



November 14, 2008

Mary D. Nichols, Chairman  
California Air Resource Board  
Headquarters Building  
1001 "I" Street  
P.O. Box 2815  
Sacramento, CA 95812

Dear Chairman Nichols,

The International Council on Clean Transportation (ICCT) welcomes the opportunity to comment on the draft regulation for the California Low Carbon Fuel Standard (LCFS). The transportation sector produces 38% of California's greenhouse gas (GHG) emissions, and its share is projected to increase to 44% by 2020.<sup>1</sup> Controlling and gradually reducing transportation GHG emissions to a level substantially lower than current levels is essential for putting California on a path to meeting the state's 2050 target of an 80% GHG reduction.

To achieve deep reductions in transportation GHG emissions, we need all measures to address all the factors--including fuels, vehicles and travel demand--that affect the sector's emissions. An LCFS, if designed and implemented properly, will create incentives to reduce GHG emissions from all phases of transportation fuel production and promote investments on low-carbon fuel technologies. An LCFS therefore serves as a critical policy to help the state slow, stop and reverse the growth of transportation GHG emissions. We applaud the Air Resource Board's (ARB) leadership in developing the low carbon fuel regulation. The LCFS will set a precedent for similar regulation to be developed in other countries.

We would also like to commend ARB for investing significant resources in advancing our knowledge on measuring lifecycle carbon intensity of various types of fuel. To date, some countries, like India, Philippines and Thailand, have proposed or put in place volume mandates for biofuels because of energy security and poverty alleviation reasons. However, the implications of these policies on climate change are often not well studied. The progress ARB has made in furthering our understanding of lifecycle GHG accounting will benefit countries around the world who are interested in or are in the process of developing their own fuel policies for addressing climate change and/or energy security concerns.

Below are our comments on key areas of the LCFS draft regulation.

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<sup>1</sup> ARB. 2008. Change Proposed Scoping Plan Appendices, Volume I: Supporting Documents and Measure Detail. California Air Resource Board. October.

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***Inclusion of indirect land use impacts in the LCFS is critical for discouraging production of potentially high-carbon fuels***

It is undeniable that the science, the data and the modeling of the indirect land use change (ILUC) impacts of biofuels are still developing. However, recent studies show that the indirect GHG emissions associated with biofuels produced from certain types of biomass could be significant.<sup>2</sup> Preliminary results from the ILUC analysis done by UC Berkeley researchers for supporting the LCFS rulemaking suggest that the ILUC impacts caused by corn ethanol production could range from 20 to 88 grams of CO<sub>2</sub> equivalent per megajoule (gCO<sub>2</sub>e/MJ), depending on assumptions on key input parameters.<sup>3</sup> These research findings suggest that indirect emissions from land use change are not zero. Considering that there is no effective policy or measure in place to effectively control global land conversion indirectly induced by biofuel production, a precautionary approach of including ILUC impacts in the lifecycle fuel carbon accounting is warrant to ensure that the LCFS would not promote investments on some types of biofuel that could potentially lead to high carbon emissions.

Recognizing that the science and data for estimating ILUC impacts are still evolving, we recommend ARB to examine the estimates of ILUC impacts every two years to ensure that the estimates reflect the latest state of science and take advantage of the most up-to-date data. In addition, we urge the Board to maintain an open and transparent process as it refines the ILUC estimates, so that interested third parties could review the methodology and validate and verify the modeling results.

***Energy efficiency adjustment is needed in the near term for enabling penetration of high efficiency advanced technology vehicles***

As discussed above, deep reductions in transportation GHG emissions demands a comprehensive set of policies—we not only need fuels with lower carbon intensity, but also vehicles with substantially higher efficiency, as well as better land use and transportation planning to enable more efficient movement of goods and people.

ARB's preliminary analysis suggests that the current average lifecycle carbon content of fuels for use in advanced technology vehicles, namely hydrogen and electricity, is higher than gasoline on an energy basis.<sup>4</sup> However, on a per mile basis (i.e., accounting for both the fuel carbon intensity and drivetrain efficiency), these fuels are expected to deliver net carbon reductions because hydrogen and electric drivetrain are more efficient than the drivetrain of internal combustion engines (ICEs). Under an LCFS that based on emissions per unit of energy, fuel providers might be less interested in providing electricity and hydrogen for transportation uses under the LCFS. Balancing the interests of promoting low-carbon fuels and the need for advancing high efficiency advanced technology vehicles, we support ARB's proposal of using the Energy Economy Ratio (EER) to account for the higher drivetrain efficiency of advanced technology vehicles. The use of EER is needed particularly in the near term to encourage development and supply of fuels for use in those vehicles so that fuel supply will be available when those vehicles successfully gain a foothold in the market. However, we recommend ARB should allow vehicle efficiency adjustment not just for hydrogen and electricity, but also for fuels that would be used in any emerging advanced vehicle technologies that are not yet commercially viable and are significantly more efficient than conventional ICE.

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<sup>2</sup> Searchinger, et. al. 2008. Use of U.S. croplands for biofuels increased greenhouse gases through land-use change. *Science Express*. Feb. 7; Plevin. R., A. Jones, and M. O'Hare. 2008. Uncertainty analysis of land-use change carbon releases, EEA Expert Meeting, Copenhagen.

<sup>3</sup> ARB. 2008. Supporting Documentation for the Draft Regulation for the California Low Carbon Fuel Standard. California Environmental Protection Agency, Air Resources Board. October. p. A-8.

<sup>4</sup> *Ibid*, p.12.

While we support including the EER in the draft regulation, we note that ARB should carefully consider the potential overlap of the LCFS and the AB32 programs with the proposal of allowing exporting of LCFS credits to other GHG programs. The problem of potential double crediting might be small initially when the penetration of advanced technology vehicles is low. But if those vehicles successfully gain acceptance in the market place, the potential double crediting problem would grow and could hurt the effectiveness of the LCFS and compromise the integrity of the AB32 program. We therefore urge ARB to set a threshold beyond which the use of the EER will be phased out. For instance, the threshold could be when an advanced vehicle technology becomes commercially viable so there would be no need for providing additional incentives to promote that technology and the fuel it uses.

***Ensuring lifecycle GHG accounting of fuels closely reflects the real carbon intensity is essential for incentivizing fuel decarbonization***

We welcome ARB's proposal of offering obligated parties a choice of using the standard lookup tables or customizing the lookup table values to determine the carbon content of fuels they produce if the proponents can meet the substantiality requirement and demonstrate the method for deriving the customized values is scientifically defensible. An effective LCFS should ensure that improvements and innovation throughout the fuel lifecycle for reducing carbon emissions are properly measured and rewarded. To do so, lifecycle GHG accounting should strive to move away from assumption-driven or industry-average estimates to measurement-based data. We understand that in the near term requiring regulated entities to provide measurement-based carbon intensity estimates for fuels they produced is not feasible. We believe that the option of allowing a regulated entity to supply customized lookup table values is a good way to solicit more detailed measurement-based data to more accurately measure GHG impacts of fuels. Overtime, this process would allow ARB to collect better data so as to improve accuracy of its carbon impact estimates of each phase of the fuel production process.

In addition to the alternative method for determining carbon intensity, we would like to support some other decisions the agency has made to continuously improve the accuracy of lifecycle GHG accounting. For instance, the proposed rule requires the lookup table values for the agricultural phase GHG emissions to be reviewed every three years based on the latest USDA data. The rule also set up the lookup table in a way that a regulated party who can offer more detailed information about its fuel production pathway can qualify for a lower carbon intensity number. This gives the incentives for fuel producers to track more carefully the source of feedstock and the production processes at each stage of the fuel lifecycle.

The ICCT strongly support ARB's leadership in developing the LCFS, and we appreciate the resources the Board has put into tackling the challenges in developing a practicable program. The LCFS is an important building block of climate policies that will not only help California, but potentially other countries around the world, to significantly reduce climate pollution from the transportation sector. We will look forward to assisting in any way we can as ARB moves forward with the rule development process for the LCFS.

Sincerely,

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