

April 17, 2009

Mary Nichols
Chairman
California Air Resources Board
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ORIGINAL:
Copies:

Board Clerk
Executive Officer
Chair

Dear Chairman Nichols,

The CARB decision relating to iLUC will have a major impact on the future of the transportation fuels industry in the US and on the economy of the nation. The intention of this letter is to explore common ground so we can get on with the business of enhancing the environment, optimizing land use and reversing the build-up of greenhouse gases generated both in California and the United States. Biomass can do the heavy lifting on all three fronts.

I come at this from the perspective of a warrior. For us, the good of the nation is paramount. The value of our lives is always subordinate to that good – profit taking or favoritism is not a consideration. I asked my fellow warriors to sign off on a letter challenging your position that will have an important impact on the national and energy security of our nation. I am obligated to follow through.

The major threat to our nation now is the economy – not other nations, or even terrorists. Biofuels are an important part of our recovery. As political agendas unfold, we could have less than 18 months (the next national election) to affect that recovery, or we could tumble into a politically driven vortex leading to our demise as a powerful nation. We haven't a day to lose. The now national struggle over the iLUC impact on the Full Fuel Cycle Carbon Footprint (FFCCF) of crop-based biofuels is slowing the sustainable advance of the biofuels industries by causing confusion in the marketplace, particularly in the financial markets.

I respect the importance of correctly dealing with the iLUC issue worldwide; however, there are much more important issues directly relating to climate change and biomass that demand immediate and priority attention. Furthermore, the iLUC, if correctly

implemented employing actions suggested in this material, will soon have favorable impacts on land use practices throughout the world.

Items Relating Directly to the iLUC Impacting CARB

1. Compounding the issue in CA, the federal RFS2 legislation establishes a 2005 baseline for determining the carbon footprint of crude oil and gasoline. It is, however, important in establishing the comparable footprint for renewable ethanol and gasoline, to consider the reality that the carbon footprint for gasoline, particularly when oil from shale is included in the mix, will steadily increase. On the other hand, the footprint of renewable ethanol can only decrease with increased crops yields, advanced farming practices, more energy efficient conversion processes, and a continuing reduction in fossil fuel use throughout the soil to tailpipe process. This highlights the difficulty in establishing the "right" carbon footprint for ethanol compared to gasoline at this time. The difficulty in the process should not be further compounded by unproven suppositions relating to the iLUC. Renewable ethanol deserves a "fair trail" in determining its future. That's what the public needs and expects.
2. Understandably, CARB is principally focusing on the FFCCF of ethanol compared to gasoline, including iLUC. But, it is important to recognize that ethanol routinely does not replace gasoline in finished E-10; rather it replaces reformat, about 65% of which is aromatics (benzene, toluene, and xylene). Benzene is a known carcinogen and toluene/xylene convert into benzene in the combustion process. Aromatics' contribution to air toxins, particulates and ozone formation is well known. I assume we do not know the FFCCF of aromatics versus gasoline; or whether the law differentiates gasoline with or without aromatics; or whether there would be a reduction in the FFCCF by:
 - Reducing aromatics in gasoline by including a higher blend level of ethanol with an octane number of 113.
 - Using higher blend levels of ethanol (in excess of 30%) to lower the vapor pressure of the blend thereby reducing evaporative emissions compared to E-10.
 - Raising the blend level of ethanol high enough to permit the inclusion of butane without increasing evaporative emissions. This could possibly not only lower the FFCCF of the blend, but reduce costs and increase the volume of transportation fuel from a barrel of oil.
 - Raising the blend level of ethanol high enough to justify an increase in the compression ratio in engines to boost power and range, as is being done in Brazil, thus saving fuel. This should significantly decrease the FFCCF of an optimized

ethanol, reformat/aromatics, butane blend in an engine optimized to accommodate this fuel.

May I suggest that existing science and modeling is far better equipped to determine the impact of these measures on the FFCCF of ethanol than it is to verifiably address the iLUC matter?

Furthermore, oil from Canadian tar sands is already moving into US commerce. It is an alternative fuel for the transportation sector, like renewable ethanol. Since both are emerging to replace declining crude oil production in the Northern Americas, including Mexico, it is more accurate to compare the FFCCF of ethanol to the FFCCF of reformates as well as the FFCCF of tar sands, with and without iLUC included in the calculus.

3. CARB is correct in stating that iLUC is not zero because science, modeling and reality are not sufficiently mature to make that determination today -- nor on conditions based on future developments. That being the case, how can CARB be comfortable with the maturity of science and modeling to come up with a number that could contribute to the demise of the ethanol industry in California?

I respect the commitment of CARB to be unbiased in their determinations in this area and your willingness to evaluate comments from all sectors of society. You must weigh the science and the rationale of proponents for a higher FFCCF for ethanol based on the iLUC as well as those seeking more accurate science and modeling before rendering your decision. This has turned into a campaign similar to the one raised over Proposition 87.

I respectfully ask that you look behind the science being presented and to the motivations of those offering recommendations. The same forces that prevailed in Proposition 87 have been joined by those who will benefit from lower corn prices if starch-based ethanol is set back and by those whose opinions are founded on the past performance of the starch-based ethanol industry without knowing of the many advances underway. For example, the media never reports the fact that at its peak in 1932, US corn acreage approached nearly 120 million acres, nearly all of which was used to feed draft animals (in other words, for fuel). This year, US farmers will plant approximately 84 million acres to corn (nearly a 50% reduction), and most of that corn will be used to feed livestock. Despite the critic's unfounded claims of sod-busting and other land degradation charges, it is clear that American farmers' productivity is more than keeping pace with demand for food, feed, fuel, and fiber.

4. Genetically modified organisms, GMOs, have progressed to the stage of development, coupled with advanced farming practices, making it unnecessary to expand corn production beyond lands already committed to that crop for the

production of ethanol. GMO advances will continue as long as there is a profitable market for corn. That cannot occur without a vital and expanding market for ethanol. Without the ethanol market, feed corn will flood the market to the disadvantage of the farmer, GMO advances and rural America.

Other Factors Impacting the CARB Decision

1. The final CARB decision will impact on all four of the Administrations' top priorities – energy, education, health and community involvement in solving the nation's problems – “ordinary people making extraordinary contributions.”
 - The **energy issue** is clear – there is an important role for starch-based ethanol and CARB should not be responsible for its demise based on immature and unproven science and modeling. Particularly, as mentioned in #3 above -- advanced land use management, improved farming practices, improved GMO seeds, biological fertilizers and greater biofuels production in the ethanol plants themselves will likely obviate the need for clearing of more land to meet established goals. A number of recent studies have concluded this will be the case. This would particularly be the case if cattle feeders would work more collaboratively with the ethanol industry (instead of attacking starch-based ethanol) to more efficiently use distillers grains and syrup from the ethanol plants to enrich silage and thereby reduce the need for corn in the cattle's ration. It should be noted that feed corn shipped overseas takes with it the nutrients in the corn that could remain as soil fertilizers if there were greater collaboration between feed yard operators and the ethanol industry. This collaboration in the use of distillers grains, syrup, silage and nutrient recovery would lead to surplus corn to make more ethanol while freeing land for other crops or additional CRP. Then there is the issue of hundreds of millions of acres of contaminated, misused and underutilized land in the US that must be brought back into productivity. There is no reason why the US cannot meet legally established goals for biofuels without imports or using a single acre of land outside the United States. And do so while meeting world markets for grains. **These factors will make significant reductions in FFCCFs of American agriculture.**
 - The **health issue** relates to carcinogens, air toxins and particulates in the air that will be alleviated to some degree by ethanol, depending on blend levels. The oil companies handicapped the health of children with lead for more than half a century; they are doing the same with aromatics.
 - **Educating and motivating** the public on issues of energy and health must be accurate and based on sound science. Should the public make decisions on arguments by opponents of crop-based ethanol, or should we present them with the best available and confirmed science? We will not be able to mobilize the public in common cause if they do not trust their governments. A CARB decision,

based on uncertainties, exploited by the propagandists, and proven at some point not to be well founded, will lead to the weakening of public confidence and motivation to actively engage in the work of the nation.

A Sound CARB Decision Will Set the Stage for Major Advances in the Biofuels Industries

2. Of great importance is the need to address the ethanol issue in a more holistically and integrated manner. Brazil provides a good model and the relatively sound status of their economy warrants exploration. The blend issue, involving aromatics/reformates, ethanol and butane, has already been mentioned. Other factors to be considered:
 - The use of CAFE to encourage the production of FFVs and its impacts on fuel use should be ended, and all US automakers should be required to produce mostly FFVs. There is little or no difference between legacy vehicles and FFVs as shown in the parts manual. Or, if the differences are significant, corrective costs are less than more elegant cup holders, usually less than \$100.
 - Determinations should be made on the FFCCF footprint of ethanol blends higher than warranted by its octane advantage in existing engines. Above that level, there is the penalty of declining energy in the fuel leading to reduced mileage and higher operating costs than an optimized blend for engines with today's compression ratios. In areas in the nation where there are blender pumps, consumers have a choice of blend levels. Routinely they prefer E-30 and E-40 because of performance and mileage. That is likely the level where the advantage of octane and the disadvantage of energy loss in the blended fuel intersect. E-10 and E-85 are much less attractive. Shouldn't this fuel savings with lessened evaporative emissions, because of 30%, plus blend levels be evaluated in terms of its FFCCF? It could be surmised that if California had put as much time, talent and resources into this issue leading to higher compression ratio engines and higher blends (Brazil as the example) as the state is putting into the ILUC, it is probable that benefits in terms of CO2 reductions, lower toxic emissions, fuel and money saved, and an advanced biofuel industry, would be impressive.
 - Current FFV engines have compression ratios accommodating gasoline, and do not take advantage of the much higher octane of ethanol. Again, Brazil has solved this deficiency.
 - There is a serious shortage of blender pumps and delays due to a lack of cooperation between the oil, auto and ethanol industries, the UL and state regulators. Widespread installation of blender pumps will offer the full range of choice to consumers, from E0 to E100.

- The blender pumps can also offer an ethanol-free fuel for boaters and small engine users concerned about the impact of ethanol when engines remain idle for long periods of time. Additives and higher ethanol blend levels may obviate this concern, but that remains to be seen.
 - Dealing with the "blender wall" by increasing blend levels to E-12, E-13 and beyond is vital. Parts manuals, field experience, major market survey data, and testing suggest higher blend levels should not be a problem.
3. Can the nation and the economy afford using valuable time and resources on a supposition that awaits honest scientific investigation? Or, on a supposition that penalizes home-grown solutions while favoring imported oil and finished gasoline thereby transferring American dollars into foreign coffers? Or, on a supposition that neglects the land-use implications of oil spill, like Valdez that pathetically weakened fish and wildlife productivity on tens of thousands of acres of water and land interface – and is still doing so? Did CARB include the carbon footprint of that continuing scar on natural systems, and other more current oil spills in your calculations of the FFCCF caused by our imported oil dependency? How many other externalities have we set aside to ensure the flow of imported oil to meet our needs while discrediting the role of biofuels?
 4. We must rely on top flight science and modeling at the outset. The crop-based ethanol industry must live by the truth, if they come up short in the final calculations that is the way it should be. But that truth should not be pre-ordained by a process launched by a non-scientist committed to the demise of the ethanol industry, using power-point presentations showing that Africa would go from green with vegetation to brown with desertification by 2050 as a result of crop based biofuels – just how many people have been alarmed by those slides, and who paid to show this presentation across the land? Further compounding the problem is an EPA Notice of Proposed Rule Making, now at OMB, that will give this issue even greater notoriety, particularly if the CARB report on ILUC determining the comparative FFCCF of ethanol and gasoline has ethanol coming up short on the FEF2 requirements. It can be argued that the truth will prevail during the EPA required comment period. But it is likely that this will boil down to "your science," already recognized by CARB and EPA, and "our science" struggling against a negative finding, albeit ever so tenuous, in the public record. Particularly if the well-heeled ethanol opponents continue their propaganda campaigns.
 5. The CARB/EPA methodologies to determine sustainability and FFCCF of a particular energy producing technology represents a paradigm shift warranting a high level of scientific certainty before being incorporated as a regulatory instrument. Particularly when that specific technology (crop-based ethanol) is being challenged by powerful associations and groups. Matters of such

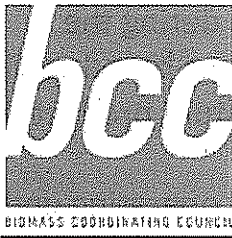
importance, with a high level of national and international interest, deserve the application of the best available science to ensure the sustainability of biomass worldwide while aggressively striving to reverse the build up of greenhouse gases. It is therefore recommended that the State of California join with US government and European Union scientists to address the issue of iLUC in a timely and professional manner. I have personally discussed the issue with German Parliamentarian Herman Scheer, who is a world leader in renewable energy. He agreed to assist in speedily forming this international assemblage of scientists to comprehensively address the iLUC matter. This will not only more effectively resolve the issue; it will bring new dimensions to the generation of actions needed to correct the land use problems generated by poor biofuels practices.

6. It is requested that CARB consider three other factors:
 - a. The importance of New Wealth Industries to California and America— (Attachment A)
 - b. The feasibility of pursuing major opportunities to put hundreds of millions of acres of lands and forests suffering from contamination, misuse or under-use or are under railroad, power line, highway and road rights of way, to productive use for the benefit of society in general, and to the betterment of wildlife, nature preserves, watersheds, wetlands and riparian buffers; and
 - c. The need to aggressively pursue the employment of selected non-threatening prisoners and youth, working under the supervision of selected foresters, fish and wildlife, soil and water experts, and being managed by selected veterans with demonstrated leadership abilities following the model of the Civilian Conservation Corps that was so successful in restoring the health of the forest and the workers before WWII.

You can be assured, with complete confidence, that these and the other measures suggested above, taken in concert, will be much more effective in reversing the build up of greenhouse gases than the speculative iLUC at this stage of its development.

Very Respectfully Yours,

Bill Holmberg
Chair, Biomass Coordinating Council
American Council On Renewable Energy



It's Time for America to Shift to 21st Century NEW WEALTH INDUSTRIES – The timely transition from Fossil-Based to Renewable New Wealth Industries

In these troubling times, it is critical to recognize the irreplaceable value of “New Wealth Industries” (NWI). NWI are based on natural resources -- both those depleteable (from mining, such oil, gas, coal, minerals, metals); and, more importantly, those that are sustainable if properly cared for – agriculture, aquaculture, silvaculture (forestry), all renewable technologies – biomass (biofuels, biopower and biothermal energy), solar, wind, geothermal, hydro, and water power, and renewable hydrogen, recycling/reuse, **Energy Efficiency**; and, human creativity. While the energy industries based on mining are still commanding, they must be gradually phased out and replaced by renewables.

21st Century New Wealth Industries, less dependent on fossil imports and more reliant on sustainable, domestic resources, are vital to the reconstruction of America given their economic multipliers (generally more than three, whereas service industries are typically limited to one). These NWI produce new commodities in a sustainable manner, whereas service industries do not actually produce goods from natural resources, with the exception of human creativity which adds its own unique value. Renewable, NWI are an investment for the future, they create new industries and quality jobs. They have ready markets – many are “shovel ready”, and encourage “positive nation - and community - oriented” consumption while contributing to national, energy, homeland, economic and environmental security. These industries also combat the effects of greenhouse gas emissions, an international priority.

The importance of NWI was recognized by President Lincoln when building the transcontinental railroad with rails manufactured in the US, and by President Roosevelt during WWII who led the nation in harnessing and rationing

America's natural resources to defeat the Axis. Neglect set in during the Truman Administration when the concept of parity -- crop prices based on the cost of production and a fair profit for the full range of agriculture products --

was set aside. This was one of America's most important NWI operating under a relatively simple process. It became less visibly important as US oil production dominated the world and agriculture became increasingly dependent of fossil inputs and a complex array of government supported programs. This shifted the agriculture NWI from family to corporate farms -- capital, mechanization, and chemical intensive farming with major productivity advantages. But, it left behind important human, natural and environmental benefits, which are now being recaptured with fairness, sensitivity and dignity. This must be the way of the future.

This movement, and a growing sense of stewardship, is an essential part of the rebirth of the NWI relating to biomass industries. This is because sensitivities to natural processes and advanced technologies will outperform the less environmentally sensitive advances of yesterday. That is why the agriculture/biomass NWI power of the United States is so important to the world. There are lessons to be learned from other countries, but the US remains the leading agriculture nation in the world.

America built a great nation with NWI when we took full advantage of optimized economic multipliers -- mine, harvest/catch, and convert these natural resources into products to meet domestic and international markets.

Following WWII, we hit our pace to greatness. The first warning came in 1974 with the first oil crises, and our steady need for imported oil rose to the point where we are now 70% dependent on imports. Additionally, our manufacturers started their shift to overseas operations. More resources and money went into services industries, and the purchase of life and pleasure enhancing products without adequate attention to schools, infrastructure and rational health care systems.

In our haste to recover economically, we are wisely using stimulus dollars to support important service industries, bankers, police, fire fighters, teachers, and public servants, marketers of goods and services to stimulate

consumption. It is also critically important to direct adequate stimulus funds towards generating new wealth. As valuable as these service professions are, they are, in fact, dependent on new wealth industries for their long-term

sustainability. We will only continue to be able to borrow as long as there is adequate assurance of debt repayment.

That is not possible without a serious commitment to 21st Century Sustainable New-Wealth industries.

Biofuels, biopower and biothermal energy play critical roles in our future. They will succeed because they are products of American agriculture and silvaculture industries with significant support from aquaculture, hunting and open stream fishing, all the renewable energy technologies, recycling/reuse, energy efficiency, and human creativity. These industries are driving forces that also demand a nation-wide focus on health, education, creativity, and community involvement.

The low hanging fruit -- energy efficiency (weatherization of low-income housing, schools, public buildings, etc) should be our first order of business, followed by the advancement of all renewable energy industries -- the NWI of the future.

For more information on NWI email biorefiner@aol.com

