Gregory M. Scott
Executive Vice President and
General Counsel

National Petrochemical & Refiners Association

1667 K Street, NW
Suite 700
Washington, DC 20006

202.457.0480 voice
202.457.0486 fax
www.npra.org
gscott@npra.org

Filed Electronically

February 28, 2011

Administrator Lisa Jackson
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460

Subject: Comments on EPA's External Review Draft Report on Biofuels
Docket EPA-HQ-ORD-2010-1077

Dear Administrator Jackson:

NPRA, the National Petrochemical and Refiners Association, is pleased to provide comments on the Agency's external review draft report on biofuels (public comment requested at 76 FR 5154, 1/28/11). NPRA represents high-tech American manufacturers, fueling and building America's future. NPRA members produce virtually all the refined petroleum products and petrochemicals manufactured in the United States, serving the American people responsibly and effectively. These manufacturers provide jobs directly and indirectly for 2 million Americans, economic and national security, and thousands of vital products to families and businesses throughout the United States.

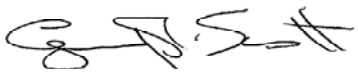
NPRA appreciates the opportunity to submit suggestions on this external review draft Report To Congress (EPA/600/R-10183A). This report is required by section 204 of the Energy Independence and Security Act of 2007.

NPRA supports the prudent development and use of biofuels to diversify our nation's transportation and nonroad fuels portfolio.

Carbon debt must be addressed in order that biofuels become environmentally sustainable. This issue is not currently included in the Concluding Remarks, air quality conclusions or Recommendations. Carbon debt should be discussed in these sections of the final report.

Specific comments are available in the attachment.

Sincerely,



Gregory M. Scott

Attachment

cc: Docket EPA-HQ-ORD-2010-1077

NPRA

COMMENTS OF THE NATIONAL PETROCHEMICAL AND REFINERS ASSOCIATION ON EPA'S EXTERNAL REVIEW DRAFT REPORT ON BIOFUELS

76 FR 5154; 1/28/11
Docket ID No. EPA-HQ-ORD-2010-1077

Policymakers should carefully consider the potential impact of policies on the environment, energy security, and consumers. Unfortunately, well-intentioned regulations or legislation, especially involving energy and environmental policies, can and have had unintended negative consequences. An example of such consequences can be seen with biofuels mandates that are being rethought across the globe amid serious economic and environmental concerns.

Biofuels must be sustainable. As the use of biofuels has increased dramatically, so have concerns about the potential consequences of increased biofuel use.

The Agency discusses the adjustment of the cellulosic standard for 2010 on page 2-1. EPA has also adjusted the cellulosic biofuel standard for 2011 (75 FR 76790; 12/9/10). In fact, the Energy Information Administration in a letter to EPA has predicted a much lower level of cellulosic biofuel production in 2011 than EPA.[1]

"EISA establishes 15 billion gallons as the maximum amount of corn starch ethanol that can contribute to meeting the 36 billion gallon per year renewable fuel target in 2022." (page 3-4). In fact, this implicit "cap" of 15 billion gallons will begin in 2015 and continue through 2022.[2] Although this implicit "cap" of 15 billion gallons is statutory, it is only implicit and could be increased if EPA decides to reduce the advanced biofuel requirement (e.g., for low availability of biomass-based diesel and/or cellulosic biofuels) without reducing the requirement for total renewable fuel.

The impacts of the combustion of biodiesel on air quality is discussed in section 4.5.1.2 (pages 4-17 and 4-18). This should be supplemented with recent information from CARB.[3]

The external draft report correctly observes that sugar cane-based ethanol from Brazil was the largest source of ethanol imports in 2008 (see page 5-4). Brazil was the largest source of ethanol imports for 2006-2008. However, EIA reports that ethanol was imported from Brazil in

[1] See document EPA-HQ-OAR-2010-0133-0099, dated October 20, 2010.
[2] See the Conventional Biofuel column in Table 2-1 on page 2-2.
[3] http://www.arb.ca.gov/fuels/diesel/altdiesel/biodiesel.htm

only two months in 2009 (February and November) and not at all since then. Since December 2009, EIA data show that all imports of ethanol have come from Canada.

Imports of sugar cane-based ethanol from Brazil could increase in the future because this meets the RFS2 requirements for advanced biofuel.[4] It is currently discouraged by the import tariff, but it is possible that this tariff will be allowed to expire and not renewed.

Biodiesel balance of trade in the U.S. for 2008 is shown in Table 5-5 on page 5-6 of the external draft report. Table 5-5 should be updated with the latest EIA data.[5]

NPRA recommends that a few definitions in the Glossary be revised to include regulatory definitions.

The Glossary in Appendix A could be revised or expanded to note that EPA has promulgated regulatory definitions in 40 CFR Part 80 (see 75 FR 14864-14866; 3/26/10). For all items below, the emphasis is in the original.

Biodiesel

> "**biodiesel** (also known as 'biomass-based diesel'): A renewable fuel produced through transesterification of organically derived oils and fats. May be used as a replacement for or component of diesel fuel." (page A-2)
>
> 40 CFR 80.1401 includes the following definition:
> "*Biodiesel* means a mono-alkyl ester that meets ASTM D 6751 (incorporated by reference, *see* § 80.1468)."

Biomass-based diesel

> "**biomass-based diesel**: See 'biodiesel' above. Biomass-based diesel includes non-co-processed renewable diesel, which does not use the transesterification technology." (page A-3)
>
> 40 CFR 80.1401 includes the following definition:
> "*Biomass-based diesel* means a renewable fuel that has lifecycle greenhouse gas emissions that are at least 50 percent less than baseline lifecycle greenhouse gas emissions and meets all of the requirements of paragraph (1) of this definition:
>
> (1) (i) Is a transportation fuel, transportation fuel additive, heating oil, or jet fuel.
> (ii) Meets the definition of either biodiesel or non-ester renewable diesel.
> (iii) Is registered as a motor vehicle fuel or fuel additive under 40 CFR part 79, if the fuel or fuel additive is intended for use in a motor vehicle.

[4] See the Advanced Biofuel column in Table 2-1 on page 2-2.

[5] Released monthly. The latest: Energy Information Administration, *January 2011 Monthly Energy Review*, DOE/EIA-0035(2011/01), released 1/31/11, Table 10.4, http://www.eia.gov/emeu/mer/pdf/pages/sec10_8.pdf

(2) Renewable fuel that is coprocessed with petroleum is not biomass-based diesel."

Cellulosic biofuel

"**cellulosic biofuel**: A renewable fuel derived from lignocellulose (i.e., plant biomass comprised of cellulose, hemicellulose, and lignin that is a main component of nearly every plant, tree, and bush in meadows, forests, and fields). Lignocellulose is converted to cellulosic biofuel by separating the sugars from the residual material, mostly lignin, and then fermenting, distilling, and dehydrating this sugar solution." (page A-3)

40 CFR 80.1401 includes the following definition:
"*Cellulosic biofuel* means renewable fuel derived from any cellulose, hemicellulose, or lignin that has lifecycle greenhouse gas emissions that are at least 60 percent less than the baseline lifecycle greenhouse gas emissions."

Renewable fuel

"**renewable fuel**: A fuel produced from renewable biomass that is used to replace or reduce the use of fossil fuel." (page A-7)

40 CFR 80.1401 includes the following definition:
"*Renewable fuel* means a fuel which meets all of the requirements of paragraph (1) of this definition:

(1) (i) Fuel that is produced from renewable biomass.
(ii) Fuel that is used to replace or reduce the quantity of fossil fuel present in a transportation fuel, heating oil, or jet fuel.
(iii) Has lifecycle greenhouse gas emissions that are at least 20 percent less than baseline lifecycle greenhouse gas emissions, unless the fuel is exempt from this requirement pursuant to § 80.1403.

(2) Ethanol covered by this definition shall be denatured as required and defined in 27 CFR parts 19 through 21. Any volume of denaturant added to the undenatured ethanol by a producer or importer in excess of 2 volume percent shall not be included in the volume of ethanol for purposes of determining compliance with the requirements under this subpart."

NPRA recommends revisions to Table B-1.

Table B-1 (page B-2) includes the following statement in the box on the right: "The CAA regulates the amount of ethanol mixed in gasoline as part of the reformulated gasoline program." This statement could be misunderstood and should be clarified. It may refer to the oxygen content requirement for RFG in the Clean Air Act Amendments of 1990. However, this restriction was removed by the Energy Policy Act of 2005.

EPA regulates the amount of ethanol in all gasoline, not just RFG. Up to 10 vol% ethanol is permitted in all gasoline. Up to 15 vol% ethanol is permitted in gasoline in some, but not all, cases.

The Agency should insert a second row to the table on page B-2 for the Renewable Fuel Standard program, CAA section 211(o). The discussion on page B-8 should be moved to page B-2 because the RFS is required by the CAA.

EPA should also insert additional rows to the table on page B-2 to summarize GHG regulations (i.e., mandatory reporting).

NPRA recommends additional emphasis on biofuel carbon debt.

"EISA Section 204 does not include GHG emissions in the set of environmental issues to be examined in this report." (page 4-8). GHG emissions are not explicitly mentioned in section 204. However, EISA section 204 does require an analysis of environmental issues, including air quality. Surely, GHG emissions can be inferred in this statutory scope. EPA has regulated GHG emissions recently as an environmental/air quality issue.

Ethanol and biodiesel are hydrocarbons – they are not carbon-free. Biofuels are often perceived as carbon-neutral because the carbon released when combusted is recycled as the biomass feedstock is grown. However, many scientists are concerned that the GHG emissions resulting from biofuel production and associated agricultural practices could effectively negate or even reverse any reduction in emissions that could be achieved by significantly expanding the use of ethanol as a transportation fuel. Nobel Prize winner Paul Crutzen concluded that increased biofuels production is accompanied with a dramatic increase of N_2O emissions, which has nearly 300 times greater warming potential than CO_2.[6] This would offset all GHG emissions reductions from the displaced petroleum fuels and actually result in a net increase in total GHGs. In fact, the European Union passed a law that may essentially ban certain biofuels due to environmental impacts.[7]

A large increase in the production of biofuels could lead to further deforestation and release of soil carbon. Clearing land to grow crops as a feedstock for biofuels can increase GHG emissions. Carbon in the soil and plants is released when land use is changed and can be higher than the reduction in carbon releases by replacing fossil fuel combustion with biofuel combustion. It would take many years for the increased GHG emissions from land use change to be offset by the decreased GHG emissions from the replacement of fossil fuel with biofuel combustion – a biofuel carbon debt. This biofuel carbon debt is substantial and is projected to take decades or centuries from which to recover.

---

[6] P. J. Crutzen, A. R. Mosier, K. A. Smith, and W. Winiwarter, "N_2O Release from Agro-Biofuel Production Negates Global Warming Reduction by Replacing Fossil Fuels," Atmospheric Chemistry and Physics Discussions, August 1, 2007.

[7] John W. Miller, "EU is Planning Measures to Protect Biofuels Industry," January 23, 2008, P. A11.

Several analyses outline the land-use impacts from biofuels production. The following are excerpts from two studies published in 2008:

> Ethanol from corn produced on newly converted U.S. central grasslands results in a biofuel carbon debt repayment time of ~93 years. . . . At least for current or developing biofuel technologies, any strategy to reduce GHG emissions that causes land conversion from native ecosystems to cropland is likely to be counterproductive. . . . Our results demonstrate that the net effect of biofuel production via clearing of carbon rich habitats is to increase CO2 emissions for decades or centuries relative to the emissions caused by fossil fuel use.[8]

> We calculated that GHG savings from corn ethanol would equalize and therefore "pay back" carbon emissions from land-use change in 167 years, meaning GHGs increase until the end of that period. Over a 30-year period, counting land-use change, GHG emissions from corn ethanol nearly double those from gasoline for each km driven. . . . As part of our sensitivity analysis, we found that, even if corn ethanol caused no emissions except those from land-use change, overall GHGs would still increase over a 30-year period.[9]

In addition, a University of California, Berkeley memo to the California Air Resource Board affirms these earlier studies. This memo states that estimates of greenhouse gas emissions from direct land use changes are very large and are much larger than the emissions associated with the fuel itself because there are large amounts of carbon stored in ecosystems of all sorts.[10]

The biofuel carbon debt summarized in these studies refutes the perception that biofuels are part of the solution to quickly reduce lifecycle greenhouse gas emissions.

Congress believes that biofuel carbon debt is very important. Congress passed the Energy Independence and Security Act of 2007 (Public Law 110-140), signed by President Bush on December 19, 2007. EISA includes a provision in the definition for "renewable biomass" that requires planted crops and crop residue to be harvested from agricultural land cleared or cultivated at any time prior to December 19, 2007 in order to avoid exacerbating this biofuel carbon debt (see section 201).

---

[8] "Land Clearing and the Biofuel Carbon Debt;" Joseph Fargione, *et al.*; *Science* 319, 1235 (2008); DOI: 10.1126/science.1152747.

[9] "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change;" Timothy Searchinger, *et al. Science* 319, 1238 (2008); DOI: 10.1126/science.1151861.

[10] Memo from Alex Farrell and Michael O'Hare (U. of California Berkeley professors) to the California Air Resources Board, "Greenhouse gas (GHG) emissions from indirect land use change (LUC)," January 12, 2008.

Carbon debt was addressed above by Congress for the Renewable Fuel Standard. Carbon debt has not been addressed for other biofuels programs.

Carbon debt is discussed on page 5-9, but this text should be expanded. The Concluding Remarks (page 5-12) and air quality conclusions (page 6-4) should be revised to include concern about carbon debt. Carbon debt should also be addressed in Recommendations (page 6-8).

The risk of land displacement and conversion increases with biofuel production increases that do not have the land use safeguards in place for the RFS program. This issue of biofuel carbon debt is a difficult challenge, but it must be addressed if biofuels are to be environmentally sustainable.[11]

The fundamental question is this: can biomass be used much more efficiently (and therefore with less environmental impact) through direct combustion to generate electricity and heat, rather than being converted to liquid fuels such as ethanol?[12]

NPRA recommends that the Agency consider the following: Current mandates and targets for liquid biofuels should be reconsidered in light of the potential adverse environmental consequences and difficulty of meeting these goals without large-scale land conversion.[13]

[11] Ideas are borrowed from Howarth, R.W., S. Bringezu, M. Bekunda, C. de Fraiture, L. Maene, L. Martinelli, O. Sala. 2009. Rapid assessment on biofuels and environment: overview and key findings. Pages 1-13 in R.W. Howarth and S. Bringezu (eds), Biofuels: Environmental Consequences and Interactions with Changing Land Use. Proceedings of the Scientific Committee on Problems of the Environment (SCOPE) International Biofuels Project Rapid Assessment, 22-25 September 2008, Gummersbach Germany. Cornell University, Ithaca NY, USA. (http://cip.cornell.edu/biofuels/)

[12] Ibid.

[13] Ibid.