model to assumptions at 0.10 and 0.05. This analysis directly contradicts previous studies in this regard, in particular Hayami and Ruttan (*Agricultural Development: an international perspective 1985*) which found innovation in agriculture develops directly in response to economic conditions and pricing. Such innovation can be seen in the development of genetically modified crops to give farmers better yields and perhaps more importantly in this context, these technological improvements give farmers the flexibility to improve and manage their yields specifically based on pricing and economic conditions.

Berry's assumptions also directly contradict the earlier work of the LCFS Expert Work Group who recommended that the elasticity value be set at 0.25, and in fact, Wally Tyner even stated in his presentation for the September 14, 2011 workshop, "There are several empirical studies which estimated the magnitude of this elasticity, but there is no commonly agreed value among the profession. In the base cases in this report and in most previous work, a value of 0.25 is assigned to this elasticity." Tyner was only using lower elasticity

values because he was directed by CARB to perform such runs in the GTAP model. Clearly Berry's analysis is an outlier and even contemplating the use of these values needs more thorough consideration than the three weeks provided by CARB. We are very concerned that these assumptions will be prejudiced in the staff report without ample opportunity for a more complete evaluation. At a minimum, CARB should provide the public with a justification for why Mr. Berry's work is more scientifically defensible than the general consensus formed by the Expert Work Group and many others.

In the same vein, we also have concerns about the discussion of impact on food consumption in developing countries and worldwide. In their staff presentation, CARB indicated that it was considering modeling a fixed food consumption rate in developing countries around the world causing the model to show increases in land use and subsequently in carbon intensity values attributed to ethanol and biodiesel production. Again, we point back to the work of the LCFS Expert Working Group who stated in their report:

Conventional wisdom predicts that when farmland devoted to food, fiber and feed (FFF) production is diverted to the production of feedstock for biofuels, supplies of the displaced FFF crops are reduced and/or encroach on other land uses. Supply reductions may cause prices to rise, which in turn stimulates both increased production and reduced FFF demand. Increased production may take the form of increases in crop yields (e.g. price induced yield effect) and increased crop area (e.g. land use change). Reduced demand and/or increased supply may take the form of substitution of livestock feed by biofuel co-products (e.g. distillers grains), reduced direct consumption of crops by humans, as well as reduced consumption of livestock which, in turn, results in reduced demand for feed crops holding caloric nutrition constant.

The magnitude of the calculated LUC estimate is therefore linked to the extent of dynamic responses that occur in food consumption changes that are predicted by the model. Larger estimated reductions in food consumption result in smaller estimates for land use change and smaller reported price changes and vice versa.

It seems incredible to assume that higher food prices would not drive down consumption and ultimately lower any potential for land use change or conversely drive up yield increases and still lower potential for land use change. Clearly, CARB should not contemplate making this change without a more thorough examination of all of the economics around food consumption and its assumed impact on land use.

While we continue to object to the inclusion of land use change in the construction of carbon intensity values for ethanol, CARB should not simply rush to undo the previous efforts of the Expert Work Group by simply adding these new inputs to the modeling. We believe that any review of the real world experiences will show that these new assumptions are erroneous and should not be included in the construction of the low-carbon fuel standard. Growth Energy will continue to provide commentary and input to CARB to show that ethanol is a sustainable effective fuel for the future.

Sincerely,



Tom Buis
CEO, Growth Energy