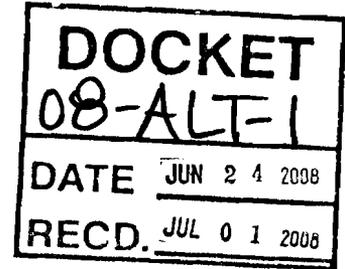


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re; Low Carbon Fuel Standard

This paper is a recommendation to the Governor, the State Legislature, CARB and the CEC regarding the **Low Carbon Fuel Standard** and the pending inclusion of corn ethanol as part of the plan. Because of large negative impacts to the economy in the area of food price inflation and a probable lack of green house gas reductions when all land use issues are considered, it is the Association of Irrigated Resident's strong recommendation that corn ethanol not be included as part of the LCFS. This discussion may be of particular interest to those involved in current efforts to codify further the LCFS in the State Legislature.

Members of the Association of Irrigated Residents live in Stanislaus, Fresno, Kings, Tulare, and Kern Counties. AIR members are being directly affected by proposed corn ethanol plants. Local air pollution will increase and scarce resources such as fresh water will decrease for them as a result of these plants being built. Some members live or work within a mile of at least three of these proposed plants in the San Joaquin Valley. If air quality and water availability are going to change for low-income residents in the SJV as a result of these corn ethanol plants then it requires, even more strongly, that every part of the life-cycle, environmental and economic analysis be done carefully and thoroughly.

Food grain based ethanol has many issues that need to be clarified and considered before California makes its final guidelines and rules for the Low Carbon Fuel Standard. Some of the outstanding issues are in the full-cycle energy analysis where a positive energy balance is obtained only when certain energy inputs are either underestimated or not included such as the input values assumed for farm machinery, irrigation, and farm labor. Also, energy values assigned to the distillers grains byproducts are most likely being overestimated. Most people currently agree the carefully manipulated positive energy balance is embarrassingly small to the ethanol industry and of little value in reducing GHG emissions and saving people money.

Because the energy ratio is so small, we see proponents of the corn to ethanol process proclaiming higher corn yields and higher refinery efficiency to justify more investment and a continuation of subsidies. They don't mention, and it is not built into the analysis, that higher corn yields need higher inputs of water and fertilizer negating most of the energy gained. Also, there is a failure in the models to account for the negative side of more efficient processing of the corn. Modern refinery design can take more energy out of the grain but leaves less in the byproduct, resulting in a highly questionable feed value and less replacement value for other feed stuffs.

We also have the strong indications in recent studies of actual increases in green house gases from grain based ethanol and other food-based biofuels when land use changes are taken into account.

Here is a quote from Searchinger, et. al., in a recent Science Magazine publication:

Using a worldwide agricultural model to estimate emissions from land use change, we found that corn-based ethanol, instead of producing a 20% savings, nearly doubles greenhouse emissions over 30 years and increases greenhouse gasses for 167 years. Biofuels from switchgrass, if grown on U.S. corn lands, increase emissions by 50%. This result raises concerns about large biofuel mandates and highlights the value of using waste products.¹

Another researcher, Fargione, puts it this way:

Converting rainforests, peatlands, savannas, or grasslands to produce food-based biofuels in Brazil, Southeast Asia, and the United States creates a 'biofuel carbon debt' by releasing 17 to 420 times more CO₂ than the annual greenhouse gas (GHG) reductions these biofuels provide by displacing fossil fuels.²

Leaving the above arguments aside, as most of them are being thoroughly discussed elsewhere, the rest of this discussion will center on the economic issues of food for fuel that must be examined and included in the final analysis. These economic issues have significant social and real environmental justice implications as they affect low income people more than others. There are many economic issues that need to be considered such as the question of subsidies and tariffs and the rising price of commodities such as cereal grains and soy beans due, in part, to increased biofuel production. Specifically, the discussion that follows is about the current crisis of food inflation and how it relates to recent and continuing increases in production of fuel from food.

At the recent UN Summit on Food Security, during the first week of June, 2008, the U.S. came under heavy criticism for its biofuel program. The loudest criticisms leading into the summit were directed at wealthy nations such as the United States which are turning massive quantities of food into fuel in the face of growing world food shortages, rising prices of basic grains and increases in starvation.

The summit's host Jacques Diouf, director general of the FAO, attacked western policies, targeting the US in particular. "Nobody understands how 11 to 12 billion dollar a year subsidies in 2006 and protective tariff policies have had the effect of diverting 100m

tonnes of cereals from human consumption, mostly to satisfy a thirst for fuel for vehicles," Diouf said.³

An April 21, 2008 editorial in the Washington Post by Lester Brown points out many of the detrimental effects of turning food into fuel. Here is part of his conclusion:

Turning one-fourth of our corn into fuel is affecting global food prices. U.S. food prices are rising at twice the rate of inflation, hitting the pocketbooks of lower-income Americans and people living on fixed incomes. Globally, the United Nations and other relief organizations are facing gaping shortfalls as the cost of food outpaces their ability to provide aid for the 800 million people who lack food security. Deadly food riots have broken out in dozens of nations in the past few months, most recently in Haiti and Egypt. World Bank President Robert Zoellick warns of a global food emergency. The immediate necessary step is a major increase in global food aid. But beyond that, America must stop contributing to food price inflation through mandates that force us to use food to feed our cars instead of to feed people.⁴

Is Brown correct about U.S. food prices and the relation to current biofuel practices? Notice that he does not claim the increase in biofuel production is the only reason that food prices are rising. His critics, like U.S. Agricultural Secretary Ed Schafer, say corn ethanol has not had near the effect on rising commodity prices when compared to rising energy costs. Sometimes, proponents like Schafer go even farther to say more corn ethanol is actually or potentially a benefit to the world's food markets. Schafer's convoluted argument goes approximately like this:

Since energy costs are the biggest driver of food inflation and making ethanol from corn is actually lowering energy costs, it follows that increased corn ethanol production, even in a time of food scarcity, will actually lower food costs.⁵

Schafer admits his argument above is counterintuitive. He really turned up the propaganda machine during the Food Security Summit to downplay the role of biofuel production on food prices. It helped his cause during the week of meetings to have the focus of the press disrupted by the attendance of controversial leaders Mugabe and Ahmadinejad.

In the end, a non-controversial declaration was released by the summit attendees making no mention of biofuels whatsoever except to say in the introduction,

We are here to address the challenges of bioenergy and climate change, and the current situation of soaring food prices ...⁶

The statement went on to talk about the need for more food production in developing countries and did not mention biofuels again. It was a real diplomatic coup for the USDA, the Bush administration, and the proponents of more corn ethanol.

The International Monetary Fund is also contributing to the discussion on food inflation with statements like the following:

Biofuel production is seriously affecting food markets—20–50 percent of feedstocks, especially corn and rapeseed, in major producing countries are being diverted from food to biofuels—but not affecting petroleum product markets, in which biofuels constitute less than 1½ percent of transportation fuel supply. This is creating a price asymmetry—which means that the prices of petroleum products are determining retail prices of biofuels, and growth of biofuels, in turn, is strongly affecting feedstock prices (ethanol, in particular, is produced from corn and sugar).⁷

The following excerpt is from an article which appeared on the Econbrowser web page May 19, 2008.

The Bush administration is disputing the International Monetary Fund's claim that increased production of biofuels is the biggest factor in rising food prices.

The IMF estimates that the shift of crops out of the food supply to produce biofuels accounts for almost half of the recent increases in the global food prices. Rising food prices have made hunger problems in developing countries even more critical of late.

But the administration's chairman of the Council of Economic Advisers, Edward Lazear, says that biofuel production has played a small part.

The United States has mandated increased production of ethanol from corn to reduce oil consumption.

Lazear told a congressional hearing Wednesday that ethanol production accounts for only about 1.2 percent of increases in food prices over the last year.⁸

The Grocery Manufacturers Association made the following statements regarding biofuels in light of the 2007 Congressional mandate for increased ethanol production.

Biofuels and ethanol policy goals should be pursued thoughtfully and deliberately, taking into account possible unintended consequences resulting from an overzealous pursuit of well-intentioned public policy objectives. An overambitious increase in the use of ethanol, including current and proposed mandates, will likely result in higher food prices domestically and across the globe, a decrease in corn exports, increased use of marginal lands, more environmental degradation, higher ozone levels and public health risks, increased world hunger, and a \$50 billion cost to U.S. taxpayers. "We support the development of new biofuel technology with a focus on cellulosic ethanol and bio-diesel research, development and rapid deployment. GMA also supports expiration of the ethanol tariff, as well as expiration of the bio-diesel and ethanol tax credits.

We ask the Administration and/or Congress to undertake a comprehensive report that evaluates the full impact - including any and all potential unintended consequences -- of expanding the use of biofuels.⁹

Researchers, like Alexander and Hurt from Purdue University, have pointed out the extent that recent rises in commodity prices have on the retail inflation rate of food and beverage in the U.S.

The primary impact of biofuels on food inflation is from increases in the farm prices of commodities that contribute to producing our food supply, like corn, soybean meal, soybean oil, wheat, barley, and oats. Farm prices are largely determined by supply and

demand. In the initial years of the biofuels era, demand for corn and soybean oil increased sharply. Increased demand results in higher prices for corn and soybeans. Higher corn and soybean prices in turn provide greater incentives for farmers to increase acreage, especially corn acreage. As more acres are converted to the production of corn fewer acres are available for other crops that compete for the same land. Thus, greater demand for energy crops also results in increasing prices for other crops that must compete for the same land. Consumer food prices can eventually be expected to rise as these higher crop prices are passed through the food system...

...How much additional food inflation is due to the current higher farm level prices? Our estimate is that the added retail food inflation is an additional 1.2% to 1.8% above what food inflation would be without current higher farm prices.¹⁰

University of Nebraska researcher, Richard Perrin, gives his analysis of the role of biofuels in food price inflation with the following summary from the abstract:

This paper (Ethanol and Food Prices - Preliminary Assessment) focuses on the likely relationship between ethanol and food prices, ignoring the potential role of other important contributors. It finds that ethanol is responsible for no more than 30-40% of the grain price increases of the last 18 months. Food prices in the US increased about 16% over the last five years, 7% over the past 18 months, but rising grain prices have contributed only about a 3% cost increase over these periods. It is reasonable to conclude that ethanol is responsible for increases in US food prices about 1% in the last two years – a relatively small proportion of actual of U.S. food price increases. In food-insecure areas of the world, however, the impact of ethanol on food prices has been higher, perhaps as much as a 15% increase, simply because the typical food basket in those areas contains more direct grain consumption.¹¹

With all of these differing statements on food inflation which conclusions can be agreed to by everyone? It should, at least, be safe to assume the result of converting one fourth of our corn crop to ethanol production has had a minimal effect on food inflation in the range of one percent for each of the past two years and continuing at that rate or higher in 2008. One percent does not sound very significant. What does it mean for the American consumer?

The USDA Economic Research Service gives United States 2006 consumer price data expenditures of over 1.3 trillion dollars for food and beverage.¹² As noted above, a conservative assumption, in reference to the different viewpoints, could be a one percent yearly inflation rate on food and beverage from recent corn ethanol production increases. It follows that this increased conversion from food production to fuel is indirectly causing ten billion dollars per year increased food costs to the American consumer. This is not insignificant in that total ethanol production in the US was only 7 billion gallons in 2007. This ten billion dollar increase in food costs would imply a minimum indirect subsidy of over \$1 per gallon in support of current corn ethanol production.

This inflationary effect of biofuel production seems to be increasing in 2008 with up to a third of US corn production slated to be channeled into ethanol production. Where it is probable that over 2006 and 2007 corn ethanol caused food inflation has added at least one dollar to the cost of every gallon of ethanol, it is likely that another dollar will be

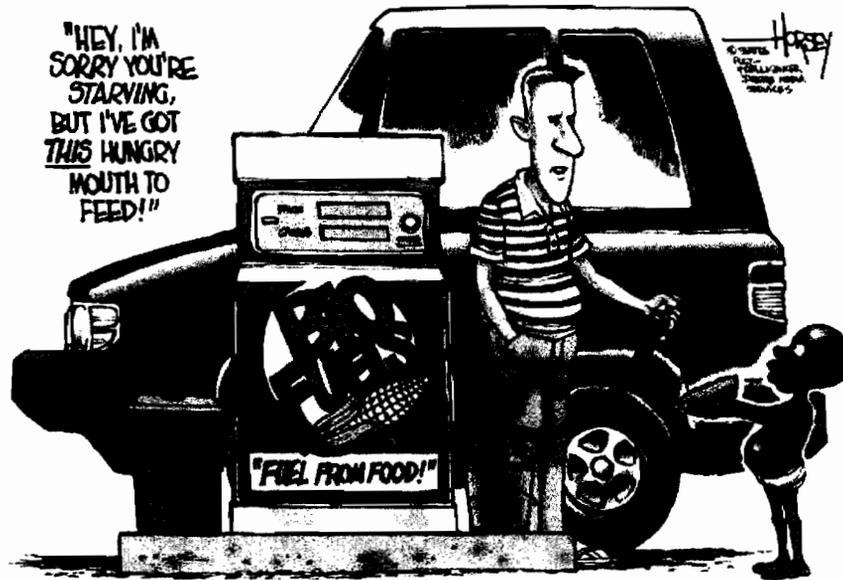
added in 2008 and the corresponding increase in ethanol production mandated by Congress. Will food prices go back down? Probably not since there is no longer a surplus of corn used to mitigate price changes in the past. If prices stay high it is reasonable to assume we are soon to be paying around \$1 and \$2 annually out of our nation's food budget for every gallon of ethanol produced, even if we reach the theoretical mandate of 15 billion gallons per year.

In other words, besides government mandated subsidies supporting corn ethanol we also have the American consumer contributing significantly to the effort through an increase in their food budget. Of course, food price increases hit low income people the hardest. This is a serious environmental justice issue that needs to be addressed.

Another huge issue is the effect our corn ethanol production may be having on the rest of the world. Evidence of huge dietary problems in the third world and food riots because of escalating prices are not just anecdotal. The International Food Policy Research Institute (IFPRI) has lots of pertinent information.¹³ IFPRI research may be summarized with the following points:

- The world is currently producing about 2 billion tons of cereal grains yearly.
- Many of these grains have more than doubled the past few years due to many reasons.
- More than 30% of the price increases in cereal grains is due to increased biofuel production worldwide but mostly in Europe, the United States, and Brazil.
- Using an average price for cereal grains of \$120 per ton in 2005, a \$36 per ton increase in price is due to increased biofuel production.
- The total amount of world-wide cereal grain price inflation due to biofuel production increases in just the last year is well over 70 billion dollars.
- With total biofuel production currently at 18 billion gallons per year, the world has subsidized the past year's production of biofuels at around \$5 per gallon with the higher grain prices.
- Unless these grain prices decrease to prior levels this subsidy continues annually.

The negative effects of food inflation from increased biofuel production are especially pertinent in poorer nations where the food eaten is much less processed and more sensitive to commodity price rises and a far higher proportion of the family budget is spent on food. If the rest of the world is paying higher prices for food because of our corn ethanol mandates then it amounts to billions more dollars in indirect subsidy to our fuel needs. The cartoon below says it pretty clearly:¹⁴



We already have at least a \$1 per gallon subsidy built into the nation's corn ethanol program in taxpayer subsidies and tariffs. Indirect food inflation costs of another two dollars per gallon for American consumers are outrageous and immoral. This is not a price California should be asking its citizens to pay in order to support current proposals to use corn based ethanol as even a small fraction of the Low Carbon Fuel Standard. Neither can it be justified to ask or cause, as a country, the rest of the world to pay several dollars more in basic food costs for each gallon of ethanol we currently produce and consume.

In conclusion, it is strongly requested that the Governor, the Legislature, CARB and the CEC make immediate statements to the public that corn based ethanol can have no part in the LCFS of the State of California. They should also recommend that all subsidies, loans, grants, tariffs, etc. used to support corn based ethanol projects and increased production in California be immediately suspended. California needs to take the lead on ending these negative economic and quality of life impacts of a well-meaning but ultimately futile attempt to grow food for fuel.

¹ <http://www.sciencexpress.org/7February2008/Page1/10.1126/science.1151861>

² <http://www.sciencexpress.org/7February2008/Page1/10.1126/science.1152747>

³ <http://www.guardian.co.uk/environment/2008/jun/04/biofuels.food>

⁴ <http://www.washingtonpost.com/wp-dyn/content/article/2008/04/21/AR2008042102555.html>

⁵ <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=avNeZ4JHaUXo>

⁶ http://www.fao.org/fileadmin/user_upload/foodclimate/HLCdocs/declaration-E.pdf

⁷ <http://www.imf.org/external/pubs/ft/fandd/2008/03/helbling.htm>

⁸ http://www.econbrowser.com/archives/2008/05/reconciling_est.html

⁹ <http://www.gmabrand.com/news/docs/NewsRelease.cfm?DocID=1726>

¹⁰ <http://www.ces.purdue.edu/extmedia/ID/ID-346-W.pdf>

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- ¹¹ <http://digitalcommons.unl.edu/ageconfacpub/49/>
¹² <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/table1.htm>
¹³ <http://www.ifpri.org/themes/bioenergy/bioenergy.asp>
¹⁴ <http://seattlepi.nwsourc.com/horsey/viewbydate.asp?id=1754>