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Low Carbon Fuel Standards: Recipes for Higher Gasoline Prices and Greater Reliance on Middle Eastern Oil

Last December, California released a draft low carbon fuel standard (LCFS) which calls for a 10.5 percent reduction in the carbon intensity of gasoline and a 10 percent reduction for diesel.[1] Following California's lead, representatives of 11 Northeastern states recently signed an agreement to pursue a region-wide low-carbon fuel standard.[2]

The proponents of LCFS claim the plan's goal is to reduce emissions from motor vehicles and home-heating fuels. But as this analysis shows, an LCFS is another tax on transportation. An LCFS increases the price of gasoline and home heating oil, leads to more oil imports from the Middle East, and penalizes oil imports from our largest trading partner and biggest oil supplier—Canada.

What is a Low Carbon Fuel Standard?

For all practical purposes, LCFS is a new tax on gasoline and heating oil. It is new regulation which requires the reduction of carbon dioxide emissions associated with the production (including land use changes), manufacture, transportation and combustion of transportation fuels.

According to the letter of intent signed by 11 states[3] (Connecticut, Delaware, Maine, Maryland, Massachusetts, New York, New Hampshire, New Jersey, Pennsylvania, Rhode Island and Vermont) participating in the Northeastern LCFS scheme, an LCFS is a "market-based, technologically neutral policy to address the carbon content of fuels by requiring reductions in the average lifecycle GHG [greenhouse gas] emissions per unit of useful energy."

Despite the assertions of LCFS proponents, an LCFS is not market-based— it's a classic top-down regulation. It is not entirely technology neutral—in practice it obviously penalizes certain fuel-producing technologies. More importantly, it does not address the difficultly and possibly impracticality of accurately calculating "lifecycle GHG emissions."

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Seven Reasons Why LCFS Schemes are Flawed:

1. **LCFS are based on the *Field of Dreams* principle—if you mandate it, it will come. LCFS are expensive, harmful to consumers, and diverts resources away from more productive investments.** Breakthroughs in technology occur in the marketplace, not in government committee rooms. Policymakers are free to set standards and goals—such as 10 percent less carbon intensity or a manned missions to Mars—but that does not mean the technology to economically achieve those goal will immediately follow. For example, a couple of years ago, many people thought we could economically have low carbon fuels by merely increasing the biofuel content of gasoline. The majority of the science, however, does not support this belief (see bullet point 4 below).

2. **Biofuel production increases the price of food and makes life more difficult for the world's poor.** Biofuels are "a crime against humanity" in the words of Jean Ziegler, the UN special rapporteur on the right to food.[4] Biofuel takes land that has been used for food crops and replaces the food crops with fuel crops. This unnecessarily takes food out of the mouths of the world's poor. Increased ethanol production has helped increase food prices and has led to great hardships around the world including food riots.[5] Next-generation biofuels are supposed to somewhat relieve this problem by using non-food crops, such as switchgrass or miscanthus, to produce biofuel, but these crops will still compete for arable land and agricultural resources.

3. **A nationwide LCFS would dramatically increase the price of gasoline**. CRA International found that an LCFS of 8 percent by 2015 would cause motor fuel prices to increase by 140 percent in 2015.[6] An LCFS would reduce motor fuel supplies or cause fuel producers to purchase carbon dioxide offsets.

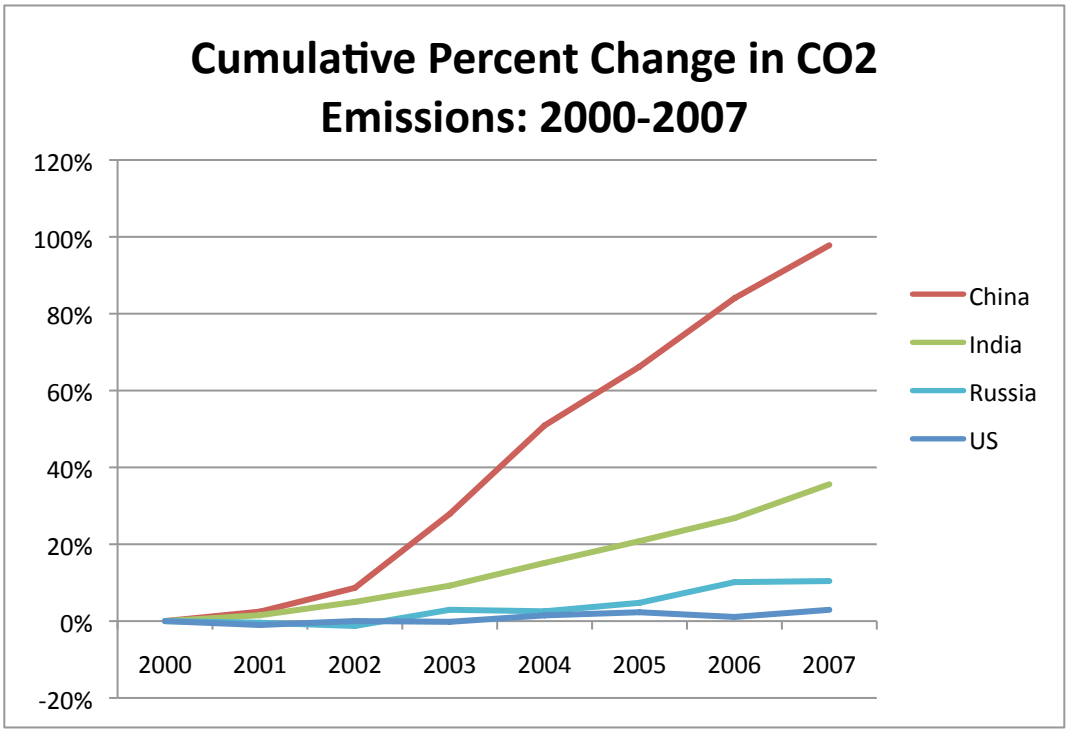
4. **Many biofuels emit more greenhouse gases than gasoline.** According to a recent study published in *Science*[7] from the Nature Conservancy and the University of Minnesota, many biofuels emit more greenhouse gases than gasoline. The study's authors stated that many biofuels produce "17 to 420 times more carbon dioxide than the fossil fuels they replace." Other research has come to similar conclusions. The Energy and Resources Group at the University of Berkeley found that "if indirect emissions [resulting from the production of ethanol] are applied to the ethanol that is already in California's gasoline, the carbon intensity of California's gasoline increases by 3% to 33%."[8] Corn-based ethanol production not only emits more greenhouse gases than gasoline, but it may also be worse for air quality.[9]

5. **An LCFS discriminates against oil production from oil sands in Canada and favors oil from the Middle East.** The U.S. gets more oil from Canada

than any other foreign country.[10] Much of Canada's oil production comes from oil sands. The production of oil from oil sands requires more energy (and carbon dioxide emissions) to produce than production of crude in the Middle East. As a result, an LCFS favors oil from the Middle East and penalizes our friends to the North.

6. **An LCFS discriminates against coal-to-liquids technology and oil shale technologies.** The United States has vast reserves of coal and oil shale. These sources are not yet economically competitive with other sources of oil, but if prices where to return to last summer's highs, these technologies would be cost-competitive. One possible source of fuel is coal-to-liquids technology. The U.S. has the world's largest reserves of coal.[11] At current usage rates, we have 200-250 years of demonstrated coal reserves.[12] Coal-to-liquids could give the U.S. much larger reserves of petroleum fuels. The U.S. also has massive reserves of oil locked in oil shale—at least 800 billion recoverable barrels of oil.[13] This is nearly three times as much oil as Saudi Arabia has in reserves. Because we would need more energy to recover these energy sources than it takes to produce light crude, an LCFS discriminates against these domestic resources.

7. **If the United States implemented and somehow complied with a nationwide LCFS of 10.5 percent today, the American reduction in emissions would be offset by emissions increases from the rest of the world in less than 80 days.[14]** Global warming is a global issue. What matters are not just emissions from the United States, but emissions worldwide. Unilateral changes by the United States alone will not have much of an impact, especially when we are talking about very small reductions in one sector. Because developing countries are dramatically increasing their carbon dioxide emissions, the U.S. will emit a smaller and smaller share of the world's total greenhouse gas emissions.[15] According to data from the Global Carbon Project, from 2000 through 2007, global total greenhouse gas emissions increased 26 percent. During that same period, China's carbon dioxide emissions increased 98 percent, India's increased 36 percent and Russia's increased 10 percent, while the U.S. increase was a mere 3 percent.[16] Because of these increases from developing countries, unilateral actions by the U.S., such as implementation of a nationwide LCFS, will have little to no effect on the global climate. Actions taken by California, or 11 Northeastern states will have even less impact.



Conclusion: An LCFS is Another Tax on Transportation

An LCFS, either nationwide or at the state level, would damage economy without having an impact global temperatures. The technology to implement an LCFS does not currently exist. If an LCFS resulted in increased biofuel use, it would be very harmful to the world's poor. Finally, for those worried about energy security, an LCFS would favor Middle Eastern oil over Canadian and domestic fuels.

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[1] California Air Resources Board, *The California Low Carbon Fuel Standard Regulation*, Dec. 2008, http://www.arb.ca.gov/fuels/lcfs/1208lcfsreg_draft.pdf.

[2] *See* Lisa Capone, *11 States Agree to Work Together to Reduce Greenhouse Gas Emissions from Vehicle Fuels*, Jan. 5, 2009, http://www.mass.gov/?pageID=eoeeapressrelease&L=1&L0=Home&sid=Eoeea&b=pressrelease&f=090105_pr_lcfs&csid=Eoeea.

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[4] Grant Ferrett, *Biofuels 'crime against humanity*, BBC News, Oct. 27. 2007, http://news.bbc.co.uk/2/hi/americas/7065061.stm.

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[6] CRA International, *Economic Analysis of the Lieberman-Warner Climate Security Act of 2007 Using CRA's MRN-NEEM Model* (Apr. 8, 2008) p. 29, cited in Larry Parker & Brent Yacobucci, *CRS Report for Congress: Climate Change: Costs and Benefits of S. 2191*, (Mar. 15, 2008) p. CRS-56.
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[11] Energy Information Administration, *Coal Reserves*, Feb. 2008, http://www.eia.doe.gov/neic/infosheets/coalreserves.html.
[12] Energy Information Administration, *Coal—A Fossil Fuel*, July 2008, http://www.eia.doe.gov/kids/energyfacts/sources/non-renewable/coal.html.
[13] Task Force of Strategic Unconventional Fuels, *Development of America's Strategic Unconventional Fuel Resources* p. 5, Sept. 2006, http://www.fossil.energy.gov/programs/reserves/npr/publications/sec369h_report_epact.pdf.
[14] Calculated using the emissions data from the Global Carbon Project. According to EPA, the GHG emissions from the transportation sector total 28 percent of total U.S. emissions in 2006. Environmental Protection Agency, *Regulating Greenhouse Gas Emissions Under the Clean Air Act; Proposed Rule*, 73 Fed. Reg. 44354, 44403 (July, 30, 2008). Twenty-eight percent of the U.S.'s 2006 carbon dioxide emissions are 436,141 GgC. A nationwide LCFS for the entire transportation sector, if it followed California's example, would reduce transportation emissions by 10.5 percent, or 45,795 GgC per year. From 2006 to 2007, the world's carbon dioxide emissions (excluding the United States) increased by 213,436 GgC. At this rate of change, the 10.5percent LCFS-forced reduction in U.S. transportation emissions would be replaced in 78.3 days.
[15] According to the Global Carbon project in 2007, China emitted 21 percent of the world's carbon equivalent and the U.S. emitted 19 percent.
[16] Calculated using the emission data from the Global Carbon Project. In 2000, China emitted 910,950 GgC, India 316,804 GgC, Russia 391,652 GgC, and the U.S. 1,541,013 GgC. By 2007, China emitted 1,801,932 GgC, India 429,601 GgC, Russia 432,486 GgC, and the U.S. 1,586,213 GgC.