RENEWABLE FUELS ASSOCIATION

September 25, 2009

VIA ELECTRONIC FILING

U.S. Environmental Protection Agency
Air and Radiation Docket and Information Center
1200 Pennsylvania Avenue, NW
[Mail Code: 2822T]
Washington, DC 20460

ATTN: Docket ID No. EPA-HQ-OAR-2005-0161

Re: Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Notice of Proposed Rulemaking, 74 Fed. Reg. 24,904 (May 26, 2009) and Notice of Availability of Expert Peer Review Record, 74 Fed. Reg. 41,359 (Aug. 17, 2009)

Dear Docket Clerk:

The Renewable Fuels Association (RFA) is pleased to submit the attached comments on the Renewable Fuel Standard Program Notice of Proposed Rulemaking and Notice of Availability of Expert Peer Review Record referenced above.

RFA is the leading trade association for America's ethanol industry. Its mission is to advance the development, production, and use of ethanol fuel by strengthening America's ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA represents the majority of the U.S. ethanol industry and serves as the premier meeting ground for industry leaders and supporters. RFA's 300-plus members are working to help America become cleaner, safer, energy independent and economically secure.

Please contact me at (202) 289-3835 with any questions regarding these comments.

Sincerely,

Bob Dinneen
President and CEO

Attachment

RENEWABLE FUELS ASSOCIATION

COMMENTS OF
THE RENEWABLE FUELS ASSOCIATION

REGULATION OF FUELS AND FUEL ADDITIVES: CHANGES TO RENEWABLE FUEL STANDARD PROGRAM; NOTICE OF PROPOSED RULEMAKING, 74 FED. REG. 24,904 (MAY 26, 2009)

AND

NOTICE OF AVAILABILITY OF EXPERT PEER REVIEW RECORD, 74 FED. REG. 41,359 (AUG. 17, 2009)

Docket ID
EPA–HQ–OAR–2005–0161

Submitted
September 25, 2009

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EXECUTIVE SUMMARY

The Renewable Fuels Association (RFA), the leading trade association for America's ethanol industry, is providing extensive comments on EPA's proposed regulations to implement the expanded renewable fuel standard (RFS) program enacted by Congress in the Energy Independence and Security Act (EISA) in 2007. Our comments are filed in the context of Congress' intent for the RFS to increase the use of renewable fuels in the United States to:

(1) improve our energy security by reducing dependence on foreign oil;
(2) create a strong U.S. biofuel industry and reap the benefits of a strong rural economy; and
(3) recognize the biofuel reductions in greenhouse gases (GHGs) to help combat climate change.

RFA appreciates the extensive work that EPA put into this proposal. However, the proposed rule needs to be substantively revised because it minimizes, and even ignores, the benefits of renewable fuels for energy security and GHG reductions and, in its GHG lifecycle analysis, posits scenarios for international indirect land use changes attributable to the RFS2 volumes that simply will not occur.

While EISA's plain language clearly does not require EPA to consider international indirect emissions in its lifecycle evaluation and these comments explain in detail why this is true, any decision by EPA to address such effects must be based on accurate models and modeling inputs. To the limited extent that EPA has provided information on its methodology, we found several errors that significantly change the results of the analysis. While we could not run the models because EPA did not make them available, given the magnitude of the errors, fixing the major missteps would likely lead to ***no land needing to be converted internationally and no international indirect land use associated GHG emissions.***

1. ***Increasing Corn Yield Gain Projections and Differentiating Between the Yield Gains that Will Occur in 2022 with and without the RFS Will Likely Result in Little or No Land Outside the United States Required to Meet Fuel, Feed, and Food Demand:***
   a. ***Increase the 180 bushel per acre yield estimates substantially.*** As explained in detail in these and other stakeholder comments, EPA's estimate of corn yield capability in 2022 at about 180 bushels per acre grossly understates the projected yields with or without the RFS program. Biofuels are a significant driver for those new technologies, such as marker assisted breeding, that easily penetrate the market to provide increased rate of gain, and there is general consensus that this rate of increase will continue and accelerate.
   b. ***Credit the RFS with increasing yields consistent with EPA's decision to credit the RFS with increasing corn price.*** The proposal states that any projected changes in factors such as crop yields, energy costs, or production plant efficiencies, both domestically and internationally are assumed to occur in 2022 with or without the RFS program. 74 Fed. Reg. at 25,022. This is wrong. There is no question that yield increase capability will be more fully realized with the RFS than without it. EPA has assumed that corn price will increase with the RFS2 program and will lead farmers to clear more land but the proposal ignores that higher crop prices will provide farmers the economic incentive to invest in farming methods and seed technologies that

improve yield. EPA needs to forecast two yields for 2022 – one for the reference case without the RFS2 (12.4 billion gallons annually) and one for the control case with the RFS2 (15 billion gallons annually), with the control case having a meaningfully higher yield. As EPA is aware, RFA has voiced its concerns with the California Air Resources Board's approach to lifecycle analysis, but as explained in detail below comments, ARB has incorporated it into its models.

These two factors *alone* will yield substantially different results than EPA has obtained in its analysis.

2. ***Using more appropriate, scientifically valid distillers grains and soybean meal displacement feed values would show that corn ethanol's benefits are much higher than the proposal estimates.*** EPA's models estimate distillers grains replace conventional feed at a 1:1 ratio but researchers conclude that due to the higher feed value of the distillers grains this ratio should be much higher, on the order of 1:1.25. If EPA adopted the DG credits that are more appropriate and scientifically-derived (*e.g.*, Argonne, on which EPA seeks comment, Prof. Shurson's values provided below), the EPA projected land use impact would be reduced by more than 50%. This one adjustment would increase the current EPA 16% benefit for corn ethanol from a natural gas dry mill with distillers grains (100-year, 2% discount rate) to 39%. Additionally, EPA should use appropriate assumptions (Argonne or Shurson) regarding the rate at which soybean meal is replaced with distillers grains.

3. ***Eliminating reliance on Winrock Analyses to forecast land use changes would remove a significant error in the EPA analysis.*** EPA's reliance on Winrock satellite data from the 2001-2004 timeframe renders the entire analysis arbitrary in that EPA is suggesting that land use changes that occurred for any reason serve as an appropriate proxy for land use changes resulting from U.S. biofuel expansion under the RFS. Moreover, when compared with the USDA data regarding what actually occurred in 2001-2004, the Winrock analysis has been shown to be inaccurate and therefore inappropriate to be used even for that time period, much less to predict future land use patterns.

4. ***Including the 70 million acres of combined cropland/pasture and idle cropland in EPA's FASOM/FAPRI would result in no land needing to be converted internationally.*** EPA's FASOM/FAPRI models predict that 4.8 million additional acres of cropland will be needed to meet the RFS2 volumes, but the models immediately resort to international lands that are GHG sinks as the source of that cropland. More logically, they should assumed that idle cropland or cropland/pasture would be used to meet this demand. Informa Economics says, using the exact same scenario approach used by EPA, the impact would be 2.2 million acres and that this relatively small amount of land could be U.S. land.

5. ***Eliminating the 2% discount rate for the 100-year impact time frame would more than double the modeled GHG benefits of a dry mill natural gas fired plant using dried distillers grains.*** A discount rate is an economic consideration that is more appropriate when considering the value of the benefits of a regulation. In this context, a discount rate other than 0 is completely arbitrary.

RFA cannot know the exact impact of correcting the errors on the outcome of the various models. It is absolutely clear that these factors were key assumptions or inputs in the models and that they need to be adjusted for EPA to reach defensible conclusions in its lifecycle analysis. EPA has not made the models available to the public in a timely manner, contrary to Clean Air Act Section 307(d) rulemaking requirements. We request that EPA make its models, both FASOM and FAPRI, available to interested members of the public to run sensitivity analyses so that the public can fully participate in the rulemaking process as intended by Congress. This will allow the impacts of these changes to be fully evaluated by EPA and all stakeholders.

6. ***Recognizing that biofuels produced under the RFS will displace marginal liquid fuels (such as gasoline from tar sands), not average gasoline and diesel fuel, would also reduce the modeled GHG impacts.*** While the statute requires EPA to establish a 2005 baseline for gasoline and diesel fuel, EPA should develop a mechanism for comparing the lifecycle GHG emissions of biofuels to the lifecycle GHG emissions of the fuels that are the most likely being displaced. EPA should credit 2022 biofuels for the avoided GHG emissions associated with the marginal, unconventional fuels that would have been used in the absence of biofuels.

7. ***Incorporating the research results of University of Nebraska would increase the direct GHG emissions benefit of ethanol above EPA's current 60% benefit estimate.*** Researchers at the University of Nebraska found that, "Direct effect GHG emissions were estimated to be equivalent to a 48% to 59% reduction compared to gasoline, a twofold to threefold greater reduction than reported in previous studies." When those direct GHG reductions are coupled with the other GHG reductions resulting from EPA's consequential lifecycle analysis, total GHG emissions benefits would be greater than 60% and we urge EPA to include these benefits in its analysis.

8. ***Eliminating the requirement that land be "continuously actively managed" to qualify as renewable biomass will make the rule compliant with the plain language of Section 211(o).*** The Agency has added a word to the definition of renewable biomass that imposes significant additional burdens on fuel producers. This requirement was not envisioned by Congress and should be dropped.

9. ***Adopting a reasonable approach to the existing cropland requirement will reduce the costs of the program without sacrificing compliance assurance.*** EPA proposes a chain of custody approach to ensure that renewable fuel feedstock is generated from existing cropland. This is an extremely costly approach that is unnecessary given yield increases and the available cropland in the United States.

10. ***To encourage companies to reduce their GHG footprint, EPA should allow facilities to present facility-specific lifecycle analysis.*** No two bio-refineries are the same. Yet, EPA analyzed a limited number of ethanol production pathways and appears to assume all bio-refineries will "fit" into one of the pathways. EPA should allow new ethanol facilities that don't necessarily conform to established pathways to demonstrate the carbon footprint of their operation through site-specific lifecycle analysis.

11. ***Adopting a 10%-20%productivity allowance would more accurately reflect the capacity of existing facilities for the grandfathering definition.*** EPA proposes to use a volume estimate to determine whether a facility is a new facility subject to certain additional GHG reduction requirements. We urge EPA to adopt an allowance on top of the baseline to reflect the productivity improvements plants are able to achieve within the existing facility.

12. ***Eliminating the proposed 20 percent rollover cap, equivalence values, requirement for an on-site engineering review, obligation to report RIN price information, and requirement to submit annual production outlook reports will improve the RIN System while retaining the current program's benefits.***

As a final matter, RFA emphasizes that implementing the renewable fuel volumes of the EISA in 2010 is critical. EPA has a statutory mandate to ensure that the RFS volumes are met *each year*, including 2010. For 2009, EPA implemented the new volumes and it should do the same for 2010 (but taking into account the subcategories of fuels to the extent possible), regardless of whether this complex proposal can be finalized in time for 2010 implementation of the full RFS2 program. This approach makes sense because EPA has already recognized that corn ethanol produced in 2009 will meet the RFS2 requirements, and the same holds true for ethanol produced in 2010. It is important for EPA to issue an accurate final rule, even if that delays issuance until sometime in 2010. In such a case, the Agency should begin all elements of the new program on January 1, 2011.

We provide several additional recommendations and more detailed support in the comments that follow and we urge EPA to evaluate and adopt all of these comments in the final rule. RFA would be pleased to meet with the Agency to discuss these recommendations and to provide additional support or information as needed.

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I. INTRODUCTION

The Renewable Fuels Association (RFA) submits these comments on EPA's Proposed Rule to implement the Energy Independence & Security Act of 2007 (EISA) amendments to the renewable fuel standard (RFS) under Section 211(o) of the Clean Air Act. RFA is the leading trade association for America's ethanol industry. Its mission is to advance the development, production, and use of ethanol fuel by strengthening America's ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA represents the majority of the U.S. ethanol industry and serves as the premier meeting ground for industry leaders and supporters. RFA's 300-plus members are working to help America become cleaner, safer, energy independent and economically secure. RFA has worked to make the RFS program a successful model for reducing dependence on foreign oil since its inception in 2005.

The RFS was first established by Congress in the Energy Policy Act of 2005 (EPAct), and the EISA substantially expanded the specific volume of renewable fuel required to be used in the United States each year (RFS2). Congress passed and expanded the RFS in recognition of the numerous benefits of renewable fuels, including ethanol. Ethanol is a clean, energy efficient, environmentally friendly fuel. It is produced at facilities that create jobs and economic opportunity for rural communities where they are located, as well as promoting the national economy. The RFS program is a vital part of the energy policy of this country as it moves toward less dependence on foreign oil. The RFS program also provides for substantial reductions in greenhouse gas (GHG) emissions from transportation fuels.

The expanded RFS program is a vitally important program for this country's economic, energy security and environmental goals. EPA's rulemaking process must keep these clear goals in mind. Unfortunately, the proposed regulations to implement the new program fail both procedurally and substantively. From a procedural standpoint, the proposed rule fails to meet the requirements of the Clean Air Act for notice and comment, *e.g.*, by failing to provide public notice and opportunity to comment on significant aspects of the computer models used to simulate future GHG impacts, and cannot be finalized due to this failure. From a substantive standpoint, to the extent that EPA did provide limited notice to the public of the inputs to its models and its methodology, RFA has identified several errors that, if corrected, should lead to significantly different results, many of which are highlighted in the Executive Summary of these comments.

While RFA appreciates EPA's outreach to stakeholders on this important rule, the fundamental flaws in the rulemaking procedures and the substantive problems with the proposal require the Agency to provide meaningful opportunity for comment and cure its substantive deficiencies.

II. WHILE RFA GENERALLY SUPPORTS AN IMPLEMENTATION DATE OF JANUARY 1, 2010, EPA SHOULD NOT PREMATURELY FINALIZE THE RULE GIVEN THE CONTINUED UNCERTAINTY REGARDING ITS LIFECYCLE ANALYSIS AND SHOULD ENSURE SUFFICIENT TIME FOR RENEWABLE FUEL PRODUCERS TO IMPLEMENT CHANGES AND COME INTO COMPLIANCE.

A. While RFA Supports Implementing the RFS2 Amendments Quickly, EPA's Revised Lifecycle Analysis is not Likely to be Completed in Time for a January 1, 2010 Effective Date.

EPA issued the Proposed Rule on May 26, 2009, and proposed an effective date of January 1, 2010 for the changes to the RFS program. While EPA indicated it believed it would issue a final rule to give parties sufficient time to take all these required actions prior to implementation, the public comment period ends September 25, 2009, leaving little room to finalize the rule this year.

As discussed in more detail in Sections III-VII, RFA believes much work still needs to be done with respect to EPA's lifecycle analysis, particularly with respect to the sensitivity and uncertainty analysis. EPA itself has indicated that work on the Proposed Rule is ongoing. In particular, EPA is continuing to revise its lifecycle analysis in numerous ways (See Appendix A). EPA recognizes that several of these new analyses can have significant impacts on its results. Even more work is being done for the regulatory impact analysis, including a cost-benefit analysis, additional modeling on economic, air quality and energy impacts of the Proposed Rule. This work is not likely to be done by the end of this year, and it must be made available to the public for review and comment before becoming part of the final rule. *See Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 540 (D.C. Cir. 1983) ("If . . . documents . . . upon which EPA intended to rely had been entered on the docket too late for any meaningful public comment . . ., then both the structure and spirit of section 307 would have been violated.") (quoting *Sierra Club v. Costle*, 657 F.2d 298, 398 (D.C. Cir. 1981)) (omission in original). *See also Ober v. EPA*, 84 F.3d 304, 314 (9th Cir. 1996) ("These justifications should have been available for public comment *before* the EPA proposed approval of the Implementation Plan."); *Kennecott Corp. v. EPA*, 684 F.2d 1007, 1019 (D.C. Cir. 1982) (finding EPA improperly placed economic forecast data in record only one week before issuing final regulations).[1] EPA should not push to finalize its lifecycle analysis to meet a deadline without ensuring the transparency and validity of its analysis and without adequately addressing the uncertainty of its analysis of emissions from international indirect land use changes.

In its RFS1 proposal, EPA recognized its authority to consider an appropriate lead time in establishing regulatory requirements. 71 Fed. Reg. 55,552, 55,566 (Sept. 22, 2006). Courts have deferred to agencies regarding implementation of regulations when the statute is silent regarding the implementation deadline. *See NRDC v. EPA*, 194 F.3d 130, 137 (D.C. Cir. 1999). In cases

[1] *Cf. Ethyl Corp. v. EPA*, 541 F.2d 1, 49 (D.C. Cir. 1976) (finding EPA provided sufficient opportunity for public comment where EPA provided three opportunities for public comment, and "[a]ll significant new information developed during the rule-making in this area on the frontiers of scientific knowledge was made available to petitioners and the public for comment well in advance of issuance of the final regulations . . ..").

where EPA has missed a deadline, courts have generally given EPA adequate time to complete the requirement. *Conservation Law Found. of New England, Inc. v. Reilly*, 755 F. Supp. 475, 481 n.8 (D. Mass. 1991). This is to ensure that the agency does not create an unworkable program or that the agency is required to do the impossible. *See Sierra Club v. Thomas*, 658 F. Supp. 165, 172 (N.D. Cal. 1987) ("Since the public interest would be ill-served by unworkable PSD regulations which would not survive judicial review, it would be inappropriate to set an infeasible schedule in order to punish a delinquent agency.") (citation omitted). EPA's lifecycle analysis is the first of its kind for national regulation, and EPA should take the time to ensure the public has a meaningful opportunity to review and comment and to ensure that it is based on sound science and the most updated information, makes a fair comparison, and meets the standards of objectivity as required of such influential agency action.

B. EPA Must Continue to Implement the Volume Mandates Until it Can Complete its Lifecycle Analysis.

1. EPA must ensure that the volume mandates are being met each year.

The purpose of the EISA was to increase the use of renewable fuels to reduce this country's dependence on foreign oil. To those ends, the EISA amended the volume requirements under Section 211(o) of the Clean Air Act, effective January 1, 2009. The volumes are statutory requirements, and EPA is under an obligation to calculate the renewable volume obligation (RVO) for producers and importers of transportation fuels each November.

EPA was required to issue regulations in December of 2008 "to ensure that transportation fuel sold or introduced into commerce in the United States . . . contains *at least the applicable volume of renewable fuel, advanced biofuel, cellulosic biofuel, and biomass-based diesel*, determined in accordance with subparagraph (B)." 42 U.S.C. § 7545(o)(2)(A)(i) (2009)[2] (emphasis added). Subparagraph (B) includes the annual volumes required, starting in 2009. *Id.* § 7545(o)(2)(B) (2009). Although EPA did not issue regulations by the deadline, EPA properly issued a RVO for 2009 to meet the revised volume mandate of 11.1 billion gallons. 73 Fed. Reg. 70,643 (Nov. 21, 2008).

Moreover, Congress specifically limited EPA's discretion to reduce the RFS volume mandates. Any reduction in volumes must comply with the waiver provisions in Section 211(o)(7). 42 U.S.C. § 7545(o)(7). The circumstances warranting a waiver under Section 211(o)(7), *i.e.*, lack of domestic supply, are simply not present. While EPA should not issue its lifecycle analysis prematurely, EPA cannot delay the statutory volume requirements.

2. EPA can rely on the current RFS program to meet the revised requirements pending issuance of final regulations.

The RFS1 regulations currently in place are sufficient to implement the EISA requirements. The EISA included three main new requirements for the RFS program --

[2] The EISA amendments to Section 211(o) of the Clean Air Act became effective on January 1, 2009, and will be noted by the year 2009 (*e.g.*, 42 U.S.C. § 7545(o)(2009)). Where necessary, Section 211(o), as amended by the Energy Policy Act of 2005, will be noted with the year 2005.

(1) greenhouse gas (GHG) emission reduction requirements (20/50/60%); (2) revisions to the renewable biomass definition; and (3) specific requirements for advanced biofuels (starting 2009), biomass-based diesel (starting 2009), and cellulosic biofuel (starting 2010). Since EPA has not met the statutory deadline for regulations (12/19/2008), the current program applies to gasoline producers and importers to meet the statutory volume requirements. 73 Fed. Reg. at 70,643. There is ample support that the vast majority of RINs generated in 2009 for corn ethanol would meet the RFS2 requirements. These same arguments are applicable for RINs generated in 2010.

First, the only GHG reduction requirement applicable to corn ethanol is the 20 percent reduction requirement for facilities commencing construction after December 19, 2007. EPA has stated that it "believes there will be no fuel sold in 2009 from a facility that was constructed after EISA enactment, and which is not fired with natural gas, biomass or a combination thereof." 73 Fed. Reg. at 70,644. It is likely that the only new plants that will come on-line for sale of ethanol in 2010 will have commenced construction in 2008 or 2009 and, therefore, would be deemed compliant with the 20 percent requirement pursuant to Section 210 of the EISA (which EPA has found is self-implementing, 73 Fed. Reg. at 70,644). As of August 4, 2009, RFA reports plants with capacity of 13.063 billion gallons (11.532 in operating production), with an additional 1.472 billion gallons in expansions or new plants under construction. (See RFA, *Biorefinery Locations*, *available at* http://www.ethanolrfa.org/industry/locations/, Appendix B). This capacity would be grandfathered or deemed compliant with the 20 percent requirement, and is more than sufficient to meet the renewable fuel volume for 2009 (11.1 billion gallons) and 2010 (12.95 billion gallons).[3]

Second, the additional increase in the RFS from 2009 to 2010 can be met using existing cropland. EPA has recognized that there is little risk that "new" lands will be cleared for crops for biofuel production. EPA need only look a few decades back to see that cropland "cleared or cultivated" prior to date of enactment of the EISA was substantially greater than today's cropland acreage. Estimates indicate that existing cropland has been on the decline until recently, resulting in relatively large amounts of less productive, or "marginal," cropland being available for feedstock production. Moreover, United States Department of Agriculture (USDA) recently projected that 2009 will see a record 161.9 bushels per acre,[4] a 5 percent increase over last year's average yield and 1.5 bushels/acre higher than the previous record set in 2004. Based on USDA's projections of corn for ethanol use in the 2009/2010 crop year (Sept. 2009-Aug. 2010), the U.S. ethanol industry will produce 11.8 billion gallons of ethanol and 32 million metric tons of livestock feed.

Finally, EPA has already recognized that RINs under the current system are already coded to be distinguished to show compliance with the advanced biofuel, cellulosic biofuel, and biomass-based diesel requirements, and may be used to show compliance with the RFS2. 74

[3] The 11.1 billion gallons for 2009 includes 0.6 billion gallons of advanced biofuels (0.5 billion of which is required to biomass-based diesel). 74 Fed. Reg. at 24,910 Table 11.A.1-1. The 12.95 billion gallons for 2010 includes 0.95 billion gallons of advanced biofuels (0.65 billion of which is required to biomass-based diesel and 0.25 billion of which is required to be cellulosic biofuel). *Id.*

[4] USDA, *Crop Production* (Sept. 11, 2009), *available at* http://usda.mannlib.cornell.edu/usda/current/CropProd/CropProd-09-11-2009.pdf.

Fed. Reg. at 24,962. EPA also recognized that RFS1 RINs generated in 2008 and 2009 may be used to meet the RFS2 mandates. *Id.* The Proposed Rule already included RVOs for all four categories, and EPA can easily finalize those portions of the rule that are needed to implement the volume mandates. There is little question that cellulosic ethanol will meet the 60 percent reduction requirement. In the alternative, the carryover provision should be used to defer the cellulosic biofuel requirement to 2011, as EPA proposes for the 2009 biomass-based diesel requirement.[5]

C. EPA Should Not Implement the Program in the Middle of the Year.

RFA agrees that January 1, 2011 is the "most straightforward" alternative effective date. 74 Fed. Reg. at 24,956. EPA found that the initial RFS program (RFS1) "present[ed] many complex and varied implementation issues." 70 Fed. Reg. 77,325, 77,328 (Dec. 30, 2005). "[I]t is important to ensure that the administrative aspects of the program can be developed with sufficient time between promulgation and implementation to give companies adequate time to respond." Energy Information Administration, *Timing for Startup of the Renewable Fuel Standard*, *available at* http://www.eia.doe.gov/oiaf/servicerpt/fuel/srfs.html. While the Proposed Rule largely builds on the current RFS1 program for which parties have experience, there are still substantial new obligations, requiring sufficient lead time. As EPA recognized, regulated entities will need to take various actions before the new program can be implemented, including registering or re-registering under the RFS2 provisions, modifying their information technology (IT) systems to accommodate the changes, adding a process for verifying that feedstocks meet the renewable biomass definition, and taking steps toward calculating and achieving compliance with four standards instead of one. 74 Fed. Reg. at 24,913-24,914. Many renewable fuel producers are small companies with limited resources, and, under the Proposed Rule, many new entities will be introduced into the regulatory program, including farmers and other feedstock providers, and would need time to understand and take actions to implement the program.[6]

In its proposal for RFS1, EPA recognized its authority to consider an appropriate lead time in establishing regulatory requirements. 71 Fed. Reg. at 55,566. Courts have deferred to agencies regarding implementation of regulations when the statute is silent regarding the implementation deadline. *See, e.g., NRDC*, 194 F.3d at 137. The only applicable implementation deadlines provided are the required minimum volume requirements for each year, which EPA must and can meet under the current program.

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[5] For the biomass-based diesel and advanced biofuels requirements, there was sufficient sugar ethanol imports and biodiesel production in 2007 and 2008 to indicate no new land is needed to meet the 2009 and 2010 requirements. Imports of ethanol in 2007 were 0.435 billion gallons and in 2008 were 0.463 billion gallons. RFA, *Statistics*, http://www.ethanolrfa.org/industry/statistics/. Biodiesel production was at 0.5 billion gallons in 2007 and 0.69 billion gallons in 2008. This production meets the advanced biofuel requirements for 2009 and 2010, indicating production can be met with existing sources of feedstock. As such, EPA should point to current lifecycle analysis, *without* land use changes, to show compliance with the 50 percent GHG emission reduction requirement. This would give EPA time to continue to develop its methodology to include land use changes in the lifecycle analysis to ensure it is using sound and reliable science.

[6] As is further discussed below, RFA believes EPA's proposed renewable biomass provisions are overly burdensome and will create an administrative nightmare that is simply not necessary.

While unnecessary, EPA started the RFS1 program in September of 2007 to ensure a credit program began in 2007, 71 Fed. Reg. at 55,566, which would not be an issue here as the current program includes a trading program. As the experience with the RFS1 program shows, starting a program in the middle of the year creates confusion and poses problems in ensuring compliance with an *annual* standard. Doing so for the RFS2 program would impose undue burdens on regulated entities that would be subject to two different regulatory programs with different obligations within the same year. Too many issues would be left open with a program that starts in the middle of the year.

Finally, EPA proposes to move toward an EPA-Moderated Trading System (EMTS), which is to begin in 2011. An effective date of January 1, 2011 would allow parties to continue business as usual and gives EPA time to start and test the program. This would reduce the burdens on regulated entities, rather than impose whole new requirements for only a few months if EPA started the program in the middle of 2010. (As discussed above, the delay of the effective date for the RFS2 proposal should not, and cannot, delay implementation of the statutory volume mandates.)

D. RFA Generally Supports EPA's Transition Rules for RFS1 RINs.

EPA has proposed transition rules for use of RFS1 RINs. RFA agrees with EPA that RFS1 RINs for ethanol would meet new requirements for RFS2, including the renewable biomass and 20 percent requirement. 74 Fed. Reg. at 24,957. Although RFA supports EPA's proposed transition rules, these rules will not be necessary if the effective date is January 1, 2011. (As further discussed below, EPA should eliminate the ability of credits to rollover for use into the next year.)

EPA's proposal, however, does not indicate how to address extra-value RINs. Under the RFS1 program, certain fuels have an equivalence value, which allows renewable fuel producers to generate additional RINs per gallon of renewable fuel (*e.g.*, 1.3 RINs for butanol). EPA correctly proposes to eliminate these values in the Proposed Rule, and as such should require enough RINs to show an actual gallon of renewable fuel was sold (*e.g.*, require 1.3 RINs to show 1 gallon for compliance purposes).

III. EPA HAS NOT PROVIDED SUFFICIENT OPPORTUNITY FOR THE PUBLIC TO MEANINGFULLY COMMENT ON ITS LIFECYCLE ANALYSIS

A. EPA Has Not Provided Sufficient Opportunity to Comment as Required by the Clean Air Act.

Section 307(d) requires notice and opportunity for public comment, which requires that EPA include a summary of its methodology and the factual data it relies on for the Proposed Rule. 42 U.S.C. § 7607(d). This requirement is to ensure that the public has a meaningful opportunity to comment. *See Idaho Farm Bureau Fed'n v. Babbitt*, 58 F.3d 1392, 1404 (9th Cir. 1995) ("The purpose of the notice and comment requirement is to provide for meaningful public participation in the rule-making process."); *Wash. Trollers Ass'n v. Kreps*, 645 F.2d 684, 686 (9th Cir. 1981) (finding, regarding a statutory public comment period, "[t]his provision for public comment can effectuate Congress's goals only if the public is able to make intelligent, informed,

meaningful comments"). When a rulemaking includes a scientific analysis, particularly as is the case here a new and highly controversial analysis, EPA must provide enough information for the public to be able to present meaningful comments. Failure to do so "is akin to rejecting comment altogether." *United States v. Nova Scotia Food Prods. Corp.*, 568 F.2d 240, 252 (2nd Cir. 1977) ("When the basis for a proposed rule is a scientific decision, the scientific material which is believed to support the rule should be exposed to the view of interested parties for their comment. One cannot ask for comment on a scientific paper without allowing the participants to read the paper. Scientific research is sometimes rejected for diverse inadequacies of methodology; and statistical results are sometimes rebutted because of a lack of adequate gathering technique or of supportable extrapolation. Such is the stuff of scientific debate."). *See also Home Box Office, Inc. v. FCC*, 567 F.2d 9, 35 (D.C. Cir. 1977) ("Consequently, the notice required by the APA [(Administrative Procedure Act)], or information subsequently supplied to the public, must disclose in detail the thinking that has animated the form of a proposed rule and the data upon which that rule is based.").

RFA, and others, have consistently indicated that EPA must provide sufficient transparency for all the models employed.[7] "To facilitate such transparency, the LCA methodology should be distilled to the point that it has an intuitively logical format which allows detailed inspection of models, data and references." Liska and Cassman (2009) at 6 (EPA-HQ-OAR-2005-0161-0981.1). As discussed above, EPA has left numerous issues open in the final lifecycle analysis, rendering this public comment period meaningless. *See supra* Section II.A., and Appendix A. Moreover, as further discussed below, significant portions of EPA's lifecycle analysis that was included in the Proposed Rule lack sufficient transparency required for scientific analysis and public review and comment.

Thus, prior to finalizing its lifecycle analysis, EPA must give the public an opportunity to review and comment on revisions, including the numerous elements that EPA acknowledges were not completed prior to proposal, to the analysis. As further described below, small changes in the analysis can have significant effects, and the public must have the opportunity to review and analyze those changes in order to meaningfully comment. Merely noting that the analysis may change violates the requirements and purpose of Section 307(d).

B. EPA Guidance and International Standards for Lifecycle Analysis Also Require Transparency.

The Information Quality Act (IQA) (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001) requires that EPA present the scientific information objectively and ensure that such information is transparent and reproducible. As the Office of Management and Budget (OMB) and EPA have recognized, influential scientific, financial or statistical information "shall include a high degree of transparency about data and methods to facilitate the reproducibility of such information by qualified third parties." 67 Fed.

[7] *See* RFA Letter to Jackson, EPA Administrator, June 1, 2009 (EPA-HQ-OAR-2005-0161-0952.1); RFA Letter to Jackson, EPA Administrator, Aug. 4, 2009 (EPA-HQ-OAR-2005-0161-1042.1) (both letters are attached under Appendix C). *See also* Adam J. Liska and Kenneth G. Cassman, *Recommendations for Life Cycle Assessment Methodology in the Renewable Fuel Standard Program (RFS2) of the U.S. EPA*, at 6 (June 9, 2009) ("Liska and Cassman (2009)") (EPA-HQ-OAR-2005-0161-0981.1).

Reg. 8452, 8460 (Feb. 22, 2002). *See also* EPA, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by EPA*, EPA/260R-02-008, at 19-21 (Oct. 2002) ("EPA IQA Guidelines").[8] Reproducibility means "that independent analysis of the original or supporting data using identical methods would generate similar analytic results, subject to an acceptable degree of imprecision or error." 67 Fed. Reg. at 8460. A "high degree of transparency" is necessary to facilitate the reproducibility of the information. *Id.* at 8460. OMB recognized the importance of transparency to meet the goal of objectivity under the IQA, "so that the public can assess for itself whether there may be some reason to question the objectivity of the sources." *Id.* at 8459.

Additional EPA guidance highlights transparency as key to any scientific analysis, emphasizing the need to adequately present this information to the public. *See* EPA Science Policy Council, *A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information*, EPA 100/B-03/001, at 1 (June 2003).[9] Recognizing the need for transparency in agency rulemaking, EPA has indicated a preference for non-proprietary models. EPA's *Guidance on the Development, Evaluation, and Application of Environmental Models*, EPA/100/K-09/003, at 31 (Mar. 2009).[10] According to EPA's *Guidance on the Development, Evaluation, and Application of Environmental Models* (at 32), "When a proprietary model is used, its use should be accompanied by comprehensive, publicly available documentation. This documentation should describe: …To the extent practicable, access to input and output data ***such that third parties can replicate the model results*** [emphasis added]."

The Obama Administration has repeatedly expressed its commitment to openness in government, transparency, and scientific integrity.[11]

Transparency has also been identified as key for ensuring proper use of lifecycle analysis by international standards. The International Organization for Standardization (ISO) has issued a standard for lifecycle assessments (ISO 14040, Environmental management — Life cycle assessment — Principles and framework (2d ed. 2006) (hereinafter "ISO 14040")). Transparency is a key component of these standards "to ensure a proper interpretation of the results." ISO 14040 at 7. Transparency is defined as "open, comprehensive and understandable presentation of information." ISO 14040 at 2. *See also id.* at 14. The credibility of the models used by EPA depend on their transparency and ensuring the models reflect the latest knowledge about agricultural and food systems. Bruce A. Babcock, *Measuring Unmeasurable Land-Use Changes from Biofuels*, Iowa Ag Review, at 6 (Summer 2009), *available at*

[8] Available at http://www.epa.gov/quality/informationguidelines/documents/EPA_InfoQualityGuidelines.pdf.

[9] Available at http://www.epa.gov/OSA/spc/pdfs/assess2.pdf.

[10] Available at http://www.epa.gov/crem/library/cred_guidance_0309.pdf.

[11] Jackson Opening Mem. to EPA Employees, Jan. 23, 2009, http://blog.epa.gov/administrator/2009/01/26/opening-memo-to-epa-employees/; Jackson Mem. to EPA Employees: Transparency in EPA's Operations, Apr. 18, 2009, http://blog.epa.gov/administrator/2009/04/24/memo-to-epa-employees-transparency-in-epas-operations/; Jackson Memo to EPA Employees: Scientific Integrity, May 9, 2009, http://blog.epa.gov/administrator/2009/05/12/memo-to-epa-employees-scientific-integrity/.

http://www.card.iastate.edu/iowa_ag_review/summer_09/IAR.pdf.[12] While EPA has provided some information on its lifecycle analysis, the information regarding its analysis of land use changes is insufficient to make its analysis transparent and cannot be reproduced, undermining the public's ability to comment and placing into question the scientific validity of its analysis.

C. The FAPRI Model, EPA's Modifications Thereto, and the Interactions Between FAPRI and FASOM Lack Transparency, and the Public Could Not Adequately Assess Either Model.

International indirect land use change emissions are the largest single source of emissions attributed to corn ethanol. Without these, corn ethanol would have a 60 percent benefit versus gasoline, instead of a 16 percent benefit (100 year, 2 percent discount rate) or a 5 percent increase (30 year, 0 percent discount rate), for a natural gas dry mill ethanol plant with dry distiller grains. 74 Fed. Reg. at 25,042. The Draft Regulatory Impact Analysis (DRIA) shows that the FAPRI model is the model that drives the majority of land use change emissions.[13] EPA, *Draft Regulatory Impact Analysis: Changes to Renewable Fuel Standard Program*, EPA-420-D-09-001, at 292 (May 2009) (referred to as "DRIA"). FAPRI, as configured and used by EPA, was not available for public use. Stakeholders, to date, have been unable to replicate EPA's work.

Although EPA provided information in the docket regarding the FAPRI model, the files provided were not accessible or did not provide sufficient information to understand or replicate EPA's methodology. In particular, no where in the record does EPA provide any information regarding how to set up or run the spreadsheets, what data needs to be shared between them, or how to determine when the system has reached "equilibrium." In fact, due to the structural nature of the FAPRI model, *no one outside of the FAPRI/CARD system can actually "run" the model in the way that it was run for EPA's analysis*. Because the model is inaccessible to run by anyone other than current FAPRI/CARD staff in the same manner that it was run for EPA, the FAPRI model results cannot be verified and, moreover, lack corroboration and validity. The inability to replicate EPA's FAPRI model results greatly weakens the capacity of stakeholders to provide meaningful comment. The inability of stakeholders to conduct sensitivity runs themselves is particularly problematic here because EPA conducted only limited sensitivity analyses on the effects of various model inputs on land use emissions with the FAPRI model.

Although EPA did provide for limited peer review of its methodology, peer review cannot substitute for public participation in the rulemaking. Further, peer reviewers raised similar concerns regarding the lack of transparency of the FAPRI model. *See* ICF International, *Lifecycle Greenhouse Gas Emissions due to Increased Biofuel Production: Model Linkage, Peer Review Report* at 9 (July 31, 2009) (EPA-HQ-OAR-2005-0161-1046) ("Model Linkage

[12] The model developed by the Food and Agricultural Policy Research Institute and run by the Center for Agricultural and Rural Development (CARD) at Iowa State University (FAPRI), where Dr. Babcock teaches, is one of the least transparent models, and is relied heavily upon by EPA in predicting international land use changes.

[13] The Forest and Agricultural Sector Optimization Model (FASOM) is used by EPA to develop domestic land use change emissions estimates. DRIA at 292. Unlike the FAPRI model, the FASOM model is available to the public for the public to conduct their own modeling, though at a steep price which essentially made it unavailable to most members of the public.

Report"). *See also id.* D-4 ("Lack of transparency and lack of useability beyond a limit set of experts represents the biggest weakness of the FASOM and FAPRI models. Even with the detail that EPA has provided on its analysis using these models, it is impossible to judge with confidence what is going on in these models, what limitations in the models may be biasing the results, or what fundamental data underlying the models may [be] influencing the outcomes.") (Comments of Mr. Sheehan), E-2 ("To compound these problems [with consequential lifecycle analyses], FASOM and FAPRI models that EPA has used for RFS2 were not available to stakeholders.") (Comments of Dr. Wang). There was similarly a lack of information as to how EPA combined the FASOM and FAPRI models for purposes of generating consistent domestic and international land use changes, or how emission co-efficients in the models were developed and how they compare with those in GREET. *Id.* at E-3 to E-4 (Comments of Dr. Wang). As has been stated by other members of the public, "If acceptable transparency can not be reached, the EPA should consider foregoing analysis of secondary indirect effects, while focusing on direct emissions in the interim." Liska and Cassman (2009) at 7 (EPA-HQ-OAR-2005-0161-0981.1)). EPA's methodology regarding international indirect land use changes simply does not provide acceptable transparency for the public to review and for any scientific analysis.

The public had similar problems assessing the FASOM model. While RFA's model evaluator at Air Improvement Resource, Inc. was able to obtain the FASOM model to replicate the Agency's results, the model contained a "start-up" file that only allowed users to run the various EPA cases. The start-up file, which was purposely made unintelligible to the user, prevented sensitivity runs on various key factors such as improved distillers grains assumptions and constraints on certain land sets. Therefore, RFA was unable to perform the desired sensitivity runs, which are necessary to fully understand the effects of EPA's inputs and assumptions. As further discussed in the next section, these runs are vital to be able to assess the validity of EPA's results and methodology. Air Improvement Resource, Inc. repeatedly requested assistance from EPA on how to decode the start-up file to perform these sensitivity runs, but EPA did not provide this assistance until two days before the close of the comment period, which was too late to allow robust sensitivity analysis. We note also that EPA did not provide access to the FAPRI model – which is evaluating the international ILUC – and the recent access to FASOM does not cure this problem.

To assure scientific integrity and compliance with the standards for a lifecycle analysis, EPA must utilize transparent models that can be reproduced and adequately assessed. To date, EPA's modeling does not sufficiently meet these requirements, and this deficiency renders any final rule based on the models arbitrary and capricious. Accordingly, RFA requests again that EPA make the models available for RFA to run itself and reopen the comment period so that RFA may comment on the results of those model runs and EPA's analysis.

D. EPA's Failure to Run Sensitivity Analyses Further Undermines the Validity of Its Proposed Action and Highlights the Public's Inability to Comment.

In addition to providing sufficient information to allow the public to replicate and fully understand EPA's analysis, EPA also must "apply especially rigorous robustness checks to analytic results and carefully document all checks that were undertaken." EPA IQA Guidelines at 21. In particular, an agency's use of predictive computer modeling in rulemaking is reasonable only if the agency sufficiently explains the assumptions and methodology that it used

when preparing the model. *Sierra Club v. Costle*, 657 F.2d 298, 333 (D.C. Cir. 1981). EPA has recognized the high uncertainty involved in its analysis of international indirect land use changes and the importance of sensitivity analyses. However, the Agency neglected to conduct robust sensitivity or formal uncertainty analyses on the factors that are most likely to alter the results. Due to the inability of stakeholders to physically run the FAPRI model and replicate EPA's indirect land use change results, the Agency should have, at a minimum, conducted much more robust sensitivity analysis on important factors and presented those results in the proposal. This seems particularly important given that EPA is using these analyses to make decisions on issues that are not within its expertise as an agency. Such sensitivity analyses would be a minimum level of investigation to provide the Agency itself with confidence that its results were valid and would have allowed the public to better understand EPA's results and how the FAPRI model works.

Well before the end of the comment period, RFA identified the minimum sensitivity analyses that EPA should conduct and provide to the public. RFA Letter to Jackson, EPA Administrator, Aug. 4, 2009, Attachment 1 (EPA-HQ-OAR-2005-0161-1042.1). The attached report by the Air Improvement Resource, Inc. provides additional discussion of the appropriate and necessary sensitivity runs EPA should conduct. *See* Tom Darlington, *et al.*, Air Improvement Resource, Inc., *Review of EPA's RFS2 Lifecycle Emissions Analysis for Corn Ethanol* (Sept. 2009) (referred to as "Air Improvement Resource RFS2 Report") (Appendix D). These include analysis of:

- Projected domestic and international crop yields;
- Distillers grains (DG) displacement ratios and ingredients displaced;
- Conservation Reserve Program (CRP) and cropland pasture land inventories;
- Pasture stocking rates in Brazil;
- Ethanol yield per unit of processed feedstock;
- Possible price-induced yield changes;
- Tillage practices on existing and newly converted cropland;
- Sequestration of carbon in harvested commercial wood products (construction materials, etc.); and
- Methane reduction through increased feeding of distillers grains.

To RFA's knowledge, as of September 24, 2009, EPA has neither conducted nor provided to the public such analyses. The lack of reproducibility of EPA's results (with respect to FAPRI), and the lack of analysis as to robustness of these results, calls into question whether the FAPRI or FASOM models rise to the level of scientific validity, utility, objectivity or integrity that can be reasonably used in this type of rulemaking process. As such, it is inappropriate at this time to use either model to establish point estimates for international indirect land use change emissions in this rulemaking.

IV. EPA'S LIFECYCLE ANALYSIS OF INDIRECT EMISSIONS FROM INTERNATIONAL LAND USE CHANGES IS NOT BASED ON SOUND SCIENCE AND IS NOT READY FOR REGULATORY PURPOSES.

A. EPA's Assertions that the Models it Uses are the "Best Available" is Not Sufficient to Establish they are Based on Sound Science or are Appropriate for Regulation.

As explained in detail below, the proposal's adoption of an indirect international land use change analysis for lifecycle GHG emissions is substantively flawed in several respects and does not reflect sound science necessary for regulation. EPA recognizes the significant uncertainty in its analysis at several points in the preamble (*e.g.*, indirect, international emissions are the component of our analysis with the highest level of uncertainty," 74 Fed. Reg. at 25,027). Notwithstanding this recognition, the Agency glosses over the problem by claiming that there is "overall certainty" that land use change exists, that GHG emissions will result and that there is a cause and effect linkage to the increased use of feedstock for production of renewable fuels. *Id.* While we disagree that there is "overall certainty" on these elements, even if there such certainty existed, it does not answer the problem that EPA has to be able to determine the magnitude of the effects in order to determine whether or not they are "significant" under Section 211(o) (which addresses significant indirect emissions).

Moreover, EPA's attempt to excuse the lack of credibility and certainty in its results by calling the analyses "cutting edge," *id.* at 24,912, is just another way to say that the Agency does not know if its results are in fact correct. Similarly, EPA cannot excuse these deficiencies because it has used methodologies that it considers the "best available." Even if EPA did use the best available approach, if that approach does not pass statutory muster, it may not be used.

1. There is insufficient science to include international indirect land use changes.

EPA's methodology for assessing indirect land use changes is new and untested, and simply fails to rise to the level of scientific integrity necessary to support regulatory actions. There are currently no accepted scientific methods for estimating indirect land use change associated with biofuel production, and EPA's use of various models, in particular the FAPRI model, is not consistent with accepted standards for lifecycle analysis. Any lifecycle analysis, and particularly any analysis of indirect emissions, must utilize sound science. Because there is insufficient science at this time, EPA should not include international indirect land use changes in its lifecycle analysis. Even though the statute requires EPA to consider *significant* indirect emissions when calculating a renewable fuel's emission profile, the statute does not require EPA to rely on faulty data and to make unrealistic assumptions.

Numerous scientists and experts have indicated that the "science" to address indirect land use change is simply not ready to be used for regulatory purposes. *See* Letter from Blake A. Simmons, *et al.*, to the Honorable Arnold Schwarzenegger, Office of the Governor (Mar. 2. 2009); Letter from Bruce Dale, *et al.*, to Stephen L. Johnson, Administrator, EPA (Oct. 2008); Letter from Blake A. Simmons, *et al.*, to Mary D. Nichols, Chairman, California Air Resources Board (June 24, 2008); Letter from Bruce Dale to Colleagues (Mar. 3, 2008) (These letters are

included as Appendix E.). Recently, a group of deans, provosts and other officials from different universities, including non-Corn Belt states such as Hawaii, Arkansas, Arizona, and Oklahoma, wrote: "We believe scientific data aren't currently available on a global basis to be able to accurately determine the extent to which biofuel production causes land use changes in remote locations or the greenhouse gas emissions that might exist." Letter from Association of Public Land-Grant Universities to the Honorable Colin Peterson and the Honorable Frank D. Lucas, at 2 (Sept. 8, 2009) (Appendix F). The letter further states: "The possible consequences of not exploring the full potential of biofuels could be a failure to reduce dependence on foreign oil supplies and a failure to substantially reduce greenhouse gas emissions." *Id.* at 1. There are numerous issues that must be considered and consensus approaches must be developed before EPA should attribute indirect emissions to the biofuel industry when it has no control over such emissions. *See id.* at 2. *See also* Hyungtae Kim, *et al.*, *Biofuels, Land Use Change, and Greenhouse Gas Emissions: Some Unexplored Variables*, 43 Eviron. Sci. Technol. 961 (2009) ("Kim, *et al.* (2009)"). While others in the public have indicated that such uncertainty should not delay consideration of international indirect land use changes, EPA must remember the other key goals of the EISA in promoting domestic sources of renewable fuels -- energy independence and security and economic benefits. Congress has made a policy decision, which EPA cannot use uncertain and speculative science to undermine.

Even EPA's peer review process (though flawed) showed no consensus and high uncertainty with respect to its inclusion of indirect emissions from international land use changes. EPA's peer review summary notes that "[t]he reviewers all agreed that there is no single model that can capture all of the multi-sector interactions under consideration." Model Linkage Report at 5 (EPA-HQ-OAR-2005-0161-1046). One of the best known and widely respected experts in lifecycle analysis of fuels, Dr. Michael Wang stated:

> It is obvious that regulatory needs of addressing indirect effects, especially LUCs, are ahead of scientific understanding of interactions among different sectors and among different activities. In my opinion, while LCA emission results of direct effects such as farming and biofuel production technologies are with some degree of certainty, results from CGE models and partial equilibrium models are subject to great uncertainty.

Id. at E-3 (Comments of Dr. Wang). He further noted that "one may question the rationale of using economic modeling for developing regulation that is intended to promote technology innovations such as advanced biofuels." *Id.* at E-8. "[C]onclusions regarding GHG emissions effects of biofuels based on speculative, limited land use change modeling may misguide biofuel policy development." Michael Wang and Zia Haq, *Letter to Science*, at 3 (Mar. 14, 2008), *available at* http://www.transportation.anl.gov/pdfs/letter_to_science_anldoe_03_14_08.pdf ("Wang Letter").

While the peer review report notes that the reviewers agreed that EPA's choice to use a partial equilibrium model "was reasonable," Model Linkage Report at 1, the peer reviewers, in fact, disputed the usefulness of using these models, noting simply that it was reasonable because the models were the best of those "available." *See id.* at D-1 (Comments of Mr. Sheehan). *See also id.* at E-3 to E-6 (Comments of Dr. Wang), B-1 (Comments of Dr. Banse). The peer

reviewers included significant qualifications to these comments, noting: "[T]he tools that have been applied were never meant to address in a systematic or comprehensive way the kinds of regulatory questions imposed on EPA by EISA 2007. The analyses done by EPA's researchers must be viewed at best as a preliminary and limited look at the question of indirect land-use change." *Id.* at D-1 (Comments of Mr. Sheehan).[14] Thus, an in-depth look at the peer review statements indicates that EPA's initial characterization of the peer review as supporting its analysis is incorrect. Instead, the peer reviewers simply concluded that the models were the best of those available. But, EPA is held to a higher standard than simply using the best available, if that best does not meet minimum standards of reliability. This is particularly true when the result of these analysis is to undermine the goals of the statutory provision that EPA is implementing, i.e., to promote rather than disadvantage use of renewable fuels.

2. The economic models being used were not intended for the purposes in which they are being used by EPA.

As Mr. Sheehan noted in his peer review comments, the FASOM and FAPRI models being used by EPA to assess indirect land use changes were not intended for the purposes in which they are being used by EPA. These are economic models that attempt to assess the impacts of changes in policy and economic parameters on prices and agricultural commodities, and were not intended to forecast absolute levels of exports. *See* C. Phillip Baumel, The Institute for Agriculture and Trade Policy, *How U.S. Grain Export Projections from Large Scale Agricultural Sector Models Compare with Reality*, at 2 (May 15, 2001), *available at* http://www.healthobservatory.org/library.cfm?RefID=36098. Indeed, the inherent assumptions of the models trend the findings toward overestimating exports compared to actual data. *Id.*

In a working paper that evaluated FAPRI's utility as a forecasting tool, Iowa State Economics Prof. Robert Wisner and others stated: "The models were initially constructed to analyze impacts of alternative U.S. and global agricultural policies, and were never intended for forecasting." Robert N. Wisner, *et al.*, *Are Large-Scale Agricultural-Sector Economic Models Suitable for Forecasting?*, at 2, *available at* http://www.econ.iastate.edu/faculty/wisner/largescalemodels.pdf. Further, the authors found:

> Forecast errors stem from a number of sources requiring substantial increases in funding to revise the models if they are to be used for forecasting. Sources of forecasting error include rapid structural changes in global agriculture, inadequate projections of technological change, limitations in supply functions, restrictive assumptions about income elasticity of demand, and failure to adequately utilize information from past forecasting errors. Substantial funding will be required to convert these policy oriented models into reliable forecasting models.

[14] Although, as discussed below, RFA believes his inclusion in the peer review process illustrates the bias of the chosen panelists, even Mr. Searchinger noted: "Because of these uncertainties, EPA is wrong to place so much emphasis on any one estimate." Model Linkage Report at C-3 (Comments of Mr. Searchinger).

Id. at 17. FAPRI itself recognizes the limited utility of its projections for planning, not regulation: "The multi-year projections are published as FAPRI Outlooks, which provide *a starting point* for evaluating and comparing scenarios involving macroeconomic, policy, weather, and technology variables. These projections are intended for use by farmers, government agencies and officials, agribusinesses, and others who do medium-range and long-term planning." FAPRI, *About FAPRI, available at* http://www.fapri.iastate.edu/about.aspx (emphasis added). Economic forecasting using models as tools to identify the potential impacts of a policy decision is different than assessing emissions for regulatory purposes to implement that policy.

EPA and others claim that the FAPRI model is appropriate because it has been used by numerous government entities to inform *agricultural* policy decisions, largely economic policies that may influence agricultural prices. The use of such economic models, however, is caveated. For example, USDA has a note to users on its agricultural projections: "The scenario presented in this report is not a USDA forecast about the future. Instead, it is a conditional, longrun scenario about what would be expected to happen under a continuation of current farm legislation and specific assumptions about external conditions." USDA *Agricultural Projections to 2018, Long-term Projections Report* OCE-2009-1, at iii (Feb. 2009), *available at* http://www.ers.usda.gov/Publications/OCE091/OCE091.pdf. Bruce Babcock testified before Congress that: "The precision with which models can estimate emissions associated with market-induced land use changes is low." Bruce A. Babcock, CARD, Iowa State University, Statement Before The Subcommittee On Conservation, Credit, Energy, And Research, U.S. House Committee On Agriculture, Hearing on indirect land use and renewable biomass provisions of the renewable fuels standard, at 3 (May 6, 2009), *available at* http://www.card.iastate.edu/presentations/babcock.landusechange.housesubcomm.final.5.092.pdf ("Babcock Testimony"). There are no examples of FAPRI being used to identify a specific score to be used for regulatory purposes.

Moreover, EPA was required to make major structural adjustments to both the FAPRI and FASOM models, which are highly dependent on inputs and assumptions used. For example, the FAPRI/CARD model was designed to produce a 10-year projection, but EPA "forced" it to produce a projection through 2022. (As noted above, it is unclear how EPA adjusted the model, as there is insufficient information in the docket.) Thus, the mere fact that these models may be "available" and may have been used for other purposes does not justify EPA's use of these models here, certainly not without addressing the numerous concerns and uncertainties raised by the public, scientists and, even EPA's own peer reviewers.

OMB and EPA's guidance under the IQA requires more. The IQA required OMB to issue guidelines that provides "policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies." 67 Fed. Reg. at 8452. *See also* EPA IQA Guidelines.[15] Quality is an encompassing term defined to include utility, objectivity and integrity. 67 Fed. Reg. at 8459. "'Utility' refers to the usefulness of the information to its intended users, including the public." *Id.* Objectivity includes two elements -- presentation and

[15] EPA is also responsible for the quality of information generated by external parties when it endorses or adopts it, as is the case here. EPA IQA Guidelines at 8.

substance. *Id.* Substantive objectivity involves ensuring accurate, reliable and unbiased information, and presentational objectivity ensures that the information is being presented in an accurate, clear, complete, and unbiased manner. Under the guidance, error sources affecting data quality should be identified and disclosed to users. The IQA guidelines also provide, for analysis of risks to the environment, that the standards set forth in the Safe Drinking Water Act at 42 U.S.C. § 300g-1(b)(3) should be followed. This section provides that the Administrator shall use (1) "the best available, peer-reviewed *science* and supporting studies conducted in accordance with *sound and objective scientific practices*" and (2) "data collected by accepted methods or best available methods (*if the reliability of the method and the nature of the decision justifies use of the data*)." 42 U.S.C. § 300g-1(b)(3)(A) (emphasis added). The provision also requires that EPA "ensure that the presentation of information on public health effects is comprehensive, informative, and understandable," including providing "methodology used to reconcile inconsistencies in the scientific data." *Id.*§ 300g-1(b)(3)(B). The models were not designed for the purpose in which EPA is seeking to use them, and, as such, there is no justification to use the models. In addition, as discussed above, the models are not transparent or reproducible, and, as will be further discussed below, the models are not based on sound and objective scientific practices. As such, the mere fact that the models are "available" is not sufficient under the IQA.

3. EPA's peer review does not save its approach.

OMB recognizes peer review as an important tool toward meeting the IQA requirements, particularly for "influential" scientific information. OMB, Final Information Quality Bulletin for Peer Review, Dec. 16, 2004, *available at* http://www.whitehouse.gov/omb/memoranda/fy2005/m05-03.pdf (referred to as "OMB Bulletin"). As OMB found, "[m]ore rigorous peer review is necessary for information that is based on novel methods or presents complex challenges for interpretation [and] the need for rigorous peer review is greater when the information contains precedent-setting methods or models, presents conclusions that are likely to change prevailing practices, or is likely to affect policy decisions that have a significant impact." *Id.* at 12. *See also id.* at 22. OMB notes that, "[r]egardless of the peer review mechanism chosen, agencies should strive to ensure that their peer review practices are characterized by both scientific integrity and process integrity." *Id.* at 13. EPA's peer review fails on both of these counts.

EPA's process was closed to the public, and has the appearance of bias. Peer review guidance emphasizes public participation during the peer review process. For example, OMB guidance provides that "[a]gencies shall consider requesting that the public, including scientific and professional societies, nominate potential reviewers" OMB Guidance at 17. Public participation can take a variety of forms, including opportunities to provide oral comments before a peer review panel or requests to provide written comments to the peer reviewers. *Id.* at 21. EPA's guidance indicates that it may ask for stakeholder input on the charge to peer reviewers, but should not limit input to one stakeholder or one side of a controversial issue. EPA Peer Review Handbook, EPA/100/B-06/002, at 58 (3d ed. 2006). It also provides that, if feasible and appropriate, EPA should sponsor a public meeting where oral presentations on scientific issues can be made to the peer reviewers by interested members of the public. *Id.* at 59. It also states, when employing a public comment process as part of the peer review, EPA should provide the reviewers access to the public's comments that address scientific or technical issues. *Id.* Finally, EPA guidance indicates the following should be made available to the public in the administrative record: (a) the draft work product submitted for peer review; (b) materials and

information given to the peer reviewers; (c) the peer review report, which summarizes the peer review findings and contains information about the peer reviewers; (d) logistical information about the conduct of the peer review; (e) a memorandum, or other record, responding to the peer review comments; and (f) the final work product. *Id.* at 50. Although EPA has provided some of this information in the docket, other pieces have not been added to the record and EPA has essentially excluded the public from the peer review process.

Although EPA noted that it provided "names of reviewers recommended by stakeholders." EPA, *Questions and Answers, Peer Review of Renewable Fuels Lifecycle Analysis Under EISA*, EPA-420-F-09-032 (Aug. 2009), it does not indicate who provided the recommendations, and there was no broad request for recommendations from all stakeholders. OMB guidance also provides that reviewers should be selected to represent a diversity of scientific perspectives relevant to the subject. OMB Bulletin at 17. EPA's guidance provides that it also looks at appearance of lack of impartiality, which concerns issues that are financial or not financial in nature. Several of the peer reviewers selected had a clear and biased perspective, and there was little balance in some of the panels. Many are associated with environmental organizations (some of which have expressed opposition to corn ethanol), and none appeared to represent industry or the agricultural community.

While conflicts and lack of impartiality may not prohibit persons from serving as a peer reviewer, such is the case only if such issues are disclosed. Only one peer review summary provided the considerations used for determining bias. Ross & Associates Environmental Consulting, Ltd., *Peer Review Report: Peer Review of International Agricultural Greenhouse Gas Emissions and Factors as provided to EPA to support its RFS2 rulemaking*, at 2 (July 30, 2009), *available at* http://www.epa.gov/OMS/renewablefuels/rfs2-peer-review-intl-ag.pdf. For example, Mr. Searchinger provided only a limited response to the peer review questions, and indicated that he plans to supplement these comments. Model Linkage Report at C-1. Indeed, EPA's analysis is largely based on Mr. Searchinger's own work and follows a remarkably similar methodology, and it is unclear to RFA how he can provide an objective review of such work.

In addition, EPA has not made all of this information available. EPA does not identify what documents were provided to the peer reviewers. Even though the peer review was conducted simultaneously with the public comment period, EPA has provided stakeholders the opportunity to meet with EPA's modelers to discuss the status of its lifecycle analysis throughout the rulemaking process, which RFA appreciates, and information has been submitted to the docket and to EPA during these meetings. Despite numerous requests from RFA to have the opportunity to submit information to the peer reviewers, there is no indication that EPA provided any information that the public has submitted to EPA during this rulemaking process. As of September 24, 2009, the peer review record has not been provided to the public.

Finally, and significantly, reviewers were asked to evaluate a proposed regulation that may look markedly different than the final rule. EPA indicated in the Proposed Rule that it was "still working on" or "considering alternatives" for many very important components of the analysis. *See supra* Section II.A., and Appendix A.

B. EPA's Analysis Does Not Comply with ISO Standards on Lifecycle Analysis.

EPA claims to have relied on ISO standards for its review. 74 Fed. Reg. at 25,024. The ISO Standard notes, a lifecycle analysis can be useful to inform policy related to environmental performance, particularly "identifying opportunities to improve the environmental performance of products." ISO 14040, at v.[16] The ISO Standard is well-recognized and widely used, and expresses a preference for a scientific approach over models from the social and economic sciences. This is because the amount of subjectivity involved in the economic models makes it highly questionable whether they can ever meet the ISO Standard. EPA provides no explanation of how its methodology attempts to comport with the ISO Standard. Iowa State University Prof. Bruce Babcock, a key practitioner of the FAPRI models used by EPA, explains that large-scale economic models like FAPRI simply "cannot meet ISO standards" in part because, "[m]odels are formed from modeler insight, assumptions, simplifications, and lots of subjective judgment calls." Bruce A. Babcock, *Measuring Unmeasurable Indirect Land Use from Biofuels*, Presentation at Land Use and Carbon Impacts of Corn-Based Ethanol Conference, St. Louis, Mo., at slide 19 (Aug. 25, 2009), *available at* http://www.ncga.com/files/pdf/Babcock.pdf.

EPA's claim that its analysis of international land use changes complies with the ISO standards is wrong, and it is absolutely clear that substantially more work is needed to obtain better data and to understand the numerous factors that affect land use decisions and their interaction. For example:

- **The analysis fails to use consistent system boundaries in conducting its comparisons between renewable fuels and the baseline petroleum.** A key principle of the ISO Standard for lifecycle analysis is to utilize appropriate system boundaries to make valid comparisons. EPA uses different time periods and system boundaries for petroleum fuels than it does for renewable fuels.

  First, EPA does not use the same time periods for petroleum as it does for renewable fuels. EPA uses 2005 for petroleum baseline based on the statutory language, but then looks at a future scenario for renewable fuels. This difference in time period is particularly problematic here, where one of the biggest weaknesses identified with respect to the economic models used by EPA is whether these models can accurately project future global improvements in agriculture and future demand for agricultural products. *See, e.g.*, Model Linkage Report at D-4 (Comments of Mr. Sheehan).

  Second, as Dr. Wang explained, EPA has used a traditional attributional lifecycle analysis for petroleum, but a consequential approach for renewable fuels. Model Linkage Report at E-2 (Comments of Dr. Wang). *See also id.* at E-4 ("No consequential LCA was conducted to address potential indirect effects for [petroleum gasoline].") (Comments of Dr. Wang). "Traditionally, LCAs for transportation fuels have been conducted with the attributional LCA approach, through which individual processes/activities (direct effects) of a fuel cycle are identified (especially with detailed technology characterization), and the energy use and emission burdens of individual processes/activities are assessed." *Id.* at E-2. "On the other hand, the consequential LCA approach takes into account the direct effects and the indirect

[16] Lifecycle analysis, however, "does not predict absolute or precise environmental impacts." ISO 14040 at 9.

effects together by using economic models." *Id.* In particular, EPA's analysis does not include any land use changes associated with petroleum exploration and production, a significant omission given that much of the land use changes involve *direct* emissions from these activities. EPA's only explanation is an unsupported statement that it does not expect *indirect* land use impacts associated with 2005 petroleum to be significant, and that it would be "difficult" to assess other indirect emissions from maintaining a U.S. military presence to help secure a stable oil supply. 74 Fed. Reg. at 25,040, 25,092.

Additionally, indirect land use change is just one example of an infinite number of highly uncertain market-mediated, ripple impacts that occur as the result of changes in the energy marketplace. EPA expanded the system boundaries of its biofuels analysis to encompass these types of secondary, economically-derived impacts, but it failed to expand the boundaries similarly for its analysis of the 2005 petroleum baseline. Further, the Agency failed to examine what types of marginal fuels would be used instead of biofuels in a business-as-usual case, as well as the secondary economic and environmental effects that would result from the use of those fuels.

It is a basic concept that because oil is deeply imbedded throughout our global marketplace, even a slight change in the energy markets can cause cascading effects throughout the world economy. As an example, changes in the oil market have significant direct and indirect impacts on the agricultural decision-making process world-wide. According to a 2008 paper by Purdue University economists, rising oil prices were the key driver of the boom in ethanol production in the last 5 years. Philip C. Abbott, *et al., What's Driving Food Prices?* Farm Foundation Issue Report, at 6 (July 2008), *available at* http://www.farmfoundation.org/news/articlefiles/404-FINAL%20WDFP%20REPORT%207-28-08.pdf ("Abbott, *et al.* (2008)"). Thus, the impact of oil prices must be strongly considered in any discussion of ethanol's impact on agricultural commodity prices and the resulting land impacts. "Essentially, the mechanism is higher crude [price] leads to higher gasoline [price], which leads to higher ethanol [price], which leads to more ethanol production, which increases corn demand, which increases corn price." *Id.* at 44. In fact, the Purdue study attributed 75 percent of the 2007-2008 increase in corn prices to rising crude oil prices. *Id.*

- **The analysis suffers from a lack of reliable and updated data, and it cannot be validated.** Another major principle of the ISO Standard is to use the most recent/most accurate data possible and to validate the data. EPA recognized the lack of reliable data for international crop production and projected future trends compared to the United States. 74 Fed. Reg. at 25,028. This leads to high uncertainty regarding inputs and inconsistency between domestic and international emission estimates. DRIA at 340-41. Bruce Babcock stated: "Our ability to accurately measure the extent of land use changes outside the United States is limited because of a lack of reliable data and a lack of knowledge about what is actually going on in other countries." Babcock Testimony, at 2. EPA also relies on satellite data from 2001-2004, which has a high error rate and does not accurately reflect historical or current dynamics regarding land use changes, among other data that is not the most recent.

  Further, the ISO Standard emphasizes that validation of large-scale models must be done against real-world data whenever possible. EPA has not performed any backcasting or other method of validation, comparing the results of its modeling against the real world. Bruce

Babcock suggests that, due to the nature of the forecast, EPA's estimates "can never be verified by ground truth." Bruce Babcock, *Measuring Unmeasurable Indirect Land Use from Biofuels, Land Use and Carbon Impacts of Corn-Based Ethanol*, Conference, St. Louis, Aug. 25, 2009. This further supports the argument that EPA's analysis does not and cannot meet ISO standards for lifecycle analysis, despite the Agency's assertion that it relied upon ISO standards.

- **The analysis is not transparent and cannot be reproduced.** *See supra* Sections III.B.-D.

- **The analysis fails to provide sufficient explanation of the uncertainties involved in evaluating international indirect land use changes.** The ISO Standard contemplates performance of uncertainty and sensitivity analyses to qualify, check, evaluate and present the conclusions based on the findings. EPA admits much uncertainty in its analysis throughout the Proposed Rule, particularly with respect to its analysis of indirect, international emissions. *See* 74 Fed. Reg. at 24,916, 25,024, 25,027, 25,032. Nonetheless, it conducted limited sensitivity analysis and declined to do an analysis of this uncertainty for the Proposed Rule. *Id.* at 25,026-25,027. *See also* DRIA at 303-304.

Contrary to EPA's claim, it appears to have wholly ignored fundamental principles of a lifecycle analysis under the ISO Standard. Simply because the models were "available" does not mean that EPA should use them, especially when they violate international standards for such analysis and are not scientifically valid. The lack of scientific validity of the approach renders EPA's methodology wholly unreasonable.

C. Comparison of the Economic Models Reviewed by EPA Show Widely Disparate Results and Inability to Predict Far into the Future or to Reflect the Real World.

1. Although RFA does not support the California Air Resources Board's (CARB) analysis of emissions from indirect land use change, CARB's disparate results compared to EPA show the high uncertainty in using these types of models.

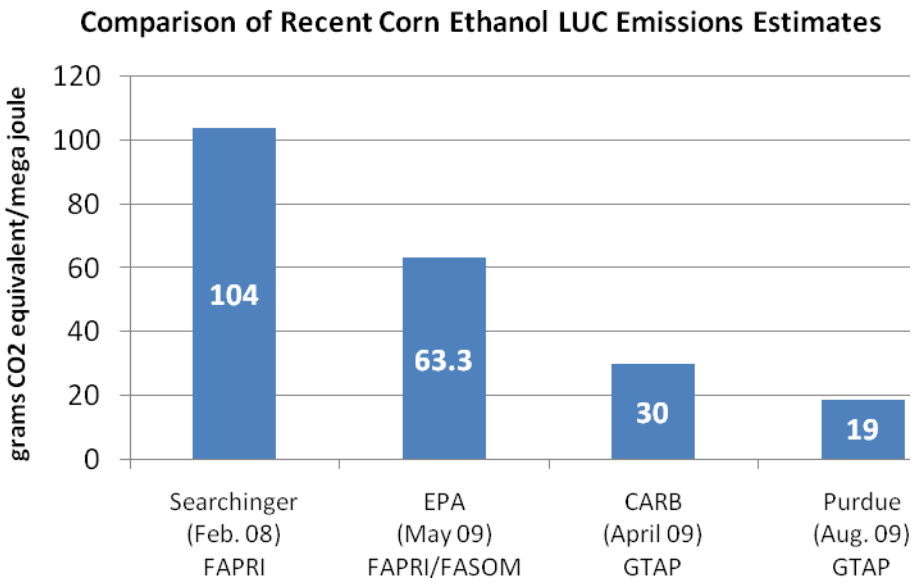
Using the FASOM and FAPRI models, EPA estimated that 4.8 million acres of new cropland would be needed to support an expansion of 2.6 bgy between a 2022 reference case containing 12.4 bgy of corn ethanol and a control case with 15 bgy of corn ethanol (1.85 acres per 1,000 gallons of ethanol). DRIA at 280. EPA estimates 0.3 million acres of this conversion would occur in the United States, and 4.5 million acres would be needed abroad. The conversion of this land to cropland translates to overall land use emissions (domestic and international) of approximately 63.3 g CO2eq./MJ for corn ethanol (30 years, 0% discount).

CARB employed Purdue University's Global Trade Analysis Project (GTAP) model to conduct its land use change analysis. Using GTAP, CARB estimated that 9.6 million acres of land would be converted worldwide to support a 13.25 bgy corn ethanol expansion (1.75 bgy to 15 bgy). This equates to a rate of 0.72 acres per 1,000 gallons of new ethanol production, which is 39 percent of EPA's estimate for acres per 1,000 gallons. Of this amount, CARB estimates 3.9 million acres (40% of the total) occurs in the United States. CARB's resulting total land use emissions are 30 g CO2eq./MJ for corn ethanol, less than half of EPA's result. As argued in its

comments to CARB (attached hereto as Appendix G), RFA believes GTAP has numerous flaws that, when corrected, would further reduce CARB's land use change emissions estimate.

Purdue's most recent GTAP estimates of land use change resulting from corn ethanol expansion is about 0.44 acres per 1,000 gallons and approximately 19 g CO2eq./MJ. Wally Tyner, *Estimating GHG Emissions Induced by Biofuels*, Land Use and Carbon Impacts of Corn-Based Ethanol Conference, St. Louis, Mo. (Aug. 25, 2009), *available at* http://www.ncga.com/files/pdf/ Tyner.pdf. The latter figure is just 30 percent of EPA's current estimate and just 19 percent of the original estimate postulated by Searchinger less than two years ago.

Given that estimates of corn ethanol land use change emissions have been reduced by a factor of five in the course of just 18 months, it is abundantly clear that the science surrounding land use change is nascent and rapidly evolving. The widely disparate results coming from EPA, CARB, and others is further evidence that the results are highly sensitive to a number of exceedingly uncertain input parameters and assumptions.



Note: All values based on 30 years, 0% discount.

2. Comparing these results to the real world shows that these models are not reasonable to assess emissions attributable to ethanol.

The hypothesis of indirect land use change is testable against empirical data. In essence, the theory of indirect land use change postulates that increased use of corn for ethanol will reduce U.S. soybean acres, reduce the availability of corn and soybeans for exports, significantly reduce corn and soybean surpluses (ending stocks), and induce land conversion globally to account for U.S. crops "diverted" to biofuels. Indeed, it is largely the reduction in exports that triggers international indirect land use change in EPA's analysis. The table below tests this simple hypothesis by examining changes in U.S. corn and soybean markets from 1999/00 to 2009/10, the period over which biofuels production has significantly grown. The table shows

that over a period when corn ethanol production increased more than 600%, soybean acres actually *increased*, corn and soybean exports *increased*, and ending stocks were largely unchanged. Total U.S. area for major crops (wheat, feed grains, oilseeds, and cotton) is also shown in the table to demonstrate that increases in corn and soybean area have been offset by reductions in planted area for other crops, such as cotton and wheat.

		Crop Year		Change
		1999/00	2009/10	% +/-
Corn Acres	m. acres harvested	70.5	80.0	13%
Corn Yield	bu./acre	133.8	161.9	21%
Corn Production	m. bu.	9,431	12,954	37%
Corn Use for Ethanol	m. bu.	595	4,200	606%
Corn Exports	m. bu.	1,937	2,200	14%
Ending Stocks	m. bu.	1,718	1,635	-5%
Soybean Acres	m. acres harvested	72.3	76.8	6%
Soybean Yield	bu./acre	36.7	42.3	15%
Soybean Production	m. bu.	2,657	3,245	22%
Crush (meal & oil production)	m. bu.	1,579	1,690	7%
Soybean Exports	m. bu.	990	1,280	29%
Ending Stocks	m. bu.	290	220	-24%
U.S. Major Crop Area	m. acres planted	252.5	250.5	-1%

Source: USDA (09/10 estimates from Sept. WASDE)

While these comparisons do not look at changes in the marketplace relative to the changes that might have occurred in a world without the RFS (as EPA has done in its analysis), they further support the notion that agricultural markets in the real world frequently contradict economic theory and highlight the need to exercise caution when interpreting the results of economic models.

V. EPA'S INCLUSION OF INDIRECT EMISSIONS FROM INTERNATIONAL LAND USE CHANGES IN ITS LIFECYCLE ANALYSIS GOES BEYOND THE STATUTORY LANGUAGE AND INTENT OF CONGRESS.

The definition of "lifecycle greenhouse gas emissions" includes "direct emissions and *significant* indirect emissions such as *significant* emissions from land use changes . . . related to

the full *fuel lifecycle*." 42 U.S.C. § 7545(o)(1)(H) (2009) (emphasis added). EPA asserts that the definition uses terms that are "expansive" such as "full" and "related to," indicating Congress intended that the definition be broad. 74 Fed. Reg. at 25,023. EPA, however, fails to define the terms "significant" and "fuel lifecycle." *Id.* These limitations make clear that Congress did not intend such a broad reading of the definition to include *international* land use changes, particularly where the emissions are so speculative and uncertain. Rather, Congress sought to ensure a minimum volume of renewable fuel be sold to take advantage of their GHG benefits compared to petroleum. EPA's speculative and uncertain analysis advantages petroleum over renewable fuels with no empirical evidence to support its claims.

There is no evidence that Congress intended to address international indirect land use changes through the RFS program. "The canon of construction which teaches that legislation of Congress, unless a contrary intent appears, is meant to apply only within the territorial jurisdiction of the United States . . . is based on the assumption that Congress is primarily concerned with domestic conditions." *Foley Bros. v. Filardo*, 336 U.S. 281, 285 (1949). The Clean Air Act addresses emissions and air quality in the United States. 42 U.S.C. § 7401(b). Consistent with the presumption against extraterritorial application of U.S. laws, when Congress wanted to provide for consideration of air pollution impacts in other countries it expressly provided. *See, e.g.,* 42 U.S.C. §§ 7415 (international air pollution), 7472(a) (referring to international and national parks for designation as Class I areas), 7671b(d) (requiring projections of international and domestic controls on ozone depleting substances), 7671p (international cooperation). *See also* Clean Air Act, Amendments, Pub. L. No. 101-549, § 603, 104 Stat. 2399 (1990) (study on international methane emissions). Congress provided no indication that EPA should include indirect emissions occurring outside the United States in the definition of lifecycle GHG emissions. Instead, there is evidence that Congress was, in fact, concerned only with *domestic* indirect emissions. Congress required a study of potential "secondary" impacts of the RFS on production of feed grains, livestock, food, forest products, and energy, requiring recommendations to address impacts on *domestic agriculture.* Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 203, 121 Stat. 1492 (2007).

While there are exceptions to the general presumption against extraterritoriality, they are not applicable here. For example, in *Environmental Defense Fund, Inc. v. Massey*, 986 F.2d 528, 532 (D.C. Cir. 1993), the court found that the presumption against extraterritorial application of statutes did not apply where conduct regulated by the statute occurs primarily, if not exclusively, in the United States, while the alleged extraterritorial effect of the statute will be felt outside the United States. While the RFS regulates fuel use in the United States, the activity that results in much of the land use changes occur outside of the United States. And, although GHG emissions have global impacts, the adverse effects from the international land use changes would not occur *within the United States*. *Id.* at 531. EPA does not attempt to rely on these exceptions to the presumption, claiming, instead, that it would not make sense to include *direct* emissions occurring outside the United States from the lifecycle analysis. 74 Fed. Reg. at 25,024. However, indirect emissions occurring internationally as a result of others' actions is fundamentally different from direct emissions associated with fuel production where the fuel is sold and used within the United States. Direct emissions occurring internationally have been part of the traditional lifecycle analysis of which Congress was aware, are more easily identified, and can be traced to a particular stage of the *fuel's* lifecycle. Moreover, the goal of the RFS was to assist this country's efforts to move away from its dependence on foreign oil in favor of

domestic sources of renewable fuels. There is no indication, however, that Congress intended EPA to attempt to address land use decisions in other countries that have an attenuated link, at best, to domestic sources of renewable fuels.

One of the main reasons behind this presumption is to ensure that there is no conflict with the laws of other countries. *United States v. Delgado-Garcia*, 374 F.3d 1337, 1344 (D.C. Cir. 2004). EPA's analysis is making judgment calls regarding another country's supply of food and agricultural sector. Foreign governments clearly have substantial interest in policies behind land use, food supply, and agricultural production within their own borders. *See NRDC, Inc. v. Nuclear Regulatory Comm'n*, 647 F.2d 1345 (D.C. Cir. 1981) (upholding permit for export of nuclear materials without evaluating the health, safety, and environmental impacts within the recipient nation). Moreover, an international response to the climate change issue has long been debated. In addition, the U.S. Department of Energy ("DOE") and the U.S. Department of State are working with the international community to address the impacts of land use changes. DOE Response to Searchinger, *DOE Actively Engaged in Investigating the Role of Biofuels in Greenhouse Gas Emissions from Indirect Land Use Change* (Mar. 2008), *available at* http://www1.eere.energy.gov/biomass/pdfs/obp_science_response_web.pdf.

Further, Congress did, in fact, place limits on EPA's authority to assess such emissions, which evidences an intent not to include such attenuated and speculative emissions. EPA looks over the fact that Congress sought to include only "significant" indirect emissions, and fails to properly assess whether such emissions are related to the *fuel's* lifecycle. Instead, EPA relies on a speculative analysis, assuming that such changes occur as a result of production of biofuels in the United States. Real world evidence shows, however, that land use changes associated with corn ethanol are not likely to be significant.

A. Congress Placed Limits on EPA's Lifecycle Analysis of Indirect Emissions.

Congress defined the lifecycle analysis to include emissions "related to the full *fuel* lifecycle," and, while such emissions are to include indirect emissions, the indirect emissions must be "significant." EPA assumes away these limitations imposed by Congress on what should be included in the lifecycle analysis for the RFS.

First, Congress limited EPA's authority to include only those emissions related to the *fuel* lifecycle. This limitation to the fuel lifecycle can be read to indicate that the definition was not intended to include more attenuated effects, which are not within the fuel lifecycle, but are part of the food/livestock lifecycle. Congress explained the fuel lifecycle includes: "all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer." 42 U.S.C. § 7545(o)(1)(H) (2009). There is no mention of other effects.

EPA reads "related to" as expansive, but read together the phrase imposes an element of causation. Other statutes that require consideration of indirect emissions include a causation requirement.[17] Indirect emissions could include, for example, other emissions impacts that result

[17] Regulations under the National Environmental Policy Act define "indirect effects" as those "*caused by the action* and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8 (emphasis added). Similarly, regulations under the Endangered Species Act define "indirect effects" as "those that

from fuel production or use, such as removal of greenhouse gas sinks in order to grow crops for fuel production. EPA's analysis of international land use changes fails to draw a causal link between biofuel production in the United States and the international land use changes it has attributed to corn ethanol. Numerous factors influence exports and land use decisions, and EPA cannot simply assume a connection.

This is important here where EPA is attempting to penalize biofuels for actions over which they have no control. It also results in double counting, as these "indirect" emissions are the "direct" emissions for other industries. U.S. biofuels, as a class of products, are being held responsible for the carbon footprint of a distinctly separate and disconnected class of products. Take, for example, the a scenario where a new acre of soybeans was planted in the Brazilian savannah theoretically in response to a reduction of soybean acres and increase in corn acres in the United States (ignore, for a moment, the fact that U.S. corn acres are declining for the second straight year and soy acres are projected to achieve a new record in 2009). Then assume that those soybeans grown in Brazil are processed into animal feed and used to produce pork that ends up on someone's dinner plate in China. According to the indirect land use change theory adopted by the EPA, U.S. corn ethanol would be responsible for the carbon footprint of that plate of pork being consumed in China.

In addition, Congress required that there be "significant" indirect emissions from "significant" land use changes. The inclusion of the term "significant" twice in this phrase indicates that Congress intended for EPA to carefully consider indirect emissions, that is to limit EPA's authority, not provide a broad, expansive reading of lifecycle emissions. EPA provides no definition of what it considers to be "significant" or "insignificant," merely asserting it expects "at least some international land use change to occur." 74 Fed. Reg. at 25,027. EPA does so because its modeling shows a significant amount of emissions attributable to international land use changes. However, this modeling is highly speculative, and EPA is putting the cart before the horse. EPA itself recognizes that "the indirect, international emissions are the component of our analysis with the highest level of uncertainty." *Id.* Indeed, as shown below, there is substantial evidence that little, if any, international land use changes can be attributed to U.S. biofuel production.

B. EPA's Assumptions that Indirect Emissions Related to International Land Use Changes are "Significant" are Arbitrary.

EPA stated that: "While there is clearly significant uncertainty in determining the specific degree of land use change and the specific impact of those changes, there is considerable overall certainty as to the existence of the land use changes in general, the fact that GHG emissions will result, and the cause and effect linkage of these emissions impacts to the increased use of feedstock for production of renewable fuels." 74 Fed. Reg. at 25,024. This "overall certainty," however, is based on highly questionable studies, fails to account for the numerous other factors that have a more significant influence on land use decisions, and fails to consider

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are *caused by the proposed action* and are later in time, but still are reasonably certain to occur." 50 C.F.R. § 402.2 (2007) (emphasis added). The Supreme Court has recognized that these provisions require more than a "but for" causal relationship. *Dep't of Transp. v. Public Citizen*, 541 U.S. 752, 767 (2004); *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 696 n.9 (1995).

that U.S. biofuel production, in fact, promotes sustainable agriculture elsewhere in the world by moving these countries away from slash and burn practices, resulting in *reduction of* land use changes.

1. EPA relies on questionable studies to claim "potential" impacts on international land use changes from U.S. biofuel production.

EPA's assertion that U.S. biofuel production will have impacts on international land use changes are largely based on a paper by Timothy Searchinger, *et al*., entitled *Use of U.S. croplands for biofuels increases greenhouse gases through emissions from land-use change*, Science 319:1238-1240 (2008), which attempts to estimate emissions from land use changes due to increased U.S. biofuel production, focusing on corn-based ethanol. 74 Fed. Reg. at 25,021. The Searchinger paper is based on a theory that use of crops in the United States for biofuels causes reduced exports, leading other countries to expand their crop production, and resulting in the clearing of land that is currently unused for agricultural production.[18] The Searchinger paper, however, is not a lifecycle analysis and is based on flawed assumptions and inadequate data.

Searchinger looked at a "spike" in U.S. ethanol consumption, and attempts to posit indirect land use effects in terms of extra acres that will have to be planted in other countries. John A. Mathews and Hao Tan of Macquarie University in Australia subjected the Searchinger paper to strict scrutiny, finding it better described "as ideology than as science." John A. Mathews and Hao Tan, *Biofuels and indirect land use change effects: the debate continues*, 3 Biofuels, Biroprod. Bioref. 305, 316 (2009) ("Mathews and Tan Study"). As Mathews and Tan noted, no margins of error were reported by Searchinger, there was no discussion of the assumptions utilized and the degree of their validity, and the analysis could not be replicated due to a lack of transparency. *Id.* at 307-308, 315. The focus on U.S. biofuel production does not adequately consider, it at all, the numerous other factors that influence land use decisions in other countries, as well as other government policies that influence fuel and food production including biofuel production in other countries. *Id.* at 308. The limits of the Searchinger approach were, in part, attributed to the use of the FAPRI model. *Id.* at 309.[19] The main flaws identified by Mathews and Tan are the same flaws that EPA's analysis also suffers from.

[18] The causal chain is highly speculative, and, in fact, is inconsistent with the real world. In its 2009 Outlook, FAPRI indicated the increase in world grain production resulted in reduced demand for U.S. exports, not that reduced U.S. exports resulted in an increase in world grain production. FAPRI, *FAPRI 2009 U.S. and World Agricultural Outlook*, at 4 (Jan. 2009), *available at* http://www.fapri.iastate.edu/outlook/2009/text/OutlookPub2009.pdf. Demand for ethanol production makes up for this loss of demand, supporting the rural economy -- a key benefit contemplated by Congress. Thus, while some argue that EPA is asking the correct question, *i.e.*, how much corn exports would have grown and how much more land would have been converted without the RFS, one cannot assume that land used for feedstock for biofuel production automatically diverts land used to grow food crops, and that such diversion is what drives U.S. exports. "[I]n cases where biofuels production is used to rehabilitate marginal lands, making them more capable of supporting high-carbon uses post-project, the biofuels driving the conversion should be credited with this improvement in carbon restoration potential." ICF International, *Peer Review Report: Methods and Approaches to Account for Lifecycle Greenhouse Gas Emissions form Biofuels Production Over Time*, at D-7 (July 31, 2009) (Comments of Dr. Elizabeth Marshall).

[19] The Searchinger paper, in fact, illustrates why the mere fact that a study or model may be peer reviewed is not sufficient to deem the work sound science or even science at all.

There have been numerous critiques of the Searchinger study and the assumptions and data used.[20] Among the flawed assumptions identified are (a) inclusion of high estimates of ethanol production by 2015 all assumed to be derived from corn (double that required by the EISA); (b) failure to incorporate technological advances in the industry; (c) questionable assumptions regarding types of land converted; (d) reliance on satellite data that has misclassification problems (on the order of 54.55% in identifying cropland) and that was based on a time period where land use changes were driven by rapid industrial growth and were subject to little or no regulatory control; (e) inclusion of flawed assumptions regarding crop yields and distiller grain displacement; and (f) reliance on commodity prices that were much lower than today. The Searchinger paper fails to properly account for increased corn yields, which *reduce the need for land use changes.* Mathews and Tan Study at 312. Further, the Searchinger paper is not consistent with the real world, as corn exports have been maintained at about 2 billion bushels a year and because U.S. distiller grain exports have steadily increased. Wang Letter at 3. As Mathews and Tan noted, "if you wished to put US ethanol production in the worst possible light, assuming the worst possible set of production conditions guaranteed to give the worst possible ILUC effects, then the assumptions chosen would not be far from those actually presented (without argument or discussion of alternatives) in the Searchinger *et al.* paper." Mathews and Tan Study at 316.[21]

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[20] *See* Wang Letter; Mathews and Tan Study; John Kruse, *et al.*, *Life Cycle Analysis of Greenhouse Gas Emissions Associated with Starch-Based Ethanol*, at 48 (Dec. 1, 2008), *available at* http://www.ethanol.org/pdf/contentmgmt/LCFS_Study_Final_Report.pdf ("Kruse Study"); Biotechnology Industry Organization, *Fact Sheet - Sustainable Production of Biofuels* (Feb. 2008), *available at* http://bio.org/ind/biofuel/200802fact.asp?p=yes; Brooke Coleman, *More Misleading Biofuels Analysis: Searchinger and Tillman Reports Raise Serious Methodological Questions*, Feb. 12, 2008, *available at* http://newfuelsalliance.blogspot.com/2008/02/more-misleading-biofuels-analysis.html; Dale Letter to the Science Editor, Feb. 16, 2008; DOE Response to Searchinger, *DOE Actively Engaged in Investigating the Role of Biofuels in Greenhouse Gas Emissions from Indirect Land Use Change* (Mar. 2008), *available* at http://www1.eere.energy.gov/biomass/pdfs/obp_science_response_web.pdf; Thomas L. Darlington, Air Improvement Resource, Inc., *Land Use Effects of U.S. Corn-Based Ethanol* (Feb. 2009), *available at* http://www.ethanolrfa.org/objects/documents/2192/land_use_effects_of_us_corn-based_ethanol.pdf ("Darlington (2009)") (Appendix P).

[21] Lifecycle analysis results are highly sensitive to land use change assumptions, baseline projections and scale. Presentation by Keith Kline, *et al.*, *Global Land-Use Issues*, slide 5, Oak Ridge National Laboratory, at the 5th Annual Forum of the California Biomass Collaborative (May 29, 2008), *available at* http://biomass.ucdavis.edu/materials/forums%20and%20workshops/f2008/5.1_%20Keith%20Kline.pdf ("ORNL Presentation"). A recent paper by FAPRI/CARD analyzed the sensitivity of GHG emissions from land-use change to modifications in assumptions concerning crop area, yield, and deforestation, finding the payback period of corn ethanol's carbon debt is sensitive to assumptions concerning land conversion and yield growth and can range from 31 to 180 years, and even 15 years. Jerome Dumortier, *et al.*, Sensitivity of Carbon Emission Estimates from Indirect Land-Use Change, Working Paper 09-WP 493 (July 2009), *available at* http://www.card.iastate.edu/publications/DBS/PDFFiles/09wp493.pdf. Unlike EPA's use of the FAPRI model, this analysis shows a proper use of this type of modeling, that is to identify factors that may influence GHG reductions and develop strategies to promote those reductions. The authors found, "[a]s an example, long-run strategies aimed at increasing crop yields seem, in the light of our results, extremely effective in reducing the payback period." *Id.* at 10. The RFS is not intended to regulate land use changes or deforestation in Brazil, nor is there any evidence that EPA's lifecycle analysis will have *any* influence on behavior outside the United States. Kim, *et al.* (2009) at 966 ("It is unlikely that the biofuel industries have any influence on the cropping management practices applied to newly converted croplands when newly converted croplands are dedicated to animal feed production."). EPA's use of these models here is wholly inconsistent with the policy decision already made, *i.e.*, to promote renewable fuels.

The Searchinger "approach has been criticized by scientists who pointed out that the putative indirect link between the U.S. corn ethanol program and deforestation elsewhere is not measurable or falsifiable, and thus simply not a scientific assertion." Robert Zubrin, *The Irrationality of Indirect Analysis*, Roll Call, June 3, 2009, *available at* http://www.rollcall.com/news/35481-1.html. The flaws of the Searchinger study has led others to conclude: "the Searchinger approach involves a high level of uncertainty, to the extent that its specific conclusion should not be regarded as safe. In attempting to quantify indirect GHG emissions from EU biofuels initiatives, the Searchinger approach does not provide a good model." Adas UK, Ltd., *Critique of Searchinger (2008) & related papers assessing indirect effects of biofuels on land-use change*, at 6 (June 12, 2008), *available at* http://www.dft.gov.uk/rfa/_db/_documents/ADAS_Seachinger_critique.pdf. Mathews and Tan concluded that basing a rulemaking on the Searchinger approach, *i.e.*, attributing land use changes based on biofuels consumed in a certain country, "is ultimately indefensible." Mathews and Tan Study at 315. Even CARB estimated that the land use change emissions associated with corn ethanol were less than 1/3 of Searchinger's estimates, and Purdue researchers recently estimated the land use changes at about 1/5 of the Searchinger estimates.[22]

2. Biofuel production actually promotes sustainable agriculture, reducing land use impacts.

EPA's analysis, as with Searchinger, does not account for the fact that U.S. biofuel production actually promotes sustainable agriculture, which can *reduce* land use impacts. Recent research by Oak Ridge National Laboratory personnel suggests biofuels can, in fact, improve land quality. The researchers found, biofuels can:

- Reduce recurring use of fire and GHG emissions
- Reduce pressure to clear more land
- Improve soil carbon.

ORNL Presentation, Slide 27. Tillage methods greatly influence soil organic carbon dynamics, but the existing analysis of indirect land use changes do not take into account the effects of different tillage methods on land use change. Kim, *et al.* (2009) at 962. "Other cropland management approaches, such as no-tillage or the use of winter cover crops, can improve soil organic carbon levels and increase carbon sequestration rates in comparison to plow tillage." *Id.* Farmers used traditional slash and burn farming, which requires more land, because there was little incentive to maximize yield from less land, and because there was plenty of forest to burn. Excess U.S. exports can drive prices in other countries down, which creates disincentives for local farmers to invest in sustainable agricultural practices and improving corn yields. Mathews and Tan Study at 312.[23] Promoting agricultural development in other countries may provide the

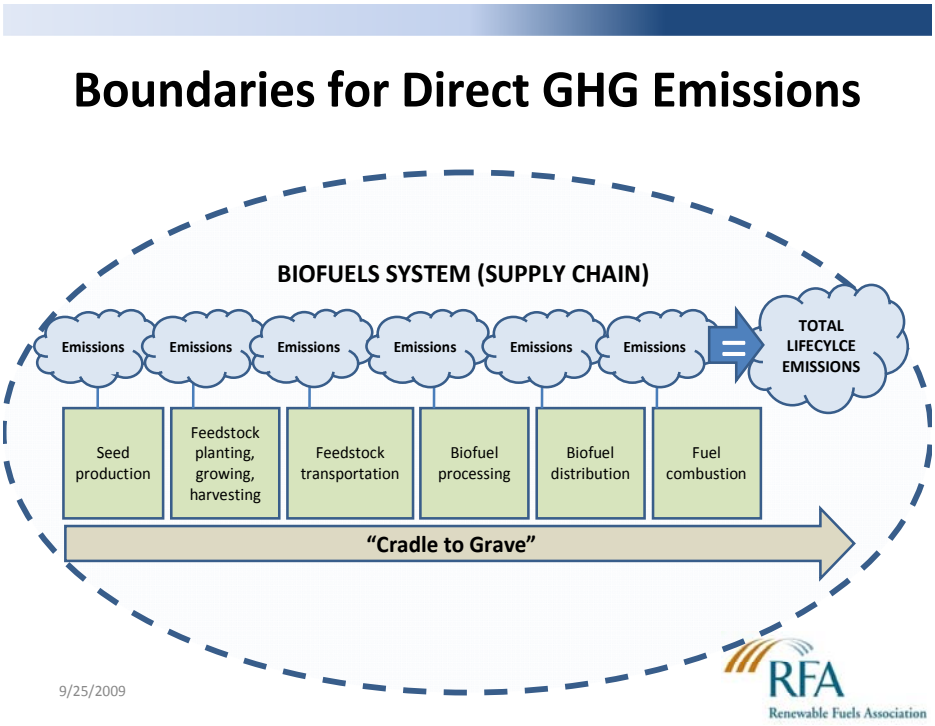
[22] Searchinger estimated land use changes due to corn at about 103 g/MJ. The CARB estimate was 30 g/MJ (see CARB's ISOR, Volume 1 and 2), Purdue's recent estimate is "19.4% of Searchinger." Wally Tyner, *Estimating GHG Emissions Induced by Biofuels*, Land Use and Carbon Impacts of Corn-Based Ethanol Conference, St. Louis, Mo. (Aug. 25, 2009), http://www.ncga.com/files/pdf/Tyner.pdf.

[23] *See also* Sandra J. Velarde, *Socio-economic trends and outlook in Latin America: Implications for the forestry sector to 2020*, § 4.6.1 (2004), *available at* http://www.fao.org/DOCREP/006/J2459E/J2459E00.HTM ("One of the major impacts of US subsidies on agriculture e.g. through preferential loan agreements and tariff-rate quotas on

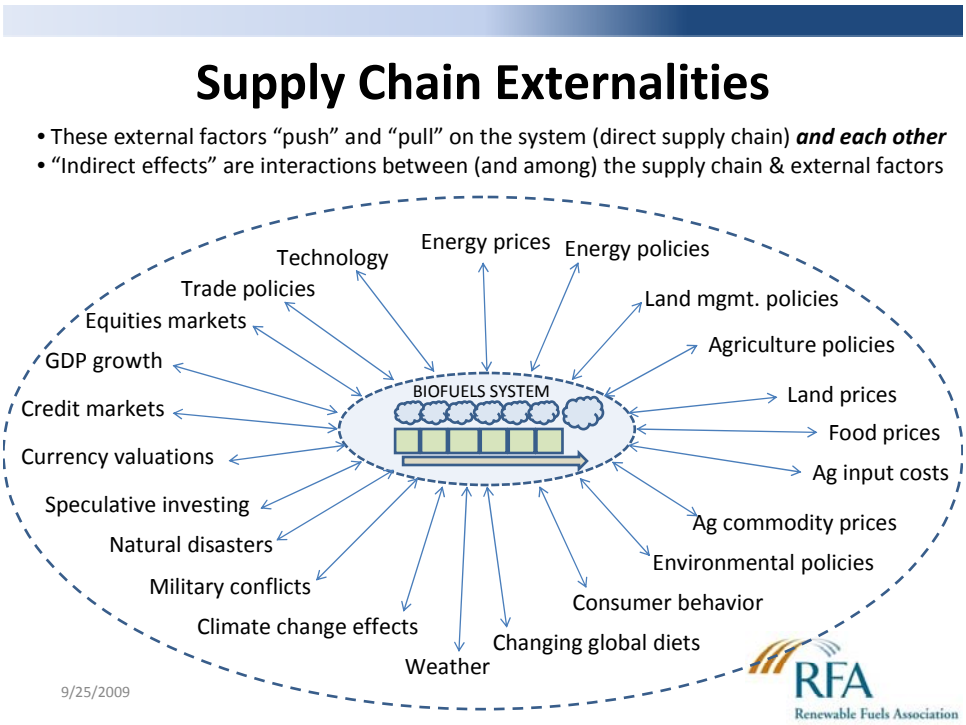
incentives to continue to investment in more sustainable practices, as well as increasing yields, resulting in reduced land use impacts. Public comments from feedstock producers in countries confirm these results. *See* Comments from Martin Fraguio, Executive Director, MAIZAR, Argentine Corn and Sorghum Association, Aug. 27, 2009, at 2-5 (EPA-HQ-OAR-2005-0161-1719.1).

3. EPA's analysis fails to adequately account for the other, more likely causes of international land use changes.

Indirect effects are often market- and/or policy-mediated, making modeling even more difficult. Indirect land use change is only one example of indirect, market-mediated impacts. The following diagrams provide an illustration of the difference between defining system boundaries for assessing direct emissions compared to the externalities that can influence indirect effects.



sugar (Groombridge, 2001) is that as they lower the prices of commodities, they lower farmer's incomes in developing countries and therefore their 'willingness to invest' in agriculture. To make agriculture profitable in the short term, they need to use extensive practices, i.e. forest clearing by slash-and-burn.").



What EPA (and Searchinger) fails to consider in its analysis is that land is available for agricultural expansion *without* clearing new forest, but there is forest clearing. The cause of these land use changes is a complex, dynamic process, which is "largely independent of crop markets." ORNL Presentation, Slide 3. EPA's methodology and the models used are limited in analyzing other market factors that drive land use decisions, such as urbanization, world population growth and dietary changes, timber and hardwood prices, *etc.*

> [I]t is overly simplistic and inaccurate to view land use change worldwide as being driven primarily by increased agricultural production, as has been assumed . . .. [L]and use change is driven by three primary forces: timber harvest, infrastructure development (e.g., road building), and agricultural expansion. Any one of these variables taken alone explains less than 20% of documented land use changes worldwide.

Kim, *et al.* (2009) at 962. While EPA notes that social, economic and political forces drive land use, it makes no assessment as to their relative contributions. 74 Fed. Reg. at 25,026. The complex factors that drive land use change "tend to be difficult to connect empirically to land outcomes, typically owing to the number and complexity of the linkages involved." B.L. Turner, *et al*., *The emergence of land change science for global environmental change and sustainability*, 104 PNAS 20,666, 20,667 (Dec. 26, 2007), *available at* http://www.colorado.edu/geography/class_homepages/geog_4742_f08_wt/Turner_LCS_emergence.pdf.

Government policies are key drivers of land use change, which are unaffected by U.S. biofuel production. In India, for example, permission to divert forested land for non-forest purposes is given only to site-specific projects as long as no viable alternative exists. United

Nations Commission on Sustainable Development, *2002 Country Profile Series: India* at 49 (2002), *available at* http://envfor.nic.in/legis/forest/forest2.html. Projects will only be approved on the condition that compensatory afforestation over the same amount of non-forest land or degraded forest area as the amount of the proposed land use change. Additionally, Indian states each have individual legislation that regulate the use of land resources. *See also, infra* Section VI.A.1. EPA's analysis fails to take into account changing national and international policy related to land use and the protection of forests.

C. Analysis Shows Negligible or No International Indirect Land Use Changes As A Result Of The RFS.

RFA agrees that understanding changes in land use, such as deforestation, urbanization and agriculture expansion, is important if society is to properly address the challenges of climate change, utilization of natural resources, and energy production and consumption. The focus on U.S. production of biofuels, however, has skewed the discussion down the wrong path because of the use of unsupported assumptions, imprecise economic models, and questionable logic. However, if one explores historical agricultural land use and crop utilization trends and the role of increased productivity, looks at the contributions of ethanol feed co-products, and examines global agricultural land use projections, there is sufficient evidence to support a finding that ethanol production under the RFS will not result in significant international land use changes. An analysis of land needs, evaluating the upward trend in U.S. corn and soybean exports, taking crop yields into account, and the recent Argonne analysis of the impact of distiller grains on livestock feed rations, found "no new pasture or forest land should be converted in the U.S. or outside the U.S. to meet 15 bgy of corn ethanol in 2015, and the land use change emissions therefore are likely zero." Darlington (2009) at 6.[24]

Further, an analysis conducted by Informa Economics that used EPA's approach of comparing a 12.4 bgy reference case to a 15 bgy control case showed negligible global land use impacts. Informa Economics, *Analysis of the Proposed Rulemaking for the Expansion of the U.S. Renewable Fuels Standard* (Sept. 2009) ("Informa Report") (Appendix H). The Informa report states, "…for the two main crops used as feedstock for biofuel production in the U.S., Informa forecasts that the world's area will be a total of 0.9 million hectares (2.2 million acres) higher in the control case than in the reference case, compared to a combined increase of 3.0 million hectares (7.4 million acres) simulated by FAPRI." *Id.* at 1-2. As demonstrated elsewhere in these comments, the U.S. agriculture sector has the ability to absorb the need for the additional 2.2 million acres through conversion of CRP, idle cropland or cropland/pasture. Together, these three land sets represent approximately 99 million acres.

Historical evidence and trends in the U.S. agricultural community shows that these estimated land needs to meet the increased volumes in the RFS will be minimal and can be

[24] EPA's analysis actually confirms that the domestic land use changes are very close to zero, and the driving factor is international land use. Contrary to EPA's assumption, however, this report asserts that if imports are constant or rising in absolute terms due to productivity gains, no international land use effects should be assigned to corn ethanol. This assumption is more reasonable because productivity in many other countries is low compared to the United States, so the solution to their land use changes is not to increase U.S. exports even more by reducing U.S. biofuels, but rather to increase productivity abroad with slightly higher commodity prices, and that will not occur if countries are flooded with cheap U.S. exports brought about by reducing biofuel use.

absorbed without significant international land use changes, if any. The following points are described in more detail in Geoff Cooper, *Understanding Land Use Change and U.S. Ethanol Expansion*, (Nov. 2008) ("Cooper (2008)") (Appendix I).

1. Growth in ethanol production has not significantly driven land use changes.

Historical trends indicate that increased U.S. ethanol demand has not been a significant driver of global land use change. Increased crop productivity (growing more on the same amount of land) has primarily provided the growth in production necessary to meet heightened demand for crop-based feed, food, and fuel. Moving forward, more pronounced gains in productivity promise to mitigate the need for large amounts of new agricultural lands.

In 2007/08, just 0.9 percent of world major cropland was needed (on a gross basis) to meet the grain requirements of the U.S. ethanol industry. When the ethanol industry's production of feed co-products are factored in, the net use of global cropland for U.S. ethanol production was 0.6 percent, or an area roughly the size of the state of West Virginia.

Although U.S. ethanol production is expected to grow in the years ahead, the amount of land needed to support U.S. ethanol demand will continue to be small compared to world agricultural land use. Projections from Informa Economics suggest the land required to produce 15 billion gallons of grain ethanol in the United States in 2015 amounts to less than 1 percent of world cropland.

2. Increased productivity reduces the amount of land needed for agriculture.

Heightened demand for crops in the last several decades has been met primarily through increased productivity per unit of land. Higher crop yields relieve pressure on land resources and mitigate the need to expand agricultural land use. Using average global corn yields from 40 years ago (1967), more than 330 million hectares would be required to produce the world corn crop grown on 158 million hectares in 2007. In other words, it would have taken more than twice as much land in 1967 to grow a crop equivalent in size to the 2007 world corn crop. As noted above, USDA recently projected that 2009 will see a record 161.9 bushels per acre,[25] a 5 percent increase over last year's average yield and 1.5 bushels/acre higher than the previous record set in 2004. http://www.ers.usda.gov/data/feedgrains/ (custom queries). Just 15 years ago (1995), 35 million more acres of corn would have been needed to produce the equivalent of this year's crop. http://www.ers.usda.gov/data/feedgrains/ (custom queries).

Despite increases in the amount of coarse grains used for ethanol, the amount of land dedicated to coarse grains (corn, grain sorghum, barley, oats, rye, and millet) globally has decreased over the past 30 years. Global area for coarse grains has decreased 8 percent since 1980, while world grain ethanol production has increased dramatically. Despite a reduction in land dedicated to coarse grains, annual world coarse grain production has increased nearly 50 percent since 1980.

[25] USDA, Crop Production, (Sept. 11, 2009), *available at* http://usda.mannlib.cornell.edu/usda/current/CropProd/CropProd-09-11-2009.pdf.

3. Agricultural land use can expand without jeopardizing forest or other sensitive lands.

Recent research has concluded that significant global capacity exists to expand agricultural land use without jeopardizing land used for forest or other sensitive environmental ecosystems. According to experts at Oak Ridge National Laboratory, "Land is available for agric[ultural] expansion without clearing new forest." ORNL Presentation at Slide 3.

A team of researchers at Stanford University recently found that a significant amount of abandoned agricultural land could potentially be brought back into production. The study found, "the estimated global area of abandoned agriculture is 385-472 million hectares," which is an area equivalent to roughly half of the land area of the continental United States. J.E. Campbell, *et al.*, *The Global Potential of Bioenergy on Abandoned Agriculture Lands*, Environ. Sci. Technol. 42 (15), 5791-5794 (2008).

Similarly, a 2002 study by the U.N. Food and Agriculture Organization (FAO) revealed a tremendous amount of unused land is potentially suitable for agricultural. FAO determined, "There is still potential agricultural land that is as yet unused. . ." and that an amount of land twice as large as that which is currently farmed ". . . is to some degree suitable for rainfed [agricultural] production." Food and Agriculture Organization of the United Nations, *World Agriculture Towards 2015/2030: Summary Report*, at 40 (2002), *available at* http://www.fao.org/docrep/004/Y3557E/Y3557E00.HTM. This dispels the common notion that the only land available for crop expansion is rainforest.

4. Ethanol feed co-products mitigate land use change.

The feed co-products (commonly known as distillers grains) generated by ethanol biorefineries play an important role in mitigating impacts on land use change. Only a portion of every hectare of grain "dedicated" to ethanol production is actually used for biofuel production. The remaining portion of the hectare is more accurately characterized as producing livestock feed.

One acre of corn used for ethanol produces approximately 430 gallons of ethanol, as well as an amount of feed equivalent to the volume of corn coming from 29 percent of a corn-dedicated acre and the amount of soybean meal from 42 percent of a soybean-dedicated acre. Darlington (2009) at 37. Production of distiller grains, therefore, offset the need for corn and soybean for feed, reducing the burdens on land use.

RFA notes that, despite the fact that it is unrelated to the RFS program, the Proposed Rule makes the claim, based on one controversial study, that "Several recent studies have indicated that DGS may have an impact on food safety. Cattle fed DGS have a higher prevalence of a major food-borne pathogen, E. coli O157, than cattle without DGS in their diets. More research is needed to confirm these studies and devise methods to eliminate the potential risks." 74 Fed. Reg. at 25,104-25,105 (citing Jacob, M.D., Fox, J.T., Drouillard, J.S., Renter, D. G., Nagaraja, T. G., 2008, *Effects of dried distillers' grain on fecal prevalence and growth of Escherichia coli O157 in batch culture fermentations from cattle*, Applied and Environmental Microbiology, v. 74, no. 1, p. 38–43, *available at* http://aem.asm.org/cgi/content/abstract/

74/1/38). RFA is not aware of "several" studies that have reached this conclusion, and in fact is aware of only the one published study cited by EPA that suggests a positive relationship between E. coli incidence and DG. In response to that study, however, University of Nebraska Professor Terry Klopfenstein, a world renowned animal nutritionist and expert on feeding DG to beef, and others prepared a detailed white paper on the issue of distillers grains and E. coli O157 that offered the following conclusions, among others:

- "Results of E. coli O157:H7 research in general and specifically with DG feeding are inconsistent. To date, there has been no demonstrably consistent effect of DG feeding on E. coli O157:H7 shedding."

- "Interventions and research on interventions is much more important than 'finger pointing' at different feedstuffs, especially when data are inconsistent and more research is needed."

- "At this point, there is no scientific evidence that feeding DG, at least at levels being used commercially, is the cause of a food safety crisis! Additionally, there is no scientific evidence to suggest that the feeding of DGs is the cause of the 2007 [beef] recalls."

Terry Klopfenstein, *et al.*, *Does Feeding Distillers Grains in Rations Increase E. coli O157:H7?* (May 2008), *available at* http://www.thepigsite.com/articles/3/feed-nutrition/2267/does-feeding-distillers-grains-in-rations-increase-ie-coli-i-o157h7. EPA should clarify its statements regarding studies on distiller grains in the final rule.

5. U.S. corn and soybean exports remain strong while biofuels production grows. Further, corn and soybean exports have demonstrated no correlation to biofuels production in the past decade.

While RFA fully understands that EPA's analysis of RFS impacts on the agriculture sector compares the difference in exports in two future scenarios rather than forecasting the absolute change in exports relative to current levels, we believe it is instructive to examine recent U.S. export behavior in the real world. One of the main arguments waged by those who believe increased biofuels production will lead to significant indirect land use change is the idea that U.S. corn and soybean exports will drop appreciably, inciting cultivation in other countries to account for the lost volume on the world market. Such an export reduction has not occurred. In fact, corn exports reached record levels in 2007/08 and, despite the current global economic slowdown, were above the 10-year average in 2008/09. Soybean exports also set a record in 2007/08, only to be topped with another new record in 2008/09. USDA projects near-record levels of corn exports in 2009/10 and record levels of soybean exports.

Exports of ethanol feed co-products like distillers grains topped 4 million metric tons in 2008 and have increased dramatically in the last five years. These exports are offsetting some demand for corn and soybean exports, an occurrence that is often overlooked.

In order to provide an apples-to-apples comparison to EPA's forecasts, which compare two future scenarios, RFA commissioned Informa Economics to conduct long-term forecasts to

2022 based on the biofuel volumes stipulated in EPA's FAPRI and FASOM reference and control cases (Informa Report, Appendix H). Not only does Informa's forecast show continued strong export levels in the long-term, but it also shows that 2022 corn exports are expected to be a mere 51 million bushels lower in the control case than in the reference case. This compares to EPA's FAPRI results that suggest corn exports would be reduced 288 million bushels. It is also notable that 2022 U.S. soybean exports in both Informa's control and reference case are roughly 75 percent higher than current levels and approximately double the levels forecasted by FASOM and FAPRI. Informa also projects a significant increase in soybean meal exports between the control and reference cases.

6. In sum, the agricultural and ethanol industry has stepped up to the plate every time with no significant impacts on global demand for agricultural land.

Each of these factors above, taken together, is ample *empirical* evidence that ethanol production in the United States has limited impact on international indirect land use changes. This supports the conclusion of Mr. Darlington that no new pasture or forest land should be converted in the U.S. or outside the U.S. to meet 15 bgy of corn ethanol in 2015, and the land use change emissions therefore are likely zero. Darlington (2009). There simply is insufficient support for EPA's claim that there will be *some* international land use changes, much less *significant* land use changes. EPA must reassess its assumption prior to issuing the final rule.

VI. EPA'S ANALYSIS OF INTERNATIONAL LAND USE CHANGES FOR CROP-BASED RENEWABLE FUELS, INCLUDING ETHANOL, IS ARBITRARY

A. EPA's Assumption That Winrock Land Use/Land Cover Change Data is an Appropriate Proxy for Biofuels-Induced Land Use Change Renders the Analysis Arbitrary.

1. The Winrock data cannot provide any causal connection between the land use changes and U.S. biofuel production

EPA's reliance on Winrock satellite data from the 2001-2004 timeframe renders the entire analysis arbitrary in that EPA is suggesting that land use changes that occurred for *any reason* in the countries of interest serve as an appropriate proxy for land use changes resulting from U.S. biofuel expansion under the RFS. Aside from the significant inherent uncertainties associated with land cover data derived from satellite imagery, the Winrock data offers no clues as to the root cause of the land use/land cover changes. Therefore, it is inappropriate to assume that biofuels would induce the same type of land use changes that likely resulted from dozens of disparate and inexplicable causes. The analysis includes no consideration of the causes for the land use changes from this time frame. This is a time period with little biofuel production, and also a time of rapidly escalating deforestation. Other market factors (such as urbanization, world population growth and dietary changes, timber and hardwood prices, *etc.*) also impact and drive land use change decisions. EPA's peer reviewers confirm that these models do not adequately address these interactions. Model Linkage Report at 5, B-2 to B-3 (Comments of Dr. Banse), E-3 (Comments of Dr. Wang).

The Winrock land cover change data draws from satellite imagery of different land classes, including cropland. An analysis of the Winrock data by Informa Economics (Appendix H) revealed that there is little agreement between the Winrock cropland estimates and empirical cropland estimates from USDA and the U.N. Food and Agriculture Organization. Informa found, "…the conclusions drawn by Winrock using satellite data differ data in some significant ways from the measurements "on the ground" that are reflected in the USDA and FAO data. This is important since, if Winrock's estimates of the total amount of cropland in each country and the change in cropland between 2001 and 2004 are not accurate, then Winrock's conclusions regarding how land shifts among land-use classes and associated GHG emissions are also called into question."

In addition, countries have since implemented numerous programs to address land use issues, particularly deforestation. This year, Brazil's President established the Community and Family-Based Forest Management Program to benefit small farmers and indigenous populations who live in the Amazon or depend on it for survival. Community-Based Forest Management Programme will benefit traditional populations, June 10, 2009, *available at* http://www.mma.gov.br/sitio/en/index.php?ido=ascom.noticiaMMA&codigo=4843. The Department of Coordination of Policies for the Amazon and for Combating Deforestation, established in 2008, is in charge of administering the above plans and other sustainable development initiatives. Among the named goals of the department is reducing greenhouse gas emissions from changes in land use and deforestation. Ministério do Meio Ambiente, Executive Secretariat, Policies for the Amazon and for Combating Deforestation, *available at* http://www.mma.gov.br/sitio/en/index.php?ido=conteudo.monta&idEstrutura=200&idConteudo=8440&idMenu=9257.

Voluntary programs to protect the rainforest have also made significant strides. For example, a moratorium on the purchase of soybeans grown on illegally logged areas in the Amazon rain forest has been in place since 2006. *See* CNBC, *Brazil extends Amazon soy moratorium*, by the Associated Press (July 28, 2009), *available at* http://www.cnbc.com/id/32190588. The moratorium involves an agreement between Greenpeace and other environmental groups, Brazil's Environment Ministry, and Brazilian and foreign soy traders such as Cargill Inc., Archer Daniels Midland Co., Bunge Ltd. and Louis Dreyfus Commodities. *Id.* Brazil's environmental minister has stated that "Soy is no longer a significant factor in the Amazon's deforestation." *Id.* The Brazilian Government has reported a sharp drop in the rate of deforestation. *Id.*

This inability to show causation is a major concern and the calculations may not reflect land use change patterns resulting from an increase in demand of U.S. biofuel production. Since loss of forestland drives the emission calculation, small changes here can create large differences in the results.

Indeed, under EPA's theory, virtually any government policy will have international land use implications, which should be considered. For example, government policies to reforest cropland to promote carbon sequestration results in a direct loss of cropland, unlike crop-shifting to respond to demand as in the case of corn. Under EPA's theory, this policy would have immediate, adverse impacts because forest land in Brazil will need to be converted to cropland to make up for the loss of potential exports from that land. Similarly, the CRP program, long

touted as an important conservation and greenhouse gas mitigation program, would have significant greenhouse gas land use impacts due to the loss of potential exports. Further, a national cap and trade program could result in a vibrant market for carbon credits that would likely encourage some farmers to transition cropland to forestland to maximize carbon sequestration capacity. As such, an economy-wide cap and program could carry with it massive indirect land use change consequences. *See also* Robert Zubrin, *The Irrationality of Indirect Analysis*, Roll Call, June 3, 2009, *available at* http://www.rollcall.com/news/35481-1.html.

2. Analysis of the Winrock data shows a high error rate.

As with the Searchinger paper, the land conversion data EPA uses from Winrock to determine the types of land converted has a high error rate. Both Informa Economics (Appendix H) and Air Improvement Resource (Appendix D) conducted a review of the Winrock data, noting many discrepancies and errors. As described in the Air Improvement Resource Report (at 51-52), peer reviewers of EPA's approach raised many of the same technical concerns that lead us to question the use of the Winrock land use change data, and certainly not without any evaluation of its accuracy.

A report submitted to EPA of the Winrock data, which is based on MODIS imagery, purports to describe the accuracy of the MODIS data. Nancy Harris, *et al.*, Winrock International, *GHG Emission Factors For Different Land-Use Transitions In Selected Countries/Regions Of The World*, at 4-5 (2008) (EPA-HQ-OAR-2005-0161-0891) ("2008 Winrock Report"). But this discussion omits two important issues. The first is the extent to which the MODIS land cover data agrees or disagrees with other satellite-based estimates. This omission was partially corrected in the April 2009 report. Air Improvement Resource RFS2 Report at 45. The second is the accuracy of the MODIS data to detect land use changes over time. This issue is not addressed in either report. Although Winrock acknowledges the potential for major errors in the assessment of change, the data are reported in Table 3 of the October 2008 report and Annex 5 of the April 2009 report and discussed in both reports with little recognition of the errors, problems, and uncertainty in the data.

EPA's use of the Winrock land change data from 2001 to 2004 without any attempt at validation is highly suspect and disregards GOFC-GOLD (Global Observation of Forests and Land Cover Dynamics) best practices. EPA's use of Winrock data is an example of the situation the GOFC-GOKD report warns of in which "land cover maps are too often being used without an appreciation of their inherent uncertainties, which may be large." Quoted in Air Improvement Resource RFS2 Report at 49. The report also indicates "Maps without associated accuracy data remain untested hypotheses." Quoted in Air Improvement Resource RFS2 Report at 50. Thus, the land use change data Winrock provided and EPA is using is best characterized as an untested hypothesis.

A second goal of the Winrock data used by EPA was to improve the emission factors for land conversion in key countries of the world to provide an improved assessment of the GHG impacts of expanded biofuel use. Currently there are two datasets of carbon in biomass and soil that are in widespread use to estimate the changes in carbon stocks associated with land-use changes, primarily from forest to cropland or pasture. The first is the 2008 Winrock Report on GHG emissions from different land-use transitions. Although the April 2009 Winrock report

extends the dataset to more countries, the actual data on carbon stocks, by country, is not included in the report. The second dataset – from the Woods Hole Research Center – was used in the Searchinger paper on land-use changes related to biofuel use and is routinely relied upon by CARB. It turns out that there are substantial differences between the two datasets in regard to the carbon stored in both above- and below-ground vegetation (particularly for forests) and soils. These differences, and the potential reasons for the discrepancies, are enumerated in a thorough review of EPA's use of the Winrock data that is available in the Air Improvement Resource RFS2 Report (Appendix D).

With no attempt to verify the land use changes reported in the Winrock report, and with very questionable changes reported over a three-year period, the Winrock data is not suitable for use in policy assessments.

B. EPA's approach fails to adequately account for corn yields and role of DDG in maintaining or growing exports, resulting in less need for land use changes.

EPA asserts that "[a]ny projected changes in factors such as crop yields, energy costs, or production plant efficiencies, both domestically and internationally, are reflected in both scenarios." 74 Fed. Reg. at 25,022. Thus, comparing two scenarios using the same assumptions as to crop yield and DDG, renders them essentially irrelevant. Different yield trajectories should be used in the control and reference cases, because even slightly higher prices would induce higher yields in the control case. In its land use change analysis for the low carbon fuel standard, CARB accounted for the response of corn yields to price increases. According to CARB:

> Based on a review of the literature on corn yields, the historical average yield response in the U.S. had been 0.4. However, there is evidence that the corn yield elasticity has been falling over time; the most recent study produced a yield response of 0.27.[26]

CARB, *Proposed Regulation to Implement the Low Carbon Fuel Standard, Vol. I; Staff Report: Initial Statement of Reasons*, at IV-27 to IV-28 (Mar. 5, 2009), *available at* http://www.arb.ca.gov/regact/2009/lcfs09/lcfsisor1.pdf ("ISOR").

CARB's analysis determined that the indirect land use change emissions attributed to biofuels are highly sensitive to this factor. Varying the elasticity from 0.1 to 0.6 resulted in a 49 percent reduction in the total carbon intensity of corn ethanol in CARB's analysis. ISOR, at IV-29. RFA has requested that EPA consider the impact of price changes on yield increases in sensitivity analysis.

As described above, increasing crop yields have allowed the agricultural industry to keep up with demand, minimizing the need for new lands.

EPA's scenario analysis also minimizes the impact of distiller grains in at least two important ways. First, EPA assumes distillers grains replace conventional feed in livestock and

[26] This means that a P percent increase in the price of the crop relative to input cost will result in a percentage increase in crop yields equal to P times 0.27.

poultry rations at a rate of 1 lb. replacing 1 lb. EPA further assumes that nearly all of the feed displaced by DDG is corn. In reality, DDG is replacing conventional feed at a greater than 1-to-1 rate and much more soybean meal is being replaced than is accounted for by EPA. An analysis conducted for RFA by University of Minnesota Prof. Gerald Shurson (Appendix J) shows that DDG replaces both corn and soybean meal at a rate of 1 lb. of DDG replacing 0.895 lb. of corn and .334 lb. of soybean meal, for a total of 1.229 lbs. The importance of this assumption as it relates to land use change is explained in Darlington (2009) (Appendix P).

Second, the international land use impacts of DDG exports, which have increased significantly in recent years, are not taken into account. EPA recognizes that distiller grain exports are expected to increase in the future to make up for any potential loss of corn exports: "We anticipate that the volume of exported DDG would take the place of corn that would be shifted from export to domestic use in the production of ethanol. Thus, we do not expect the increase in DDG exports to result in a substantial increase in river freight traffic." 74 Fed. Reg. at 25,006. Yet, EPA's FASOM analysis apparently ignores the fact that exports of distiller grains have been rapidly increasing and offset some demand for corn and soybean meal exports. The FASOM report posted on the docket states, "…the model does not currently include DDG exports, and those exports may rise under the Control Case and at least partially offset the reduction in corn exports." Robert H. Beach, Robert H., *et al.*, *Agricultural Impacts of the Energy Independence and Security Act: FASOM Results and Model Description, Final Report*, at 2-26 n.60 (Oct. 2008) (EPA-HQ-OAR-2005-0161-0866) ("FASOM Report").

EPA's approach, which fails to properly account for these two key factors in determining whether land use will be impacted by biofuel production, is arbitrary.

C. EPA's Analysis Provides Disparate Treatment of Corn Ethanol.

1. Any lifecycle analysis must present a fair comparison.

EPA's substantial focus on corn ethanol in the Proposed Rule and DRIA appears to ignore the fact that the lifecycle emissions definition in the statute applies to both renewable fuels *and the baseline petroleum.* As noted above, a key principle of the ISO Standard for lifecycle analysis is to utilize appropriate system boundaries to make valid comparisons. As explained in a recent paper out of the University of Nebraska, besides investigating indirect deforestation and grassland conversion alone, a more comprehensive assessment of the total GHG emissions implications of substituting biofuels for petroleum needs to be completed before indirect effects can be accurately determined. Adam J. Liska and Richard K. Perrin, *Indirect Land Use Emissions in the Lifecyle of Biofuels: Regulations vs. Science,* University of Nebraska, Lincoln, Biofuels, Bioprod. Bioref. (Mar. 19, 2009), *available at* http://www.ethanolrfa.org/objects/documents/2363/2009_liskaperrin_bbb.pdf. EPA's failure to consider land use changes for petroleum, and indirect emissions generally does not present a fair comparison and renders its analysis arbitrary.

2. EPA fails to consider emissions from direct land use changes associated with petroleum exploration and production.

Unlike indirect emissions, Congress did not limit direct emissions under the lifecycle analysis to "significant" land use changes. Nonetheless, EPA states:

> For this proposal, our preliminary analysis suggests land use impacts of petroleum production for the fuels used in the U.S. in 2005 would not have an appreciable impact on the 2005 baseline GHG emissions assessment. However, we expect to more carefully consider potential land use impacts of petroleum-based fuel production for the final rule and invite comment and information that would support such an analysis.

74 Fed. Reg. at 25,041 n.310. It is clear that petroleum exploration and production results in substantial direct land use changes, which increasingly is occurring in environmentally sensitive lands.

Direct land use changes from petroleum use include land being cleared for exploration activities and new oil production. *See* D. Elcock, Argonne National Laboratory, *Life-Cycle Thinking for the Oil and Gas Exploration and Production Industry*, at 8, 70-71 (Sept. 2007), *available at* http://www.ead.anl.gov/pub/doc/LCA_final_report.pdf. Tar sand production is an example of the substantial land use impacts petroleum production can have. Surface mining operations for oil sands are similar to those for coal: "[t]rees are cleared; surface overburden is removed, and oil sands are mined and transported to crushers, where they are reduced to small sizes." *Id.* at 70-71. "To mine the bitumen in the oil sands, rivers must be diverted, wetlands drained and all vegetation and non-oil-bearing overburden removed." The Pembina Institute/WWF-Canada, *Undermining The Environment: The Oil Sands Report Card*, at 7 (Jan. 2008), *available at* http://pubs.pembina.org/reports/OS-Undermining-Final.pdf. The tar sands in Alberta include a substantial amount of forestland,[27] and lands surrounding current oil sands operations are also at risk from acidifying emissions. *Id.* at 3. "[T]he exploitation of oil shale deposits in the United States may be poised to follow tar sand development in Canada." Environmental Integrity Project, *Tar Sands: Feeding U.S. Refinery Expansions with Dirty Fuel*, at 2 (June 2008), *available at* http://www.environmentalintegrity.org/pubs/Tar%20Sand%20Report_FINAL_6%202%2008.pdf.

Oil and gas operations often contribute to local processes of deforestation through the construction of roads, pipelines, and oil platforms. Typically, the oil company cuts roads through the forest in order to carry out operations, which are then "followed by transient settlers who colonize and damage the surrounding forest through slash-and-burn agriculture, the introduction of domestic animals, hunting, the collection of fuelwood, and often the introduction

[27] A pipeline into the United States from the Alberta tar sands is estimated to have substantial land use impacts, including permanent impacts to forested lands. Final Environmental Impact Statement, Alberta Clipper Project, at ES-12 (June 2009), *available at* http://www.albertaclipper.state.gov/clientsite/clipper.nsf?Open. "Construction of the proposed Project would affect the following land use categories: forested lands (1,254.5 acres), agricultural lands (2,528.8 acres), developed lands (617.2 acres), open lands (655.4 acres), and wetland/open water (1,346.2 acres). Total acres that would be affected by the proposed Project are 6,402.1 acres." *Id.*

of foreign disease to local forest dwellers." Mongabay.com, *Oil Extraction: The Impact Oil Production in the Rainforest*, *available at* http://rainforests.mongabay.com/0806.htm ("Mongabay.com Article") (Mongabay.com article excerpt attached under Appendix K). Oil production has been identified as "the latest, perhaps greatest, threat to preserving what remains of the world's largest remaining tropical wilderness." Michael Astor, Associated Press, Scientists say oil exploration threatens Amazon, Aug. 13, 2008, *available at* http://www.sfgate.com/cgi-bin/article.cgi?f=/n/a/2008/08/13/international/i144701D34.DTL (attached under Appendix K). Petroleum companies already drill or have leases to explore and drill in substantial portions of the Amazon, and recently there has been unprecedented exploration and development in the region, including Brazil. Matt Finer, *et al.*, *Oil and Gas Projects in the Western Amazon: Threats to Wilderness, Biodiversity, and Indigenous Peoples*, 3 PLos One 1 (Aug. 2008), *available at* http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0002932. Colombia, Ecuador, Peru, Bolivia, and Nigeria have substantial oil operations in rainforest areas. Mongabay.com Article. Mongabay.com Article. *See also* Environmental News Service, *Half the Peruvian Amazon Leased for Petroleum Development* (Dec. 4, 2006), *available at* http://www.ens-newswire.com/ens/dec2006/2006-12-04-07.asp (attached under Appendix K).

Canada, Colombia, Ecuador and Nigeria are among the top 15 countries from which the U.S. imported crude oil in 2008 and year-to-date 2009. Energy Information Administration, *Crude Oil and Total Petroleum Imports Top 15 Countries* (Aug. 28, 2009), *available at* http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/company_level_imports/current/import.html.

Preliminary work on land use impacts of crude oil production indicates that land emissions from oil production is not trivial and should have been analyzed by EPA. *See, e.g.*, Life Cycle Associates, LLC, *Assessment of Direct and Indirect GHG Emissions Associated with Petroleum Fuels*, at 56-61 (Feb. 2009), *available at* http://www.newfuelsalliance.org/NFA_PImpacts_v35.pdf ("Life Cycle Associates Report").[28]

3. EPA fails to consider indirect emissions of baseline gasoline.

While EPA assumed significant indirect emissions associated with international indirect land use based on questionable and speculative assumptions, it states, with no support and in the face of numerous studies to the contrary:

> We did not include indirect land use impacts in assessing the lifecycle GHG performance of the 2005 baseline fuel pool as we believe these would insignificantly impact the average performance assessment of the baseline. Additionally, consistent with our assessment of energy security impacts, we did not include as an indirect GHG impact the potential impact of maintaining a military presence.

[28] RFA believes that these are direct emissions associated with oil production and exploration, although this report would appear to imply that land use changes are "indirect" effects. Even if considered indirect emissions, these emissions are clearly caused by the oil production and exploration activities and are significant.

74 Fed. Reg. at 25,040. EPA, however, fails to define what it considers significant or insignificant. EPA's failure to consider these impacts or to provide any support for these claims renders its baseline analysis arbitrary. *See Am. Wildlands v. Kempthorne*, 530 F.3d 991, 997-98 (D.C. Cir. 2008).

Although recognizing it as an indirect effect of petroleum production, EPA also states: "Maintaining a U.S. military presence to help secure stable oil supply from potentially vulnerable regions of the world was excluded from this analysis because its attribution to particular missions or activities is difficult." 74 Fed. Reg. at 25,092. But, "[i]f indirect effects will be included for other fuels, then the marginal indirect GHG emissions associated with military security for oil need to be included in the life cycle emissions of petroleum." Liska and Cassman (2009), at 12. EPA cannot, on the one hand, rely on speculative and uncertain analysis for international indirect land use changes for biofuel production and then, on the other hand, find indirect emissions for petroleum too speculative, too difficult, and too uncertain to consider. EPA's exclusion of any analysis of indirect emissions associated with baseline petroleum is unfair, against lifecycle standards, and arbitrary.

4. Although the baseline refers to 2005, EPA can account for indirect emissions associated with changes in petroleum sources over time which necessarily involves increased use of marginal sources of petroleum.

The 2005 baseline does not adequately address the increasing use of marginal sources of petroleum. Although RFA understands the definition of baseline petroleum references 2005, EPA cannot wholly ignore the fact that ethanol is reducing and delaying the need to resort to more and more high carbon sources of crude oil such as Canadian tar sands and Venezuelan extra heavy crude.

The carbon score of a particular biofuel should be compared to the carbon score of the fuel it is displacing. It is widely understood that the resource base for conventional liquid fuels is declining and that new volumes of biofuels are displacing and delaying the need for unconventional high-carbon sources of liquid fuel. The analysis in a paper authored by RFA, entitled *What Do Biofuels Displace and Why Does it Matter?* (July 8, 2009) (Appendix L), highlights the need for robust economic modeling and additional research focused on the important questions of "what are biofuels displacing?" and "what GHG emissions are being avoided due to more biofuels use?" This analysis shows that substituting biofuels for marginal fossil-based liquid fuels results in the avoidance of significant GHG emissions from high carbon unconventional fuels that are not currently accounted for in lifecycle analysis. These avoided emissions are in addition to the emissions reductions relative to average petroleum fuels that are already counted in traditional analysis. In the analysis conducted by RFA, avoided emissions resulting from displacement of a mix of conventional and unconventional liquid fuels (as projected by the Energy Information Administration) range from approximately 8 to 22 grams of CO_2 equivalent per mega joule (g CO_2e/MJ) of energy delivered by biofuels. *Id.* at 1. This range of avoided emissions is roughly equivalent to 10-25 percent of *total* lifecycle GHG emissions for conventional gasoline. If it is assumed that biofuels displace only unconventional liquid fuels, the avoided emissions per mega joule would be considerably higher. Other analyses similarly have found that the carbon footprint of oil will continue to increase, while that for renewable fuels will continue to decrease. *See* Life Cycle Associates Report, at 26 ("Energy

inputs for unconventional oil resources and the processing of heavy oils are higher than those of conventional resources.").

EPA's own peer reviewers recognized that an important omission in EPA's analysis is the focus on the mix of fuels in 2005:

> This decision potentially underestimates GHG emissions of petroleum fuels, since future petroleum fuels will come increasingly from unconventional crudes and since continuing global petroleum demand growth over time could generate unanticipated indirect effects in the petroleum sector.

Model Linkage Report at E-7 (Comments of Dr. Wang). EPA admits "that an additional gallon of renewable fuel replaces the marginal gallon of petroleum fuel," and "[t]o the extent that the marginal gallon is from oil sands or other types of crude oil that are associated with higher than average GHG emissions, replacing these fuels could have a larger GHG benefit," while replacing lighter crudes would have less benefit. 74 Fed. Reg. at 25,040. Although EPA only seeks comment on addressing the benefits of replacing these marginal gallons with respect to understanding the rule's regulatory impacts, EPA must also consider the extent to which renewable fuel replaces marginal gallons from these marginal sources of petroleum in developing the baseline emissions to make a fair comparison. "Comparing marginal alternatives to average petroleum understates the potential GHG impact." Life Cycle Associates Report, at 11.

While the statute refers to 2005, EPA is given discretion in determining how to account for the change in fuel mix. EPA can account for this key omission in at least two ways. First, EPA can focus on the marginal sources of petroleum included in the baseline. EPA's baseline includes 5 percent Canadian tar sand, 1 percent Venezuela extra heavy, and 23 percent heavy crude based on the mix of fuels in 2005. While the statute defines baseline lifecycle greenhouse gas emissions as the "average" lifecycle emissions, it also refers to the gasoline or diesel that "is being replaced by the renewable fuel." 42 U.S.C. § 7545(o)(1)(C) (2009). Therefore, EPA should, at a minimum, assume that the incremental gallons of biofuel analyzed for the proposal replace the most marginal and carbon intense gallons of petroleum included in the 2005 baseline. Increased reliance on renewable fuel reduces the need to look for new sources of petroleum. In so doing, the fuel being replaced is the petroleum that otherwise would have come from these marginal sources in 2005.

As a second option, EPA also could credit biofuels with the avoidance of GHG emissions in replacing these marginal sources in the future. EPA's lifecycle analysis must include "significant indirect emissions." The avoidance of these GHG emissions is a significant indirect impact of increased use of biofuels. In addition, as described above, increased use of renewable fuels reduces the need to continue exploration into environmentally sensitive areas. As a one stark example the area of the Peruvian Amazon designated for oil concessions has increased from less than 15 percent in 2004 to well over 70 percent. Environmental News Service, Indigenous Peruvians Oppose New Oil Concessions on Their Lands (Feb. 2007), available at http://www.ens-newswire.com/ens/feb2007/2007-02-06-02.asp. To the extent that the use of

biofuels substitutes for petroleum, there would be a significant indirect GHG emissions benefit from the increased production and use of biofuels.

In addition, EPA says it used a consequential lifecycle approach for renewable fuels, 74 Fed. Reg. at 25,021, but it used a consequential approach in looking only at the agricultural market consequences of the RFS. Indeed, RFA generally supports EPA's consequential approach that takes into account increases and decreases in emissions such as reductions in GHG emissions due to reduced farm inputs, reduced livestock GHG, and reduced rice methane. EPA, however, did not use the same consequential approach in looking at the energy market consequences. This is another example of where EPA used inconsistent analytical boundaries.

VII. IF EPA RETAINS ITS CURRENT APPROACH, THE INPUTS USED BY EPA IN ITS MODELING FOR LAND USE CHANGES SHOULD BE REVISED.

Experts at Air Improvement Resource, Inc. have reviewed, to the extent possible, the most critical inputs, assumptions, and parameters used in EPA's lifecycle emissions analysis of corn ethanol. They found numerous flaws and shortcomings with the assumptions and inputs used by EPA. Those concerns are discussed in brief in this section and further enumerated in the Air Improvement Resource RFS2 Report found at Appendix D. While, as discussed above, RFA believes that EPA should not include international indirect land use changes in its lifecycle analysis, EPA should, at a minimum, make the following corrections to its analysis.

A. The assumptions used by EPA in its FASOM and FAPRI modeling regarding corn yields need to be increased substantially.

EPA incorrectly relies on a 30-year trend analysis to project future crop yields. In doing so, EPA assumes the annual rate of gain for corn yields is 1.6% per year and 0.4% per year for soybean yields. This approach disregards the fact that the rate of increase in corn yields has accelerated since the broad commercialization in the U.S. of genetically modified hybrids in 1996. The compound annual growth rate for corn yield between 1996 and 2009 has been 2% (based on USDA's September 2009 estimate of 161.9 bu./acre). Further, EPA's approach does not take into account the high probability that growth in average corn yields will likely to continue to increase at an accelerated (non-linear) rate due to new corn breeding techniques, new applications of biotechnology, improved farming practices and other advancements. In its long-term forecasts conducted for RFA, Informa Economics utilizes an annual growth rate of 1.8%, which leads to 2022 average corn yield of 201 bu./acre (compared to EPA's 2022 estimate of 180 bu./acre). Informa is careful to note that "…no allowance has been made for new seed varieties developed through biotechnology or other advanced breeding techniques that have not yet been commercialized but might change the trajectory of yield increases in the future." Similarly, Informa projects annual soybean yield growth of 1% per year to 2022, which is more than double the rate used by EPA. As noted earlier, the effect of higher yields is significantly muted in EPA's analysis due to the fact that yield trajectories are the same in both the control and reference cases. However, the real world effect of higher yields is to considerably mitigate the need to cultivate new lands in response to heightened demand.

For corn, yield increases that were achieved from the 1970s through the 1990s were largely based on agronomic improvements, like farm machinery, hybrid corn and synthetic

fertilizers. The averaging approach also underestimates future yields in that it is purely backward-looking and fails to provide increases for expected technology breakthroughs in the areas of marker-assisted breeding and biotechnology traits (*e.g.,* resistance to certain pests and weeds and drought resistance), that are being developed and will be introduced and market-penetrated prior to 2022. For example, marker-assisted breeding has doubled the rate of gain in yields since 2002, and for this technology, the first products are just beginning to come onto the market. That means that when full market penetration of these products occurs, which should occur rapidly due to ease of implementation, they actually have significantly greater potential to increase yields. Similarly, current biotech traits are already protecting the genetic potential of the seed but the next generation of biotech traits – which will be implemented during the time frame of the RFS2's proposed analysis (*i.e.,* before 2022) will further protect the crop and increase yield potentials.

Researchers conclude that the next generation of commercialized, biotechnology traits is likely to have an even larger impact on crop yields. He identifies several technologies that will penetrate early or in the middle of the next decade, including drought tolerance traits and other trangenes that are "at relatively advanced states of commercial development." Edgerton, Michael D., *Increasing Crop Productivity to Meet Global Needs for Feed, Food, and Fuel*, Plant Physiology, Vol. 149, pp. 10 (Jan. 2009), available at www.plantphysiol.org (hereafter "Edgerton"). Edgerton indicates that several additional technologies are in earlier stages of development but that even these should reach farmers' fields by 2018-2020. *Id.*

The National Corn Growers Association has updated its analysis since the 2015/2016 data cited in the proposal in light of industry publications that indicate 4% yield increases are probable as marker-assisted breeding and biotech yield enhancement penetrate the market deeply in 2015. The NCGA comments indicate that it now estimates estimate over 250 bushels per acre in 2022.

B. The Models Used By EPA Do Not Include Correct U.S. Land Inventories, Which Forces the Modeling Framework to Immediately "Look" Overseas for Land to Convert.

According to the FASOM model documentation on the docket, "….idle cropland [is] not included in the reported FASOM cropland and [is] not explicitly tracked by FASOM." FASOM Report at A-4. USDA/NASS data shows that "non-CRP idle cropland" is approximately 5 million acres. *See* Air Improvement Resource RFS2 Report at 27-28. Further, a comparison of USDA/NASS land inventory data to the FASOM land inventory performed by Air Improvement Resource, Inc. (Appendix D) reveals that FASOM also excludes some 62 million acres of "cropland/pasture." This means approximately 67 million acres of land that would be the most likely to be converted (if necessary) are missing from the FASOM land database.

Additionally, the FASOM modeling runs performed for EPA did not include the forestry component of the model. Enabling the forestry component would likely reduce the amount of international land that is converted in EPA's analysis.

Further, the FASOM model is constrained in a way that no more than 10% of available pastureland can be converted to cropland over the time period modeled. This arbitrary constraint

limits conversion of land to cropland in the U.S., and thereby transfers these conversions overseas where the emission impact is higher due to lower yields and more dense, unmanaged forests.

The Air Improvement Resource review provides additional detail on the impact of these errors regarding land sets in the FASOM model.

C. CRP Land Should Not be Limited to 32 Million Acres.

With regard to CRP land, the FASOM report states:

> FASOM generally holds CRP land area fixed at initial levels, but for the EISA analysis, CRP land is permitted to convert back to cropland under the constraint that a minimum of 32 million acres of land remains in the CRP to be consistent with the 2008 Farm Bill and USDA assumptions.[46]
>
> [46]In addition, we explore a sensitivity analysis where the land area remaining in the CRP is allowed to fall to about half of the baseline CRP area in FASOM.

FASOM Report at 1-15, n.46. The baseline assumption should be that CRP land will go to whatever equilibrium level the model determines is appropriate, and that the sensitivity case could be some minimum level like 32 million acres. If the land inventories in FASOM were updated to include idle cropland and cropland pasture, the model would probably not need much, if any, CRP land to meet RFS2 requirements. Still, EPA should perform sensitivity analysis on this factor and not constrain CRP acreage.

D. EPA Does Not Properly Account for Pasture Intensification in Brazil.

As described above, EPA used the FAPRI model to project how much cropland expansion would occur in each country, and MODIS satellite data provided by Winrock to estimate where and what types of land would be cleared within each country or region to make room for new cropland. As part of the analysis, EPA purports to project pasture losses and overall declines in livestock production and/or increases in pasture intensification. DRIA at 373. EPA then "added a certain amount of 'pasture replacement' land use change to our total land use change estimates." *Id.*

EPA's estimates of pasture replacement come from its analysis of Brazil land use changes. Table 2.6-32 of the DRIA shows that cropland expansion increases are 747,000 acres (step one), and the pasture replacement analysis (step two) adds an additional 439,848 acres. DRIA at 376-377. The pasture replacement step represents a 58 percent increase, and is 37 percent of total acreage converted. The Brazilian pasture replacement ratios are applied to all other countries. *Id.* at 377.

Table 2.6-39 of the DRIA (at 393) shows the weighted average emissions factors for both crop expansion and pasture replacement for 10 major regions of the world. The weighted average emission factor of all the regions in this table is 114 MT CO2-eq/acre. Air Improvement

Resource's analysis of the emission factors for crop expansion and pasture replacement indicates that the emission rate of the pasture replacement step has about 20 percent less emissions per acre than the cropland expansion step. Thus, the 58 percent increase in acres is mitigated somewhat by the lower emissions from the replacement step. But the net impact of the pasture replacement step for both the land increase and the somewhat lower emission factors is a 46 percent increase in land use emissions for corn ethanol.

EPA's 100 year-2 percent emissions for corn ethanol from a natural gas-powered dry mill with DDGS show a 16 percent benefit relative to gasoline. If pasture were intensified intentionally instead of replaced, the benefit of corn ethanol relative to gasoline would be 30 percent instead of 16 percent. Air Improvement Resource RFS2 Report at 36. Testimony was presented at the EPA June workshop that shows that pasture is being intensified in Brazil, rather than being replaced. *See* Presentation of Andre Nassar, ICONE, Institute for International Trade Negotiations (2009), *available at* http://client-ross.com/lifecycle-workshop/index.asp. *See also* Testimony of Joel Velasco, Brazilian Sugar Cane Industry Association (UNICA), Public Hearing, June 9, 2009, Tr. at 94-95 (EPA-HQ-OAR-2005-0161-1017). RFA supports UNICA's comments on pasture intensification, and urges EPA to include this factor in their analysis for the final rule.

E. EPA's Assumptions Regarding Carbon Sequestration Are Flawed.

EPA assumes that all of the forestland that is converted would not have been converted for any other purpose for 80 years. In other words, none of the land would have been converted for crops for food, or for urban uses, or for any other purpose. This is simply a worst case assumption that needs to be revised. Some land may not be converted for 80 years, but some fraction of the land probably would have been converted for crops for non-biofuel uses or other uses. As further described in the Air Improvement Resource RFS2 Report (at 41-43), EPA seems to have arbitrarily based its 80-year estimate on how long new forests accumulate carbon. As Air Improvement Resources found a period between 20 and 80 years, such as 50 years, would take into account the fact that some of the forest being converted that would likely have been converted for other reasons. *Id.* at 43. This assumption has significant effects on EPA's analysis. For example, if EPA uses 50 years, the emission rate would be about 129 Mt CO_2 eq/acre, or 18% less than EPA's current assumption. *Id.* EPA should revise its 80-year assumption in the final rule.

It should also be noted that the age of forest assumed by EPA for sequestration purposes is likely quite different than age of forest assumed for estimating land conversion. EPA is using the rates of carbon accumulation for a 20-year old forest to estimate carbon sequestration, but does not indicate how hold the average forests are that are being converted for the purpose of estimating emission factors of conversion. These two assumptions must be the same. The younger the forest, the higher the sequestration, but the lower the mass upon conversion. EPA should ensure that it is using the same average age for carbon sequestration and for developing the emission factors for forest conversion.

F. EPA Should Update its Reference Case (i.e., the World Without RFS2) to Better Reflect Expected Ethanol Production.

In assessing land use changes, EPA looked at a reference case (i.e., the world without RFS2) and a control case (i.e., the world with RFS2). EPA's reference case for ethanol is based on production volumes from the DOE Annual Energy Outlook 2007, which forecast U.S. ethanol production (non-cellulosic) would reach 11.1 billion gallons in 2015 and 12.3 billion gallons in 2022. 74 Fed. Reg. at 24,978. RFA has significant questions regarding these estimates given that, as of August 4, 2009, the ethanol industry had a capacity of 11.532 billion gallons in operating production. *See* RFA, *Biorefinery Locations*, *available at* http://www.ethanolrfa.org/industry/ locations/ (Appendix B). Indeed, for the last several years, the RFS has not been the driver of ethanol production. *See* Abbott, *et al.* (2008), at 44. Oil prices and corn prices will be the ultimate driver of ethanol production volumes, and, as Congress intended, the RFS will serve only as a floor. Informa Economics also forecasts that corn-based ethanol production will reach 17 billion gallons by 2022. Informa Report at 7. Thus, the 12.4 bgy estimate for the 2022 base case is inappropriate, and EPA should reassess its baseline. Using the Informa forecast, there would be no international land use changes associated with the RFS2, because the reference case will be higher than the control case.

VIII. RFA SUPPORTS EPA'S PROPOSAL TO USE A 100-YEAR TIME FRAME, BUT EPA SHOULD NOT USE A DISCOUNT RATE.

A. A 100-Year Time Frame Is Appropriate to Address Greenhouse Gas Emissions.

While RFA believes the selection of any certain time period is inevitably arbitrary, it supports EPA's proposal to use a 100-year time frame, rather than the 30 year time frame. One hundred years is the most appropriate option for three major reasons: (1) 100 years is a modest scope of time when the long-term impacts and atmospheric residence of GHG emissions are considered; (2) given that the focus is on *emissions from the land* and land is a permanent resource, a longer time period is justified; and (3) the 100-year time frame is consistent with other EPA and international, including IPCC, analysis of climate change impacts.[29]

A time frame based on the productive life of a particular biofuel facility is irrelevant. Rather, the expected continued post-conversion use of the land is a more relevant factor to consider in deciding on the proper time frame. Historical data indicate that land converted to agricultural production tends to continue in that purpose for at least a century.[30] Further, a report

[29] *See* EPA, Inventory of U.S. Greenhouse Gas Emissions Sinks: 1990-2007, at ES-3, EPA 430-R-09-004, (Apr. 15, 2009), *available at* http://www.epa.gov/climatechange/emissions/ downloads09/InventoryUSGhG1990-2007.pdf.

[30] For example, family farms in the United States have been kept in the family for decades, with those in the same family for at least 100 years being considered "centennial" farms and for at least 150 years, "sesquicentennial farms." A survey showed that 26 percent of farms in York County, Pennsylvania were in the same family for 100 years or more, including two farms that had been in the family for over 200 years. *See* Penn State Cooperative Extension and the York County Agribusiness Council, *The Future of Agriculture in York County*, at 2 (Sept. 2004), *available at* http://york.extension.psu.edu/agriculture/FOAExecutiveSummary.pdf. "More than 8,300 Illinois farms have been named Centennial Farms since the program was created in 1972." Illinois Department of Agriculture, *Centennial & Sesquicentennial Farms*, http://www.agr.state.il.us/marketing/centfarms/. More than 6,000 farms in Michigan have been certified as centennial and sesquicentennial farms. *See* Michigan Centennial Farm Association, http://www.michigancentennialfarm.org/.

by NERA Economic Consulting entitled *Calculating Carbon Intensity: Implications of Project Horizon and Future Land Use*, at 8 (Apr. 2009) (Appendix M) states:

> It is important to note that the project horizon relates to indirect changes in emissions associated with use of *land*. Thus it is not appropriate to use the economic life of an ethanol production plant [as a determinant for time frame], because once converted the crop land could continue to be used to grow corn for use in replacement production plants if demand continued past the useful life of the original plant.

Even if it is assumed that corn ethanol production ceases at some point in the future due to the emergence of other biofuels, EPA's proposed approach appears to fail in accounting for the *net* impact of the land use change and associated emissions *after corn-based ethanol ceases to be produced*. Key questions involve whether the land will remain in agriculture for other purposes, revert to its former use, or to another use that sequesters comparatively more carbon in the soil and in vegetation? A compelling case can be made that land use change emissions could in fact be negative after production ceased. However, although EPA discusses the possibility for such recovery, the values preferred by EPA staff and used in proposal do not appear to include any such recovery; instead, the Agency simply assumes that land use change emissions are zero after production of a particular biofuel ceases.

Another flaw in using the predicted economic life of an ethanol facility as a determinant for time period is that most corn ethanol facilities have been designed in such a way that when alternative cellulosic feedstocks become viable, these facilities can be converted to process those feedstocks. Suppose land is cleared for corn, and this corn is used for feedstock in an ethanol plant for 30 years. Then, new feedstocks become economically viable and broadly commercial in the region surrounding the plant. In response, the land that was cleared for corn is then planted to the new feedstock and the corn plant is modified to accommodate the new feedstock. In this case, the large initial CO2 release due to land clearing should be allocated partly to corn and partly to the new feedstock. Advocates of the 30-year time horizon approach wrongly argue that the emissions should only be allocated to original corn ethanol produced by the modified plant.

EPA should also consider that if land is converted today as the indirect result of corn-based ethanol production, it will likely substitute (after production of such ethanol ceases) for land that otherwise would have been converted to cropland or some other use in the future. Under this scenario, for example, an acre of land cleared today for corn used for ethanol will substitute for an acre that otherwise would be converted to cropland 30 years later. The future availability of that land for agriculture will decrease the price of cropland, thus reducing the incentive to convert other types of land to cropland. It is difficult to predict how much land conversion would otherwise take place in the future and the extent to which such demand would be met by land freed from producing corn for ethanol. Still, this effect is conceptually similar to the general equilibrium effects currently modeled for the initial impact of increased production of corn-based ethanol. Merely because production of corn-based ethanol may end does not necessarily mean that demand for cropland will not continue to grow as population and income expand. Under this scenario, land use change that occurs today as a result of increased production of corn-based ethanol effectively shifts land use change emissions closer in time.

Although land use change emissions occur starting now, land use change emissions that otherwise would have started later will not occur. This notion is further supported by the executive summary from a 2009 workshop sponsored by Oak Ridge National Laboratory that involved dozens of the world's foremost experts in the fields of lifecycle analysis, land use, and climate change. According to the executive summary: "…it is necessary to look at the *difference* in atmospheric greenhouse-gas concentrations in the situation where biofuels cause indirect land use change and in the *baseline situation* (without biofuels) where land-use change simply evolves as a result of drivers other than biofuels (the dynamic baseline)."

To account for the long-term net emissions (including the potential for negative emissions) associated with a land conversion, NERA developed a method for computing levelized land use change carbon intensity values with credits for future carbon sequestration. This method is detailed in the report at Appendix M.

Due to the factors discussed above, 100 years is the most appropriate time period because it captures the ongoing use of the converted land more effectively than a shorter time period. Also, potential reversion effects would be more effectively captured in the 100-year time frame versus a shorter time period. Some have suggested that the analytical time frame should be tied to the RFS schedule as specified in EISA. This is an extremely shortsighted recommendation because, as EPA states in the Proposed Rule, "the RFS program does not have a specified expiration date." 74 Fed. Reg. at 25,035. In fact, EISA provides clear guidance that the EPA Administrator, in consultation with DOE and USDA, will set applicable renewable fuels volumes for years after 2022. As such, it is highly unlikely that biofuels usage would decline in the years following 2022.

Thus, there is substantial support for EPA's choice of a 100-year impact time frame to assess land use changes, rather than a shorter time period.

B. It is Inappropriate to Apply a Discount Rate in this Case.

While RFA supports a 100-year time frame, RFA opposes use of any discount rate higher than zero percent. EPA is not conducting a risk assessment or a valuation of benefits, it is attempting to assess physical emissions attributed to biofuel production. A discount rate is an economic consideration that is more appropriate when considering the value of the benefits of a regulation. Here, however, Congress made the policy decision to promote the use of biofuels, not EPA. While peer reviewers largely agreed that there should be no discount rate for shorter time frames, there is insufficient support to require a higher discount rate for the 100-year time frame.

The issue of accounting for land use change emissions over time and discounting was debated at the Oak Ridge workshop and it was clear there is no consensus on how best to conduct such analysis. Participants discussed the need for a standard approach to the time accounting of emissions from land use change. The executive summary from the workshop suggests that participants agreed that time accounting methodologies should not arbitrarily utilize discounting and the time period should be standardized at 100 years to be consistent with IPCC guidance. According to the executive summary:

> Because of the shortcomings of the current methods used to convert land-use-change results from economic models to an indirect land-use change contribution for a given unit of biofuels, workshop participants discussed the need to review current approaches and make them more compatible. For example,
>
> - The methodology should eliminate the use of arbitrary choices (e.g., regarding discount rates).
> - The methodology should take account of the temporal aspects of atmospheric greenhouse-gas concentrations, thereby implicitly considering land reversion.
> - The time perspective in which indirect land-use change emissions are viewed should be aligned with the recommendations of the IPCC (i.e., 100 years).

In addition, existing literature establishes that the social cost of carbon emissions will increase in the future, so discounting those emissions to say a future reduction is less important than a current reduction is incorrect.

Additionally, EPA suggests the emissions stream from a land conversion is less certain under a longer time period than under a shorter time period. This is not necessarily true. The most uncertainty occurs with the up-front "puff" of emissions that results from the initial conversion. This is demonstrated in the wide variance between the initial carbon release factors from Woods Hole versus those derived by EPA from the Winrock data (see Appendix D). The emissions from soil carbon loss in the mid-term and the long-term emissions and sequestration are likely to be more certain and consistent than the emissions in the early years of the conversion.

Attempting to justify the use of a discount rate greater than zero, EPA suggests near-term GHG reductions may be more important than future reductions because of possible non-linear climate change effects from increasing emissions. However, there is limited and contrary literature on the potential for "tipping point" GHG levels, irreversibility of climate change and non-linear effects. There is also a compelling case to made for inter-generational equity and most literature on accounting for future GHG emissions recognizes this. EPA rightly recognizes the notion of inter-generational equity in the Proposed Rule.

IX. RFA GENERALLY SUPPORTS EPA'S LIFECYCLE ANALYSIS FOR CORN ETHANOL REGARDING DIRECT EMISSIONS.

A. Traditional Lifecycle Analysis Show Substantial Reductions in GHG Emissions from Corn Ethanol Compared to Petroleum.

EPA's analysis without international indirect land use changes shows a 60 percent reduction in GHG emissions for corn ethanol compared to petroleum. Additional traditional lifecycle analysis show substantial reductions.

RFA supports EPA's general approach, with some key exceptions outlined below. In particular, RFA agrees with EPA's exclusion of biogenic carbon based on corn uptake from tailpipe emissions associated with ethanol combustion. 74 Fed. Reg. at 25,039. Ethanol is produced from biomass, and the carbon in biomass is of a biogenic origin --meaning that it was recently contained in living organic matter. EPA correctly found that "the CO_2 emitted from biomass-based fuels combustion does not increase atmospheric CO_2 concentrations, assuming the biogenic carbon emitted is offset by the uptake of CO_2 resulting from the growth of new biomass." 74 Fed. Reg. at 25,039. This results in tailpipe GHG emission of 37,927 CO_2-eq/mmBtu for ethanol compared to 3,417,311 for 2005 baseline gasoline.[31] *Id.* at 25,041 Table VI.C.1-1.

In the Proposed Rule for GHG Reporting, EPA noted that the exclusion of biogenic sources from analysis of emissions from renewable fuels is consistent with the "longstanding accounting convention adopted by the IPCC, the UNFCCC, the U.S. GHG Inventory, and many other State and regional GHG reporting programs where emissions of CO_2 from the combustion of renewable fuels are distinguished from emissions of CO_2 from combustion of petroleum or other fossil-based products." 74 Fed. Reg. 16,448, 16,570 (Apr. 10, 2009). "Under such convention, potential emissions from the combustion of biomass-based fuels are accounted for at the time of feedstock harvest, collection, or disposal, not at the point of fuel combustion." *Id.* These biogenic emissions have long been recognized as a key benefit of renewable fuels over petroleum, which spurred Congress to establish the RFS. Thus, EPA properly estimated, as with all traditional lifecycle analysis of which RFA is aware, tailpipe emissions by excluding biogenic emissions of CO_2.

A number of recent studies show significant reductions in direct emissions of GHGs from the agriculture and ethanol production compared with petroleum. Researchers at the University of Nebraska found that, "Direct-effect GHG emissions were estimated to be equivalent to a 48% to 59% reduction compared to gasoline, a twofold to threefold greater reduction than reported in previous studies." Adam J. Liska, *et al.*, *Improvements in Life Cycle Energy Efficiency and Greenhouse Gas Emissions of Corn-Ethanol*, Journal of Industrial Ecology, at 1 (2008), *available at* http://ncesr.unl.edu/docs/ 09-1_improvementsincornethanol.pdf. A case study of a modern corn ethanol dry mill (Illinois River Energy in Rochelle, IL) found that the GREET default assumptions utilized by EPA for its direct GHG analysis likely overestimate the emissions associated with corn and ethanol production. "The results show that IRE produced corn ethanol has a substantially lower GWI [global warming impact] of 54.8 g CO2e/MJ than the current GREET default value for corn ethanol of 69.1 g CO2e/MJ (a 21% reduction). This reduction is primarily due to higher corn yields, reduced on-farm energy consumption, and reduced energy consumption at the biorefinery. Compared to gasoline, the GWI of IRE corn ethanol is 40% lower (54.8 g CO2e/MJ vs. 92.1 g CO2e/MJ for gasoline)." Steffen Mueller, *The Global Warming and Land Use Impact of Corn Ethanol Produced at the Illinois River Energy Center*, (July 2008), *available at* http://www.www.ethanolrfa.org/objects/documents/1964/ globalwarmingimpact.pdf.

[31] Tailpipe GHG emissions for ethanol include CH_4 and N_2O but not CO_2 emissions as these are assumed to be offset by feedstock carbon uptake. 74 Fed. Reg. at 25,041 n.312.

B. RFA Questions the Assumptions Regarding Tillage Practices and Other Key Used in the Direct GHG Analysis.

Neither FAPRI nor FASOM include projections of the frequency of use of the following farm practices, which have been shown to reduce energy consumption on the farm, and in some cases, very significantly reduce N2O emissions from agriculture:

- No till farming (reduces soil carbon and nitrogen loss, and reduces agriculture energy use)
- Conservation till farming (also reduces soil carbon and nitrogen loss, and reduces agriculture energy use)
- Winter cover and double cropping (reduces N2O emissions and increases soil carbon)

EPA rightfully projected 2022 emissions from ethanol plants using GREET and ASPEN. In a similar manner, EPA should project agriculture emissions to 2022, estimating frequencies of the above practices on newly converted land. The emission reductions of these practices are discussed in Kim, *et al.* (2009) on this subject.

Both FAPRI and FASOM assume conventional till practices and no winter cover or double cropping.

X. EPA MUST GRANDFATHER ETHANOL FACILITIES COMMENCING CONSTRUCTION PRIOR TO 2010.

EISA included a requirement that renewable fuel from "new facilities" commencing construction after December 19, 2007 must show at least a 20 percent reduction in GHG emissions compared to the baseline petroleum. 42 U.S.C. § 7545(o)(2)(A)(i) (2009). EPA has interpreted this provision to grandfather facilities existing on the date of enactment from this requirement: "Facilities that commenced construction before December 19, 2007 are 'grandfathered' and thereby exempt from the 20% GHG reduction requirement." 74 Fed. Reg. at 24,924. Section 210 of EISA also provided that "[f]or calendar years 2008 and 2009, *any ethanol plant* that is fired with natural gas, biomass, or any combination thereof is deemed to be in compliance with . . . the 20 percent reduction requirement." Pub. L. No. 110-140, § 210(a) (emphasis added). EPA refers to these facilities as "deemed compliant" facilities, and has interpreted the provision to mean:

> that fuel from such qualifying facilities, regardless of date of startup of operations, would be exempt from the 20% GHG threshold requirement for the same time period as facilities that commence construction prior to December 19, 2007, provided that such plants commence construction prior to December 31, 2009, complete such construction in a reasonable amount of time, and continue to burn only natural gas, biomass, or a combination thereof.

74 Fed. Reg. at 24,925.

EPA proposes one basic approach for grandfathered[32] facilities and seeks comment on five additional options. Under EPA's proposed approach, there would be an indefinite extension of grandfathering status but with a limitation of the exemption from the 20 percent GHG threshold to a baseline volume of renewable fuel. *Id.* at 24,925. The five additional options for which EPA seeks comment are:

(1) Expiration of exemption for grandfathered status when facilities undergo sufficient changes to be considered "reconstructed";

(2) Expiration of exemption 15 years after EISA enactment, industry-wide;

(3) Expiration of exemption 15 years after EISA enactment with limitation of exemption to baseline volume;

(4) "Significant" production components are treated as facilities and grandfathered status ends when they are replaced; and

(5) Indefinite exemption and no limitations placed on baseline volumes.

Id. at 24,925-24,926. RFA generally supports EPA's proposed approach, but believes alternatives (1), (2) and (3) go against the statutory language and Congressional intent.

A. RFA Generally Supports EPA's Baseline Volume Approach for Grandfathered Facilities.

1. Congress sought to grandfather those renewable fuel facilities that have already substantially invested in providing renewable fuel.

EPA's Alternative 5, referred to as the Greenfield Approach, best expresses the statutory language and Congressional intent. Under this approach, only new "greenfield" plants would be subject to the 20 percent reduction requirement. Although Congress did not define "facilities," the term "facility" is used throughout the Clean Air Act in reference to entire plants.[33] 74 Fed. Reg. at 24,925. A new facility, therefore, would be a new "greenfield" plant -- *i.e.*, either the construction of a new production facility where there was no industrial activity before or where there was no renewable fuel production before December 19, 2007. This approach recognizes the investments made prior to enactment of EISA, consistent with the purpose of a grandfather clause, and also the benefits that have been provided to date from these facilities. It also recognizes that expansion of an existing plant would necessarily rely on existing equipment

[32] Because EPA has proposed to treat deemed compliant facilities similar to grandfathered facilities, the term grandfathered is intended to refer to both grandfathered and deemed compliant facilities unless otherwise noted.

[33] RFA supports EPA's proposal to define a "facility" "to focus on the typical renewable fuel plant," including all of the activities and equipment associated with the manufacture of renewable fuel which are located on one property and under the control of the same person or persons. 74 Fed. Reg. at 24,925. This is similar to the definition EPA has used in other air programs, of which Congress must have been aware. 40 C.F.R. § 52.21(b)(6).

already at the facility (*e.g.*, boilers), whereas a wholly new plant could design its operations and sourcing to achieve the 20 percent reduction.

EPA found some ambiguity in the statute, however, finding that Alternative 5 would allow a facility that qualifies for grandfathering to "be expanded by any amount, and the additional volume would also receive protection." 74 Fed. Reg. at 24,930. As such, EPA proposes to grandfather a baseline volume for each existing facility, requiring any volumes above that baseline to meet the 20 percent reduction requirement: "Our guiding philosophy of protecting historical business investments that were made to comply with the provisions of RFS1 is realized by allowing production increases within a plant's inherent capacity." *Id.* at 24,926-24,930. Under this approach, changes may be made to the facility, such as changes in feedstock, so long as the total renewable fuel volume remains below the baseline amount. Similarly, if production equipment such as boilers, conveyors, hoppers, storage tanks and other equipment are replaced, this would not be considered construction of a "new facility" under EPA's proposed option. RFA agrees that this is a reasonable alternative interpretation to Alternative 5 to address the potential for unlimited expansions of a particular facility, while still giving facilities flexibility in their operations to include new feedstocks and to maintain and improve their equipment. This approach also is practical and provides a bright line definition that makes clear when the 20 percent requirement is triggered.

In addition, EPA should make clear that the facility must be *a renewable fuel facility* that was producing renewable fuel prior to enactment. Grandfather clauses are intended to "prevent the harsh and often unfair operation of a statutory change." *Wilson v. Heckler,* 761 F.2d 1383, 1385 (9th Cir. 1985) (citation omitted). Grandfathering also recognizes the investments made in reliance on the current regulatory system. *See Norfolk S. Corp. v. Oberly*, 822 F.2d 388, 404 (3d Cir. 1987); *Buccaneer Point Estates, Inc. v. United States*, 729 F.2d 1297 (11th Cir. 1984). *See also Nat'l Ass'n of Casualty & Surety Agents v. Bd. of Governors of Fed. Reserve Sys.*, 856 F.2d 282, 286 (D.C. Cir. 1988) (noting "basic purpose of the grandfather clause" is "to provide stability to established business relationships"). Congress did not intend to allow any facility to be grandfathered, but sought to protect the investments made *in renewable fuel* in response to the RFS1 proposal. As such, EPA should be clear that these provisions are limited to *renewable fuel* facilities and another facility existing on the date of enactment (*e.g.*, a chemical plant) that is retrofitted to produce renewable fuel after enactment or a refinery that co-process renewable biomass with petroleum would not be eligible for grandfathering status.

2. EPA should allow for capacity plus a tolerance value to address improved efficiencies.

RFA generally supports EPA's proposed definition of the baseline volume to be the greater of the permitted capacity or annual peak capacity. However, the full capacity provided for in the permit should be used. EPA recognizes that volume limitations contained in air permits may be defined in terms of peak hourly production rates or a maximum annual capacity, but proposes to use a conversion rate of 90 percent to convert hourly rates to an annual rate, asserting that "assuming 24-hour per day production over 365 days per year (8,760 production

hours) may overstate nameplate capacity."[34] 74 Fed. Reg. at 24,926. EPA, however, is looking at potential, actual production, not the capacity of a facility, and is placing limits on the facility's production that is not otherwise present in the permit. This proposal also is counter to EPA's recognition that a tolerance level may be needed to allow for increases that are within a plant's inherent capacity.

EPA should eliminate its conversion factor, and add a tolerance level. As EPA recognizes, some debottlenecking type changes, for example, may cause increases in volume that are within a plant's inherent capacity. 74 Fed. Reg. at 24,926. A tolerance level also allows facilities to become more efficient, which would provide additional GHG benefits. Ten percent is a reasonable tolerance value for EPA to apply. A facility's design usually can be tweaked after construction, increasing production by at least 10 percent.

Finally, RFA opposes using 2006 production as a potential alternative to define the baseline volumes. Production in 2006 is not representative of a facility's potential capacity, but only reflective of the demand that particular year. Nor does it recognize the improvements that can be made to increase production without expansion of the facility.

3. Congress did not intend to regulate modifications to existing ethanol facilities.

EPA seeks comment on whether it should provide for the removal of a plant's grandfather status if changes are made to the facility in addition to expansions of current capacity. For example, EPA seeks comment on restricting facilities from switching process fuels or feedstock which result in an increase in GHG emissions. 74 Fed. Reg. at 24,927-24,928. While EPA's regulation of expansions at existing facilities may be reasonable, Congress intended to grandfather entire plants and did not intend to regulate modifications to the existing equipment. Moreover, the Act provides incentives to promote improvements and efficiency to reduce GHG emissions, and regulating modifications would create a disincentive for facilities to seek to become more efficient or to add equipment that would reduce GHG emissions (*e.g.*, carbon capture).

The only example EPA provides as potentially troublesome from a GHG emission perspective is a facility switching from natural gas to coal. This, however, would require substantial investment and is not likely to occur. The vast majority of ethanol plants are fired with natural gas (148 plants versus 21 plants - 74 Fed. Reg. at 24,985 Table V.B.1-2; 201 plants by 2022 compared to 23 - 74 Fed. Reg. at 24,987 Table V.B.1-6). There are additional costs associated with maintaining coal plant, and it is difficult for a facility to switch fuels. Estimated capital costs for such a conversion are $30-33 million. In addition, with such a demand for new capacity, available capital will most likely be dedicated to new capacity. Rather, facilities are likely to continue to seek further efficiencies and change energy sources to reduce GHG emissions. EPA recognizes as much later in the Proposed Rule: EPA estimates that plants will "transition from conventional boiler fuels to advanced biomass-based feedstocks" and pursue

[34] EPA makes no comparison with permits that express volumes in terms of an annual rate, potentially placing additional restrictions on a facility simply because the State used an hourly rate rather than an annual amount.

combined heat and power (CHP) technology. 74 Fed. Reg. at 24,987. Thus, EPA should not limit a facility's flexibility to adjust its operations and maintain its grandfather status.

4. RFA generally supports using PSD definitions for "commence construction"

EISA uses the term "commence construction," but does not define it. 42 U.S.C. § 7545(o)(2)(A)(i) (2009). Elsewhere, the Clean Air Act defines "commence" as applied to construction of a facility to mean:

> that the owner or operator has obtained all necessary preconstruction approvals or permits required by Federal, State, or local air pollution emissions and air quality laws or regulations and either has (i) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (ii) entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed within a reasonable time.

42 U.S.C. § 7479(2)(A). The term "necessary preconstruction approvals or permits" means those permits or approvals required by the permitting authority as a precondition to undertaking any activity under clauses (i) or (ii). *Id.* To define "commence" construction, EPA looked to the PSD regulations implementing this definition at 40 C.F.R. § 52.21(b)(9) and (11). 74 Fed. Reg. at 24,925. "Such activities include, but are not limited to, 'installation of building supports and foundations, laying underground pipe work and construction of permanent storage structures.'" *Id.* RFA supports using the definition in the PSD regulations, which industry is familiar with.

EPA also added language to address multi-phased projects. Under the Proposed Rule, "for multi-phased projects, the commencement of construction of one phase does not constitute commencement of construction of any later phase, unless each phase is mutually dependent for physical and chemical reasons only," and also has begun construction or entered into binding agreements or contractual obligations. 74 Fed. Reg. at 25,113 (proposed 40 C.F.R. § 80.1401). RFA believes this addition creates confusion, and EPA does not adequately explain what is meant by a multi-phase project.[35]

[35] RFA also believes that a technical correction is needed to the definition, as it is unclear. The definition states:

> *Commence construction*, as applied to facilities that produce renewable fuel, means that the owner or operator has all necessary preconstruction approvals or permits (as defined at 40 CFR 52.21(a)(10)), that for multi-phased projects, the commencement of construction of one phase does not constitute commencement of construction of any later phase, unless each phase is mutually dependent for physical and chemical reasons only, and has satisfied either of the following:
>
> (1) Begun, or caused to begin, a continuous program of actual construction on-site (as defined in 40 CFR 52.21(a)(11)) of the facility to be completed within a reasonable time.

RFA also believes that foreign facilities should be required to certify compliance with these requirements, including having obtained all necessary permits, and should be required to provide documentation to support the certification, such as an affidavit or legal opinion. EPA cannot determine whether a foreign entity has obtained all necessary permits under foreign law.

B. EPA's Alternatives 1, 2 and 3 Do Not Comport With the Language or Intent of the Grandfathering Provisions.

1. EPA's Alternative 1 (Reconstruction) ignores the language and intent of the statute.

EPA's Alternative 1 would treat a facility as "new" based on costs incurred in maintaining the plant over time. Under this alternative, EPA would require, starting in 2010, facility owners to report annually the expenses for replacements, additions, and repairs undertaken at facilities since start up of the facility through the year prior to reporting. EPA would then determine whether the degree of such activities warrants considering the facility as effectively "new." This proposal is overly burdensome and ignores the intent of Congress to grandfather "facilities."

EPA cannot determine if a facility is "new" based on actions dating as far back as the "startup" of the facility. The purpose of a grandfathering clause is to protect existing investment. Under this proposal EPA would require facilities to account for actions taken well before the EISA was enacted. This undermines the purpose of a grandfather clause.

Moreover, Congress was aware that facilities would have to undergo maintenance and repairs over time. While EPA references other programs that address reconstruction, Congress expressly required EPA to regulate modifications or reconstruction in those cases.[36] "[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." *Russello v. United States*, 464 U.S. 16, 23 (1983) (quoting *United States v. Wong Kim Bo*, 472 F.2d 720, 722 (5th Cir. 1972)). *See also NRDC v. EPA*, 822 F.2d 104, 129 (D.C. Cir. 1987) ("The fact that Congress has vested some agencies with such powers demonstrates that when Congress wanted to extend that power, 'it knew how to do so and did so expressly.'") (citations omitted). Here, Congress solely references construction, which is generally defined to mean construction of "greenfield" facilities.

In addition, EPA recognizes the substantial problems with this approach:

> (2) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the facility to be completed within a reasonable time.

74 Fed. Reg. at 25,113 (proposed 40 C.F.R. § 80.1401) (emphasis added).

[36] *See* 42 U.S.C. §§ 7411 (regulating construction and modification), 7412(a)(4) (defining "new source" as a source commencing construction or reconstruction after regulations), 7412(g) (requiring permits for construction, modification and reconstruction of sources), 7479(2)(C) (defining construction to include modification for purposes of Prevention of Significant Deterioration of Air Quality program).

> We recognize that implementation of a facility-wide definition of "reconstruction" would be complex. Records of costs since start-up may not be available for older facilities. Also, this alternative option requires EPA enforcement staff to have sufficient financial knowledge and experience to be able to evaluate the veracity of claims regarding various types of expenditures. Calculating the costs of repairs and replacements also poses challenges. Specifically, as discussed above, we seek comment on whether the costs of routine maintenance and repair should be included in such assessments. Were such costs to be included, the determination of whether a replacement or a repair is routine may not always be straightforward. In addition to the recordkeeping and implementation issues, however, there is an important policy consideration that is also significant. As in the case of the NSR program, where many industry representatives have argued that the program has a chilling effect on projects that could provide environmental benefits, the reconstruction approach in this alternative option could also provide a disincentive to implementation of safety and environmental projects. Thus, this option could have the unintended consequence of causing facilities to refrain from investing in projects that will increase safety and efficiency and reduce emissions in order to avoid triggering the 50% cost threshold.

74 Fed. Reg. at 24,929. EPA also recognized that this approach would be marked by "potential disputes over how to calculate costs, as well as verifying records of expenditures." *Id.* The disputes that have arisen in the PSD program regarding what is "routine maintenance and repair" evidences the problems that would arise if EPA adopted this approach. This included substantial litigation, with constant changes in the rules. RFA agrees that this approach would impose substantial burdens on renewable fuel producers, and creates disincentives for increasing a plant's efficiency and reducing its overall GHG emissions. It also creates an administrative nightmare that simply is not warranted or required. This approach, therefore, should be rejected, because it is contrary to the language and intent of the statute.

Although RFA believes this approach is barred by the statutory language, RFA believes that EPA must clarify the reporting requirements under this approach. In particular, costs of routine maintenance and repair should ***not*** be included in such assessments. Also, facilities should not be required to find records of costs dating back to "startup" of the facility. If EPA goes down this road, it should limit the time period to consider costs to post-enactment, which at least recognizes the fact that Congress sought to protect pre-EISA investment, if not comply with the statutory provisions.

2. Time-limited grandfathering (Alternatives 2 and 3) is contrary to the language and intent of the statute.

As with Alternative 1, Alternatives 2 and 3, which propose to end grandfathering after 15 years, should be rejected outright as contrary to the statutory language. The 15-year limit is

based on an underlying assumption that facilities are reconstructed over a set period of time -- an estimated 15 years for ethanol plants. This may not be factually correct and, in any event, is wholly irrelevant. The statute expressly refers to "new facilities" and making existing facilities "new" on a date certain beyond the dates in the statute is illegal. EPA simply has no authority to place a time limit on the grandfathering provided by Congress.

The 15 years is wholly arbitrary. There is no indication that Congress believed 15 years was sufficient time to provide a return on pre-EISA investment, and, moreover, Congress sought to promote the use of renewable fuels well into the future, and to incentivize continued movement toward advanced biofuels. Imposing time limits on the grandfathering provision undermines the purpose of a grandfathering statute to protect pre-enactment investment.

C. EPA's Interpretation of the Transition Provision in Section 210 of EISA Fulfills the Intent of the Statute.

RFA supports EPA's proposal to treat "deemed compliant" facilities as grandfathered facilities. The second sentence in Section 210(a)(1) was referring to renewable fuel from facilities commencing construction in 2008 and 2009, not renewable fuel produced in 2008 or 2009.[37] RFA agrees with EPA's assessment that "it would be a harsh result for investors in these new facilities, and generally inconsistent with the energy independence goals of EISA, for these new facilities to only be guaranteed two years of participation in the RFS2 program." 74 Fed. Reg. at 24,925. Grandfathering is intended to protect *investment*, and Congress recognized the years of planning and investment that is required to construct an ethanol facility. Because EPA was not expected to issue its lifecycle analysis until the end of 2008, Congress sought to protect that investment. Congress further limited it to natural gas fired or renewable biomass fired plants, as it expected that these provided more GHG reductions than coal-fired facilities and would have increased efficiencies over existing plants.

For ease of administration and to allow ethanol facilities flexibility, the provisions for ethanol facilities commencing construction in 2008 and 2009 should be the same as the grandfathered facilities. Congress focused on renewable fuel from "any ethanol plant." EPA, therefore, properly applies its baseline approach to these facilities, allowing changes to those plants without losing the "deemed compliant" (*i.e.*, grandfathered) status. The use of "ethanol plant," however, makes clear that Congress intended to protect investment in *renewable fuel* facilities.[38] Congress sought to protect such facilities because they were seen as a gateway to advanced biofuels. Such facilities, therefore, should be given flexibility to make changes to their plants without triggering the 20 percent requirement, so long as the baseline volume is not exceeded. As noted above for grandfathered facilities, EPA should make clear that other types of facilities existing on the date of enactment (*e.g.*, a chemical plant) that may be retrofitted to produce renewable fuel after enactment or a refinery that co-process renewable biomass with petroleum would not be eligible for deemed compliant status.

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[37] Because the EISA amendments did not become effective until January 1, 2009, the first sentence in EISA Section 210(a)(1) refers to renewable fuel produced in 2008, applying the 20 percent requirement. Pub. L. No. 110-140, § 210 (2007).

[38] RFA does not dispute that deemed compliant facilities are limited to those that fire natural gas, renewable biomass or both.

XI. EPA'S PROPOSAL FOR ESTABLISHING COMPLIANCE WITH THE RENEWABLE BIOMASS REQUIREMENT IS CONTRARY TO THE STATUTE AND IS ARBITRARY.

Based on its unduly restrictive definitions of existing agricultural lands, EPA proposes to impose a substantial administrative burden on renewable fuel producers, requiring them to certify that the feedstock they use meets the definition and to obtain documentation to support that certification. EPA's requirement that the land be "continuously" actively managed requires renewable fuel producers to obtain sufficient documentation to establish this requirement, even if it buys the feedstock 5, 10, 15, etc. years after the date of enactment. This requirement is overly burdensome, impractical, and arbitrary.

A. EPA's Definition Of "Existing Agricultural Land" Is Inconsistent With The Statute And Could Leave Land Out Of The Program That Would Meet The Definition Established By Congress.

EISA redefined "renewable biomass" to include, among other things, "[p]lanted crops and crop residue harvested from agricultural land cleared or cultivated at any time prior to [December 19, 2007] that is either actively managed or fallow, and nonforested" -- referred to as the "existing cropland" requirement. 42 U.S.C. § 7545(o)(1)(I)(i) (2009). EPA has defined "existing agricultural land" under this requirement as:

> [C]ropland, pastureland, or land enrolled in the Conservation Reserve Program (administered by the U.S. Department of Agriculture's Farm Service Agency) that was cleared or cultivated prior to December 19, 2007, and that, since December 19, 2007, has been ***continuously***:
>
> (1) Nonforested; and
>
> (2) Actively managed as agricultural land or fallow, as evidenced by any of the following:
>
> (i) Records of sales of planted crops, crop residue, or livestock, or records of purchases for land treatments such as fertilizer, weed control, or reseeding.
>
> (ii) A written management plan for agricultural purposes.
>
> (iii) Documented participation in an agricultural management program administered by a Federal, state, or local government agency.
>
> (iv) Documented management in accordance with a certification program for agricultural products.

74 Fed. Reg. at 25,113 (proposed 40 C.F.R. § 80.1401) (emphasis added).[39] EPA has imposed substantial administrative burdens on renewable fuel producers based on its reading that the statute requires that "land must have been actively managed or fallow, and nonforested, on

[39] EPA proposes a similar requirement for planted trees and slash from tree plantations. 74 Fed. Reg. at 25,114 (proposed 40 C.F.R. § 80.1401).

December 19, 2007, and *continuously thereafter* in order to qualify for renewable biomass production." 74 Fed. Reg. at 24,933 (emphasis added). Contrary to EPA's reading, Congress did not intend to impose such an impractical and overly burdensome requirement, but intended to take a snapshot at the existing agricultural land in 2007 and to prohibit additional clearing of new land for production of renewable biomass for biofuel production.

EPA's proposal is based on an erroneous reading of the clear language of the statute. EPA attempts to create an ambiguity in the statutory language to support its interpretation of the legislative language:

> The EISA language uses the present tense ("is actively managed * * *") rather than the past tense to describe qualifying agricultural land. We interpret this language to mean that at the time the planted crops or crop residue are harvested (i.e., now or at some time in the future), the land from which they come must be actively managed or fallow, and nonforested. However, assuming that the land was cleared or cultivated at some point in time, then any land converted to agricultural land after December 19, 2007, and used to produce crops or crop residue would inherently meet the definition of "is actively managed or fallow, and nonforested," and the EISA land restriction for planted crops and crop residue would have little meaning (except in cases where it could be established that the land in question had never been cleared or cultivated). We believe that in order for this provision to have meaning, we must require that agricultural land remain "continuously" either actively managed or fallow, and nonforested, since December 19, 2007. In this way, the upper bound on acreage that qualifies for planted crop and crop residue production under RFS2 would be limited to existing agricultural land—cropland, pastureland, or CRP land—as of December 19, 2007, and the phrase "is actively managed or fallow, and nonforested" would be interpreted in a meaningful way.

74 Fed. Reg. 24,933. EPA is correct in stating that land cleared or cultivated prior to December 19, 2007 could be broad, which, contrary to EPA's assertions, is why Congress included the requirement that the land be "actively managed or fallow, and nonforested."

Agricultural land in the United States is a broad definition, and the cleared or cultivated requirement could apply at any time regardless of the current land cover, as long as such land was cleared or cultivated prior to December 19, 2007. Agricultural land "cleared or cultivated" prior to date of enactment of the EISA was substantially greater than today's available acreage. "Cropland has declined slowly but steadily since 1978 -- by about 3 percent." Marlow Vesterby and Kenneth S. Krupa, *Major Uses of Land in the United States, 1997*, at iv (2001), *available at* http://www.ers.usda.gov/publications/sb973/sb973.pdf. According to the 2003 National Resources Inventory (NRI), cropland acreage in the U.S. declined from 420 million acres in 1982 to 368 million acres in 2003, a decrease of about 12 percent. National Resources Conservation Service, *2003 Annual NRI: Land Use*, at 2 (Feb. 2007), *available at*

http://www.nrcs.usda.gov/technical/NRI/2003/Landuse-mrb.pdf ("NRCS, 2003 Annual NRI").[40] The "is actively managed or fallow" distinguishes any previously cleared or cultivated land, which may now be residential or urban areas, from land that was still agricultural on December 19, 2007.

EPA's insertion of the term "continuously" renders other portions of the definition mere surplusage. Because planted crops cannot come from "fallow" lands, Congress could not have intended the term "is" to mean "at the time the planted crops or crop residue are harvested (i.e., now or at some time in the future)" as asserted by EPA. 74 Fed. Reg. at 24,933. Similarly, this would render the limitation that the lands be "nonforested" superfluous because cropland would, by nature, be nonforested "at the time the planted crops or crop residue are harvested." The only way to give meaning to the entire definition is to define "is" to refer to the period of time on December 19, 2007. The "upper bound" of the lands that could qualify were those agricultural lands that had previously been cleared or cultivated and were actively managed or fallow and nonforested on December 19, 2007. This was intentional by Congress to ensure a broad array of existing lands be used for renewable fuels, but that new, forested lands, after December 19, 2007, were not cleared.

The inclusion of the term "continuously" impermissibly restricts the lands that would otherwise be available. *See Hercules, Inc. v. EPA*, 938 F.2d 276, 280 (D.C. Cir. 1991) (rejecting "EPA's action because it reads into the statute a drastic limitation that nowhere appears in the words Congress chose and that, in fact, directly contradicts the unrestricted character of those words."). EPA's requirements further create confusion for farmers, which may have many reasons for determining whether and when to cultivate their (otherwise nonforested) lands. EPA's proposal creates disincentives for lands that may have gone out of production for other reasons that are less beneficial from a GHG standpoint after 2007 to go back into production for fear of not meeting the "continuously" actively managed requirement. States have long sought to return lands to agriculture to promote the rural economy and environmental benefits of agricultural land over urbanization. EPA's proposal would remove incentives for doing so, where sale of land for other purposes may be more economically beneficial. EPA's definition of existing agricultural lands, therefore, is contrary to law and arbitrary.

EPA may attempt to assert that the use of the term "actively managed" in reference to tree plantations supports its interpretation. For planted trees and tree residue, the renewable biomass must come from "actively managed tree plantations on non-federal land cleared at any time [prior to December 19, 2007]." 42 U.S.C. § 7545(o)(1)(I)(ii) (2009). But, in that case, Congress wanted to make sure that the tree plantation was or is planted on land that had been cleared prior to December 19, 2007, not that the tree plantation was in existence from that date forward. Unlike agricultural land, which may be under cultivation or idle, a tree plantation is, by definition, always actively managed, and Congress sought to distinguish tree plantations from

[40] In 2002, USDA estimated, based on the Census of Agriculture, existing cropland totaling about 442 million acres in 2002. Ruben N. Lubowski, *et al.*, *Major Uses of Land in the United States, 2002*, at 1 (May 2006), *available at* http://www.ers.usda.gov/publications/EIB14/eib14.pdf. Cropland used for crops -- cropland harvested, cropland failure, and cultivated summer fallow -- totaled 340 million acres, or 77 percent of total cropland acreage. Fourteen percent of total cropland was cropland used only for pasture, while 9 percent of total cropland was classified as idle cropland, including CRP lands. *Id.* This was down from 455 million acres in 1997, which was 5 million less than in 1992. *Id.* at 5 Table 2.

natural growth forests. Earlier versions of the bill sought to clarify that "renewable biomass" "does not include biomass harvested from Federal lands that is derived from the main stem of old-growth trees." S. Rep. No. 110-65, at 6 (2007). Further, EPA's definition creates disincentives to establishing tree plantations on otherwise cleared land, which may provide additional environmental benefits. EPA's interpretation, therefore, has no basis in the statute, and, moreover, would exclude lands that would otherwise have qualified if EPA did not impose a new, and unintended, limitation on the definition of renewable biomass.

B. EPA Should Use Definitions That Are Well Known And Understood.

RFA generally supports the definitions used by EPA to define cropland and forested land to the extent those definitions are consistent with USDA and generally used definitions. For example, RFA supports EPA's determination to include pastureland and CRP lands in the definition of agricultural lands.

However, EPA improperly excludes rangeland. There is no indication that Congress intended to exclude "rangeland" from the definition of agricultural land. USDA defines agricultural land as "Cropland, rangeland, pastureland, forest land, (private non-industrial forest land if it is an incidental part of the agricultural operation for CSP) and other land on which crops, livestock, food, fiber, and other agricultural products are produced. This also includes tree farms." USDA Manual, M_440_502_A - Subpart A - Common Terms, Part 520.00, *available at* http://directives.sc.egov.usda.gov/. Of these types of agricultural lands, Congress only excluded forestland. In addition, pastureland often cannot be distinguished from rangeland, and EPA's exclusion would lead to confusion in the agricultural community that has come to rely on USDA definitions.

EPA's only justification for not including rangeland is the claim that such land may include wetlands, and other ecosystems "that at best could serve only marginally well for producing renewable fuel feedstocks, and at worst could suffer significantly if intensive agricultural practices were imposed upon them for purposes of producing crops." 74 Fed. Reg. at 24,932. The same, however, can be said for other types of agricultural land.[41] In addition, USDA programs, such as the Wetlands Reserve Program, the Grassland Reserve Program, and the Wildlife Habitat Incentives Program, and other requirements restrict cultivation of environmental sensitive lands. Moreover, wetlands cannot easily be filled in for agricultural purposes, and there is ample land available that does not support EPA's implication that these "marginal[]" lands would be converted to cropland for biofuel feedstock. There is no indication that Congress sought to have EPA regulate uses of agricultural land, yet it is attempting to do so by imposing unduly restrictive definitions in the Proposed Rule.

In addition, EPA's definitions of fallow, planted crops and crop residues, and forestland are too limiting. First, EPA imposes an "intent" requirement to define land that is "fallow." However, land may be left fallow (i.e., idle, not in use, unseeded) for numerous reasons, which may not be easily documented. Moreover, "fallow" is generally well understood in the

[41] EPA also states that CRP lands includes wetlands. 74 Fed. Reg. at 24,995. Yet, EPA (properly) included CRP lands in the definition of "agricultural lands." It is unclear why EPA believes it can exclude rangeland from that same definition.

agricultural community, and EPA should not impose a new, and unsupported, definition, which may limit the farmers ability to use their land. There is no justification to impose an intent requirement to define what may be "fallow" land. Nor should EPA impose a time limit on land that can remain fallow.

EPA also defines "planted crops and crop residues" narrowly, which may call into question whether feedstock that Congress clearly intended to be included in the definition would meet the requirements. EPA proposes to define "planted crop" as "all annual or perennial agricultural crops that may be used as feedstocks for renewable fuel, such as grains, oilseeds, sugarcane, switchgrass, prairie grass, and other species providing that they were intentionally applied to the ground by humans either by direct application as seed or nursery stock, or through intentional natural seeding by mature plants left undisturbed for that purpose." 74 Fed. Reg. at 25,114 (proposed 40 C.F.R. § 80.1401). "Crop" is generally defined as "a plant or animal or plant or animal product that can be grown and harvested extensively for profit or subsistence."[42] The term "planted" crop distinguishes a plant crop from an animal crop, which is handled separately under the definition. Indeed, planted crop and crop residue are well-understood in the agricultural community, but EPA, again, is using the inclusion of the term "planted" to narrow the definition, potentially imposing restrictions on a farming practices that Congress did not intended.

Similarly, EPA attempts to define "crop residue," which may only serve to limit what types of feedstock may be used under the RFS. EPA proposes to define "crop residue" as "the residue left over from the harvesting of planted crops." 74 Fed. Reg. at 25,114 (proposed 40 C.F.R. § 80.1401). But crop residue can also include materials left after the processing of the crop into a usable resource, such as husks, seeds, bagasse, and roots. These can be used as feedstock for cellulosic ethanol.

Finally, EPA's definition of "forestland" also imposes undue restrictions that would limit the types of renewable feedstock that would otherwise qualify under the statutory definition. Under the statutory definition, existing agricultural land must be nonforested. EPA proposes "nonforested land" to mean "land that is not forestland." *Id.* EPA then proposes to define "forestland" as "generally undeveloped land covering a minimum area of 1 acre upon which the primary vegetative species are trees, including land that formerly had such tree cover and that will be regenerated." *Id.* This definition can be compared with that from USDA:

> A Land cover/use category that is at least 10 percent stocked by single-stemmed woody species of any size that will be at least 4 meters (13 feet) tall at maturity. Also included is land bearing evidence of natural regeneration of tree cover (cut over forest or abandoned farmland) and not currently developed for no forest use. Ten percent stocked, when viewed from a vertical direction, equates to an areal canopy cover of leaves and branches of 25 percent or greater. The minimum area for classification as forest land is 1 acre, and the area must be at least 100 feet wide.

[42] Merriam-Webster On Line, *available at* http://www.merriam-webster.com/dictionary/crop.

USDA, Natural Resources Conservation Service, *National Resources Inventory, 2002 and 2003 Annual NRI, Glossary of Key Terms, available at* http://www.nrcs.usda.gov/technical/NRI/2002/glossary.html. EPA's proposed definition, on the other hand, is too broad, which again may restrict the types of land that would be considered "existing agricultural land."

EPA, therefore, should use USDA definitions that are well-known and understood by the agricultural community, rather than create new definitions that are likely to raise confusion and that may restrict the lands Congress sought to allow for biofuel feedstock production.

C. EPA Improperly Places A Substantial And Undue Burden Of Proving Renewable Biomass Requirement On Renewable Fuel Producers

The statute does not impose an affirmative duty on renewable fuel producers to use renewable biomass. Yet, EPA asserts authority to impose burden on renewable fuel producers because they generate the RIN required to show compliance with the RFS. The RFS applies to obligated parties, and RIN generation is EPA's proposal to assist obligated parties to show compliance. RINs are not a statutory requirement, and no where in the statute does Congress indicate an intent to impose such stringent regulations on renewable fuel producers (and, in turn, feedstock providers). Indeed, these stringent regulations undermine Congress' goal to develop and promote domestic sources of renewable fuel and the rural economy.

Moreover, renewable fuel producers do not have access to the type of information needed to determine compliance with the existing cropland definition. EPA further seeks to justify its proposal by assuming that renewable fuel producers can obtain the required information through contractual provisions with the feedstock producers. EPA also assumes, with no support, that "documentation already exists" for a large portion of feedstocks that qualify as renewable biomass; no prior requirement to retain such records. Renewable fuel producers will need to rely on the feedstock providers, who are either likely to impose substantial costs to obtain and provide the information or are not likely to provide the information at all, unless EPA requires them to do so.

D. EPA Fails to Consider An Important Aspect Of The Problem, Rendering EPA's Proposal Arbitrary And Capricious

The majority of feedstock is obtained from grain elevators or other centralized locations. These terminals receive feedstock from numerous sources, which are mixed together, and sell the feedstock to numerous sources. A recent study showed that 62 percent of corn from Iowa farms went to a grain elevator. Tun-Hsiang (Edward) Yu and Chad Hart, *Impact of Biofuel Industry Expansion on Grain Utilization and Distribution: Preliminary Results of Iowa Grain and Biofuel Survey*, at 5 (2009), *available at* http://ageconsearch.umn.edu/bitstream/46847/2/Impact%20of%20Ethanol%20Industry%20Expansion%20on%20Corn%20Utilization%20and%20Distribution-Final.pdf. Over 26 percent of the corn from the grain elevators went to ethanol plants. *Id.* at 6. EPA's proposal does not address this crucial fact that would make it virtually impossible for renewable fuel producers to seek and obtain the required documentation. This "entirely fail[s] to consider an important aspect of the problem," rendering EPA's proposal arbitrary and capricious. *Am. Wildlands*, 530 F.3d at 997-98 (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983)).

Under EPA's proposal, renewable fuel producers would be required to force these terminals and farmers to "identity preserve" (IP) crops, which imposes substantial burdens on the industry with no benefit in this case. IP refers to a system of crop management which preserves the identity and traceability of the source or nature of the materials. Generally it involves instances where growers choose to preserve the identity of their crops to meet specific markets, largely to address specific physical properties requested. As one corn farmer stated when this was requested for genetic modified corn:

> The demands of on-farm segregation will add additional costs to production agriculture, including a loss of efficiency and the expense of testing and certification. Couple this burden with the uncertainty of loss of markets, legal liability and corporate concentration, farmers will need to think long and hard before making their planting intentions for next year.

Grain Elevators Want Corn Segregated, AgricultureLaw.com, Oct. 5, 2000, *available at* http://www.agriculturelaw.com/headlines/oct00/oct5e.htm. Unlike genetic modified crops, however, here there is no physical distinction to determine when the land was cleared, and there is no objective test to determine if requirements are met. Although EPA fails to consider how the Proposed Rule's approach to renewable biomass would be implemented with respect to grain elevators, EPA "recognizes that the implementation options described in this proposal could impose costs and constraints on existing storage, transportation, and delivery systems for feedstocks, in particular for corn and soybeans in the U.S." 74 Fed. Reg. at 24,940. Other of EPA's proposals, including the chain-of-custody approach, similarly involve a sort of "identity preserve" system, which would add substantial costs to the agricultural industry, and subsequently to the consumer.

It is widely recognized that IP systems result in additional production, transportation, storage and administrative costs (beyond those incurred in commodity systems) at each stage of the supply chain. *See* Nicholas Kalaitzandonakes, *et al.*, *Global Identity Preservation Costs in Agricultural Supply Chains* (2001) ("Kalaitzandonakes (2001)"), *available at* http://pubresreg.org/index.php?option=com_docman&task=doc_view&gid=231.

While EPA's chain-of-custody option for certifying feedstock from existing cropland is not entirely synonymous with existing IP systems (which typically apply to niche markets for "value-enhanced" crops like high-oil corn or non-GMO soybeans), several economic analyses have been conducted on the additional costs of traditional IP systems. Those analyses are instructive in examining the potential economic impact of EPA's proposed options that require certification. A study examining the economic implications and logistical issues relating to IP of crops containing genetically modified organisms (GMOs) found that additional costs fall "in the range of 5% and 15% of the farm gate price of the mainstream crop." Allan Buckwell, *et al.*, *Economics of Identity Preservation for Genetically Modified Crops*, at xi (1998), *available at* http://www.ceasc.com/Images/Content/Final%20FBCI%20report%201745.pdf. That translates to an additional $0.17 to $0.50 per bushel of corn and $0.46 to $1.37 per bushel of soybean (based on USDA's latest season average price forecast for 2009/10).

Further, Kalaitzandonakes (2001) (at 1) argues that "IP costs have been consistently underestimated because important dimensions of these costs have been overlooked." The authors suggest there are implicit costs, which result from new limitations on fungibility and underutilization of production, storage and transportation assets. In examining the empirical IP costs associated with four separate supply chains handling high-oil corn, Kalaitzandonakes (2001) found that direct and indirect IP costs contributed substantially to the overall supply chain cost. The paper states, "we find that IP costs, even for a limited segment of an IP crop supply chain with loose thresholds, can be significant. While the average IP cost across all four supply chains and volume scenarios was $0.35/bu, such costs in many occasions were much higher." *Id.* at 5. One scenario showed IP costs could exceed $0.50/bushel. *Id.* It is important to note that this study was conducted during a period when average farm-gate corn prices were in the $1.90/bushel range, meaning IP costs represented, on average, approximately 18% of the farm-gate price and ranged as high as 27%.

Some estimates suggest the added cost of IP is even higher, particularly when the system involves tighter tolerance thresholds. For example, another study found that additional production and handling costs for white food grade corn produced in Illinois averaged $1.72/bushel and added costs for Illinois tofu soybeans totaled $3.08/bushel. *See* Karen Bender, University of Illinois-Urbana Champaign, *Product Differentiation And Identity Preservation: Implications For Market Developments In U.S. Corn And Soybeans*, at 5 (2003), *available at* http://www.farmfoundation.org/projects/documents/Bender.pdf.

An additional consideration is that the U.S. grain handling infrastructure is simply not physically capable of accommodating such a rapid and dramatic bifurcation of the corn and soybean markets as would result from some of EPA's proposed options. The costs and challenges in maintaining IP would undoubtedly be magnified tremendously under EPA's proposal, given the volume of corn and soybeans that would require segregation. "If the scale of IP were to grow quickly, beyond existing niche markets, IP costs could escalate, as unsuitable assets would be increasingly employed in IP." Kalaitzandonakes (2001) at 6. Further, all end users of corn and soybeans would bear these additional costs to some degree, as the grain and oilseed markets adjusted to the overall increased economic burden on the system of maintaining IP on every unit of feedstock destined for renewable fuel production.

Given that EPA neglected to evaluate the additional costs associated with its proposed options for complying with the renewable biomass provision, RFA believes USDA should perform a robust economic impact analysis that examines the likely costs associated with each of EPA's proposed options.

E. EPA Is Creating A Significant Administrative Burden That Is Not Warranted

The RFS provides sufficient incentives to use renewable biomass. Renewable fuel producers, then, will have substantial incentive to provide valid RINs, *i.e.*, ensure that the requirements of the act are being met.

EPA also seeks to impose the renewable biomass requirements on producers that have made a decision to opt out of the program. While RFA believes there would be no such case, given the volume mandates in the EISA, EPA cannot impose such substantial regulatory

requirements on these producers. The RFS does not give EPA broad authority to regulate renewable fuel producers, just to implement the requirements for the fuels *under the program.* EPA must justify its regulation under other Clean Air Act authority, but EPA has no such authority under the Clean Air Act. To regulate fuels, EPA must show the fuel causes or contributes to air pollution or water pollution that "may reasonably be anticipated to endanger the public health or welfare." 42 U.S.C. § 7545(c)(1). Since any such producers are likely to be small (if not nonexistent), EPA cannot hope to make such a finding. Indeed, EPA excludes small producers from the program. This again appears to be an attempt by EPA to regulate agricultural practices, which is simply beyond the authority provided by Congress.

Notwithstanding, numerous factors indicate that the risk that "new" lands will be cleared for biofuel production is minimal to nonexistent. Congress' main concern was the tearing down of forested lands for purposes of growing feedstock for renewable fuels. (Non-federal) Forested land has remained relatively constant since 1982, increasing from 402.4 million acres in 1982 to 405.6 million acres in 2003. NRCS, 2003 Annual NRI at 5. Also, as described above, cropland has been decreasing until recently. U.S. agriculture has long been able to keep up with demand, largely through improvements in corn yields. In addition, there is much availability of non-cultivated agricultural land in the United States, and the intended shift to cellulosic ethanol does not require new lands. Given all these factors, as described further above, it is very unlikely that any "new" land brought into production would be previously uncleared, uncultivated and forested. Moreover, "EPA recognizes that land restrictions contained within the definition of renewable biomass may not, in practice, result in a significant change in agricultural practices." 74 Fed. Reg. at 24,940. A comprehensive and burdensome administrative program for the "existing cropland" (and planted trees) requirement is unnecessary and unwarranted.

In addition, administrative necessity supports a presumption that crops grown in the United States meet the existing cropland requirement. "Certain limited grounds for the creation of exemptions are inherent in the administrative process, and their unavailability under a statutory scheme should not be presumed, save in the face of the most unambiguous demonstration of congressional intent to foreclose them." *Alabama Power Co. v. Costle*, 636 F.2d 323, 357 (D.C. Cir. 1980). "Considerations of administrative necessity may be a basis for finding implied authority for an administrative approach not explicitly provided in the statute. The relevance of such considerations to the regulatory process has long been recognized. *Courts frequently uphold streamlined agency approaches or procedures where the conventional course, typically case-by-case determinations, would, as a practical matter, prevent the agency from carrying out the mission assigned to it by Congress*." *Id.* at 358 (emphasis added). Tracking cropland would be a large undertaking. EPA reported that, in 1997, there were 462,877 oilseed and grain establishments in the U.S.; 94,481 were oilseed establishments and 368,396 were grain establishments. EPA Office of Compliance Sector Notebook Project, *Profile of the Agricultural Crop Production Industry*, EPA/310-R-00-001, at 10 (Sept. 2000), *available at* http://www.epa.gov/Compliance/resources/publications/assistance/sectors/notebooks/agcrop.pdf.

There are other, more practical means for EPA to confirm that no new lands have been cleared for biofuel production. Numerous conservation programs under the auspices of the USDA and States are also in place. USDA, not EPA, has the experience to track cropland. Most farmers are enrolled in USDA farm programs that have restrictions on clearing of new lands. Rather than impose substantial administrative burdens on renewable fuel producers (and in turn

feedstock providers), EPA can work with USDA to ensure that substantial amounts of "new" land are not being cleared to comply with the requirements. EPA recognizes that there are alternatives that are less burdensome on renewable fuel producers, and would likely provide more accurate information. For example, EPA notes the suggestion that EPA utilize existing satellite and aerial imagery and mapping software and tools to develop a renewable fuel mapping Web site to assist regulated parties in meeting their obligation to identify the location of land where renewable fuel feedstocks are produced. 74 Fed. Reg. at 24,940. RFA believes an EPA-moderated registration system to track feedstock providers would be a more appropriate approach to assist EPA in tracking bad actors, but that EPA should look to USDA tracking systems prior to imposing an additional burden on feedstock providers.

F. EPA's Proposal Unfairly Treats Crop-Based Renewable Fuel, and EPA Should Apply a Similar Presumption as it Does for Other Types of Renewable Fuel.

Unlike planted crops or trees, EPA proposes for all other forms of renewable biomass to only require "written certification from their feedstock supplier that the feedstock qualifies as renewable biomass." 74 Fed. Reg. at 25,129 (proposed 40 C.F.R. § 80.1451(b)(6)(ii)). While the RFS mandates place sufficient incentives on renewable fuel producers to ensure that the feedstock used meets the definition of renewable biomass, the feedstock suppliers are the only ones in a position to confirm that their feedstock meets the Act's requirements, and renewable fuel producers should be able to rely on their representations. Except for an incorrect reading of the statute, EPA provides no explanation as to why renewable fuel producers should not be allowed to rely on certifications by feedstock producers for the existing cropland and planted tree requirements, as with other feedstocks.

EPA can provide standard certification language and impose liability on those that provided improper certification, as well as on producers that had reason to know such certification was improper. EPA, not renewable fuel producers, should take actions to ensure the renewable biomass definition is being met. As noted above, information is available to USDA and EPA to confirm certifications for U.S. lands. Moreover, feedstock providers are more likely to comply with federal requirements, and it would be difficult for renewable fuel producers to enforce these requirements.

At a minimum, EPA should provide a good faith defense for ethanol producers. EPA has noted that it will look to renewable fuel *producers* (i.e., generator and seller of the RIN) first in the case of an invalid RIN rather than obligated party. But, as described above, renewable fuel producers do not necessarily know where the feedstock comes from (*e.g.*, when it obtains the feedstock from grain elevators), do not easily have access to the information required to support the certification, and, moreover, do not necessarily have the expertise to confirm the information provided by the feedstock providers. Unless EPA can show that the ethanol producer had actual knowledge that the feedstock did not meet the definition, EPA should not hold them liable for actions by others.

G. Renewable Fuel Producers Should Not Be Required To Administer A Quality Assurance Program, Any Such Program, Though Unnecessary, Should Be Done By EPA if Implemented.

One alternative approach identified by EPA would be "for EPA to require renewable fuel producers to set up and administer a quality assurance program that would create an additional level of rigor in the implementation scheme for the EISA land restrictions on renewable biomass." 74 Fed. Reg. at 24,939. As stated above, renewable fuel producers do not necessarily have the expertise to set up and administer such a program. In addition, feedstock producers are more likely to comply with federal requirements. Moreover, EPA proposes that this program would only provide a "partial" affirmative defense for renewable fuel producers. It is arbitrary to impose all the burden on renewable fuel producers, and EPA should use some enforcement discretion to determine whether there was bad faith or knowledge on the part of the renewable fuel producer before the RINs are invalidated.

While EPA's proposal to have an EPA-moderated program may facilitate compliance from the feedstock producers, it still imposes a substantial burden on renewable fuel producers, and would only provide a "partial" affirmative defense. Thus, these alternatives are inadequate and also should be rejected.

H. RFA Supports Requiring Foreign Producers To Provide Evidence Regarding Land Use.

The ability of the USDA and EPA to track agricultural production in the United States is not available with respect to renewable fuel that is imported. As such, RFA supports EPA's proposal to require foreign producers to provide the "location of land from which they will or have acquired feedstocks, along with historical satellite or aerial imagery demonstrating that feedstocks from these lands meet the definition of renewable biomass." 74 Fed. Reg. at 24,941. Requiring such information can also assist EPA in gathering data to further developing its lifecycle emissions analysis.

Despite the fact that EPA and USDA do not have information regarding international agricultural lands, EPA allows importers to rely on documentation from its producer that states whether or not the definition of renewable biomass was met by the fuel's feedstock, because "[i]mporters will likely have less knowledge than a foreign renewable fuel producer would about the point of origin of their fuel's feedstock and whether it meets the definition of renewable biomass." 74 Fed. Reg. at 24,941. Any such documentation should be certified by a third-party. For example, the National Organic Program includes a certification requirement, where the USDA approves foreign entities to provide the required certification. *See* 7 C.F.R. Part 205.

I. In Sum, EPA's Final Proposal Regarding Renewable Biomass Should be Substantially Revised to Reduce the Burdens Being Imposed on Renewable Fuel Producers and Feedstock Providers.

RFA believes that EPA should provide a presumption that domestic crops used as biofuel feedstock in the Final Rule, focusing its enforcement actions against those with knowledge that they are using feedstock that does not meet the definition. As with other feedstocks, this

presumption could be reflected by allowing renewable fuel producers using planted crops and trees and crop and tree residues to rely on certifications by the feedstock providers, including certifications provided to grain elevators. The presumption may be rebuttable in light of information to the contrary, such as USDA reports, and EPA should work with USDA to identify those bad actors. Renewable fuel producers, however, would have safe harbor from liability unless they had "actual knowledge" that the feedstock did not meet the existing cropland definition. Invalidation of RINs would be on a going forward basis based on estimates of corn yields and ethanol production, allocated either nationally or on specific producers, if it can be traced. Products produced in a foreign country and exported for sale in the United States, however, must be certified by a third-party as meeting the renewable biomass definition, because EPA does not readily have access to land use information from other countries.

Nonetheless, of all the alternatives identified by EPA, the only potentially viable one is the baseline production approach in which reporting requirements would only be triggered if feedstock used was above a baseline amount, but any such approach likely needs further refinement. We assume that EPA would intend that the baseline be tied to acreage rather than to a set production level of feedstock but the wording of the proposal is unclear on this point. Ultimately, it is important that EPA not assume fixed yield rates (i.e., just because more feedstock is produced, that would not mean that new cropland was used to produce it since yields increase every year) and that EPA would look at total cropland.

Although RFA believes a rebuttable presumption should be used to allow EPA to focus on the bad actors (as we believe the existing cropland requirement is not likely to be an issue), RFA is willing to work with EPA to provide suggestions as to how such a system might operate without imposing undue restrictions on available feedstock and undue burdens on renewable fuel producers and the agricultural community.

XII. RFA GENERALLY SUPPORTS RETAINING THE CURRENT RIN-SYSTEM AND IMPLEMENTATION PROGRAM WITH ADJUSTMENTS TO ENSURE COMPLIANCE WITH THE RFS2 VOLUME MANDATES.

A. The Current RIN System Provides a Workable Program, and Provides Sufficient Access to RINs.

1. RFA generally support the treatment of obligated parties under the current system.

The Proposed Rule largely builds on the compliance program developed through the RFS1 rulemaking. This program was developed by EPA with substantial input by the stakeholders, to ensure a workable and practical program. As EPA explained, "[u]nder RFS1, obligated parties who are subject to the standard are those that produce or import finished gasoline (RFG and conventional) or unfinished gasoline that becomes finished gasoline upon the addition of an oxygenate blended downstream from the refinery or importer." 74 Fed. Reg. at 24,963. Unfinished gasoline includes reformulated gasoline blendstock for oxygenate blending (RBOB), and conventional gasoline blendstock designed for downstream oxygenate blending (CBOB). This program was set up with an eye toward providing liquidity of RINs in the system to ensure their access to obligated parties. For the most part, the program has worked.

In the Proposed Rule, EPA asserts that, due to the increase in mandated volumes under the EISA, "it may be appropriate to consider a change in the way that obligated parties are defined to more evenly align a party's access to RINs with that party's obligations under the RFS2 program." 74 Fed. Reg. at 24,963. Among the proposed changes are to redefine obligated parties by eliminating RBOB and CBOB from the list of fuels that are subject to the standard. EPA asserts that such a proposal would make RINs available to those parties "that need them for compliance." *Id.* at 24,964. EPA contends that this approach would effectively shift the obligation for all gasoline from refiners and importers to ethanol blenders (who in many cases are still the refiners), but would maintain the obligation for diesel on refiners and importers. 74 Fed. Reg. at 24,963. EPA also notes a variation of this approach to move the obligations for all gasoline and diesel downstream to parties who supply finished transportation fuels to retail outlets or to wholesale purchaser consumer facilities. *Id.*

RFA supports retaining the obligated parties as defined under the current system. The RFS program has been in place for two years, and the parties understand their obligations and the requirements. RFA agrees that the alternatives noted above "would result in a significant change in the number of obligated parties and the movement of RINs." 74 Fed. Reg. at 24,963. These alternatives may lead to confusion as to who the obligated party is and would make enforcement more difficult. While EPA claims that this approach is intended to ensure "the RIN market functions as [EPA] originally intended," *Id.* EPA is required to ensure that the volumes are being met, 42 U.S.C. § 7545(o)(2)(A)(i) (2009), and should focus on ensuring *compliance*. Moreover, RINs have been moving freely under the current system, and there is no need to make an already complex system even more complex. The credit program was intended to give refiners flexibility regarding where the renewable fuel was actually sold, and allows obligated parties to determine how to most economically meet the RFS requirement for that given year. S. Rep. No. 109-74, at 7 (2005). The current system allows this to occur, without additional interference by EPA. The mere increase in volumes does not warrant a wholesale change of the program. There is ample supply of renewable fuel available to meet the RFS2 requirements.

2. The small refinery exemption should not be extended; and the small refiner exemption should be eliminated.

In enacting RFS1, Congress provided a limited exemption for small refineries, which it defined as "a refinery for which the average aggregate daily crude oil throughput for a calendar year (as determined by dividing the aggregate throughput for the calendar year by the number of days in the calendar year) does not exceed 75,000 barrels." 42 U.S.C. § 7545(o)(1)(D), (9) (2005). The EISA did not change these provisions, retaining the same definition of small refinery as under RFS1. 42 U.S.C. § 7545(o)(1)(K) (2009). Under Section 211(o)(9), this exemption lasted until calendar year 2011, which could be extended if the Administrator finds, based on a study by DOE, that a small refinery would be subject to a disproportionate economic hardship. 42 U.S.C. § 7545(o)(9)(A). In the RFS1 regulations, EPA extended this exemption to small refiners. 40 C.F.R. § 80.1142.[43]

[43] RFA noted in its comments on RFS1 that EPA did not have authority to provide an exemption not otherwise provided in the Act. EPA-HQ-OAR-2005-0161-0192.1 at 23.

RFA agrees with EPA's Proposed Rule in so far as the exemption ends on December 31, 2010. For small refineries, however, the Proposed Rule includes a provision indicating that this exemption can be extended for two years based on a DOE study. 74 Fed. Reg. at 25,126 (proposed 40 C.F.R. § 80.1441(e)(1)). This study was due December 31, 2008, and EPA indicated that it found no disproportionate harm. 74 Fed. Reg. at 24,972. Therefore, this provision is unnecessary and should be deleted. Small refineries retain the ability to petition the EPA for an extension, but EPA must consider the results of this study with other economic factors. 42 U.S.C. § 7545(o)(9)(B)(ii).

As it noted in its comments on the RFS1 proposal, RFA again opposes the extension of this exemption to small refiners. While EPA recognizes that "the limitations of the statute do not necessarily allow us the discretion to provide an exemption for small refiners only (i.e., small refiners but not small refineries) beyond that provided in section 211(o)(9)," (74 Fed. Reg. at 24,972) EPA lacks the authority to provide an exemption for small refiners even if it complies with the other limits in Section 211(o)(9). "Where Congress explicitly enumerates certain exceptions to a general prohibition, additional exceptions are not to be implied, in the absence of a contrary legislative intent." *NRDC v. EPA*, 489 F.3d 1364, 1374 (D.C. Cir. 2007) (quoting *TRW Inc. v. Andrews*, 534 U.S. 19, 28 (2001)). While Section 211(o)(3)(B) provides that the renewable fuel obligation be applicable to refineries, blenders and importers "as appropriate," this provision was intended to avoid double counting, not to override specific exemptions and wholly exempt parties and the transportation fuel they sell from the program. 42 U.S.C. § 7545(o)(3)(C).

All refiners should be in the program, and there is no justification for excluding small refiners beyond the limited exemption Congress provided for small refineries. It is not burdensome to require small refineries or refiners to blend ethanol, as they have the capability and resources to do so. In addition, as DOE's study found, the RFS does not impose disproportionate harm on small refineries, so there is no need for separate hardship provision for small refiners. As such, the Final Rule should eliminate the exemption for small refiners, and require that they register and be subject to the RFS requirements.

3. RFA supports application of the renewable fuel standard to nonroad uses.

The EISA amendments expanded the RFS to include nonroad uses of fuel. 42 U.S.C. § 7545(o)(1)(L) ("The term 'transportation fuel' means fuel for use in motor vehicles, motor vehicle engines, *nonroad vehicles, or nonroad engines* (except for oceangoing vessels).") (emphasis added). EPA's Proposed Rule appropriately adjusts the definitions to ensure nonroad uses are included in the program.

4. Current treatment of exports and imports of renewable fuels is appropriate.

The Proposed Rule largely incorporates the provisions under the RFS1 program on treatment of RINs for exports and imports of renewable fuel. Except as noted above regarding additional requirements for establishing compliance with the new RFS2 requirements, RFA supports retaining the current treatment of RINs for exports and imports.

B. Revisions Can be Made to Ensure Continued Access to RINs.

EPA also notes additional approaches to address the issue of ensuring access to RINs. These approaches include: (a) requiring that any party who blends ethanol into RBOB or CBOB transfer the RINs associated with the ethanol to the original producer of the RBOB or CBOB[44]; (b) using RINs that expire without being used for compliance by an obligated party to reduce the nationwide volume of renewable fuel required in the following year; (c) increasing the 20 percent rollover cap applicable to the use of previous-year RINs; and (d) removing the requirement developed under RFS1 that RINs be transferred with renewable fuel volume by the renewable fuel producers and importers. As noted above, RINs are moving in the current system. Claims of potential hoarding are unsupported, and simply have not occurred. Again, Congress intended that the mandated volumes be *minimum* volumes, and that they be met with actual production and sale of renewable fuel. As such, RFA opposes these approaches. Nonetheless, RFA believes EPA can take actions to ensure RINs are available to all obligated parties, including implementing the 12-month limit on the life of RINs and eliminating the use of equivalence values. Limiting the amount of excess RINs that may be available ensures that RINs move through the system, and are available to obligated parties. It allows the market to operate as intended by Congress.

1. EPA should implement the 12-month limit on the life of RINs.

In its November 2006 comments on the RFS1 proposal, RFA explained why the statute limited the duration of credits (*i.e.*, "life" of credits) and prohibited rollover of RINs into subsequent years. EPA-HQ-OAR-2005-0161-0192.1 at 15-19, and Attachment. While EPA agreed that rollover should be limited, it allowed RINs to be used to show compliance in the year after the year in which they were generated, subject to a 20 percent cap to address possible fluctuations in supply. RFA also explained that EPA's proposal circumvented the waiver provisions under Section 211(o)(7), and, in any event, why a 20 percent cap was too high and why 10 percent is more than adequate to meet the concerns EPA raised. EPA-HQ-OAR-2005-0161-0192.1 at 18-19. RFA incorporates these comments by reference, which are included with RFA's comments under Appendix N.

While obligated parties may assert that the increase in volumes requires an increase in the cap, the experience with RFS1 supports RFA's position in its November 2006 comments that such a cap is unnecessary and should be eliminated or reduced. The market was flooded with RINs, and many RINs have gone unused. Moreover, without the RFS mandates, it is evident that obligated parties will not seek to purchase renewable fuel, despite the ample supply that may be available.

Nor is there support for a need to have a separate rollover provision for small refiners. Small refiners have the capacity and ability to blend ethanol, and RINs will flow with the ethanol. There has been and will be sufficient RINs available, and, as discussed above, Congress

[44] RFA agrees with the problems EPA identified associated with this approach, that make it "both inappropriate and difficult to implement." 74 Fed. Reg. at 24,964. As EPA notes, RBOB and CBOB is often transferred between multiple parties prior to ethanol blending, and an additional tracking requirement would be needed. It would also be "difficult to ensure that RINs representing the specific category of renewable fuel blended were transferred to the producer of the RBOB or CBOB, given the fungible nature of RINs assigned to batches of renewable fuel." *Id.*

did not intend to have an exemption for small refiners or a long-term exemption for small refineries.

2. EPA should not retain the current equivalence values.

In the RFS1 rule, EPA interpreted Clean Air Act Section 211(o) as allowing EPA "to develop Equivalence Values representing the number of gallons that can be claimed for compliance purposes for every physical gallon of renewable fuel." 74 Fed. Reg. at 24,943. Equivalence Values allowed certain renewable fuels to generate additional RINs based on the fuel's energy content compared to ethanol. EPA asserted its authority to do so based on a claimed "Congressional intent to treat different renewable fuels differently in different circumstances, and to provide incentives for use of renewable fuels in certain circumstances, as evidenced by the specific circumstances addressed by Congress." *Id.* at 24,943-24,944. In its November 2006 comments on the RFS1 proposal, RFA explained why EPA's proposal went beyond its statutory authority, which was limited to the 2.5 to 1 added value Congress expressly provided for cellulosic and waste-derived ethanol. EPA-HQ-OAR-2005-0161-0192.1 at 23-26. RFA incorporates these comments by reference.

While EPA recognizes that Congress made changes to the statute, eliminating the statutory added value for cellulosic and waste-derived ethanol in favor of mandated volumes, EPA nonetheless co-proposes two options for addressing equivalence values, finding that the statute "continues to be ambiguous on this issue." 74 Fed. Reg. at 24,944. The two options are:

1. Equivalence Values would be based on the energy content and renewable content of each renewable fuel in comparison to denatured ethanol, consistent with the approach under RFS1.

2. All liquid renewable fuels would be counted strictly on the basis of their measured volumes, and the Equivalence Values for all renewable fuels would be 1.0 (essentially, Equivalence Values would no longer apply).

Id. EPA claims that the fact that Congress did not amend the provision allowing EPA to develop "appropriate" credits under Section 211(o)(5) creates this ambiguity.[45] *Id. See also* 71 Fed. Reg. at 55,570-55,571. Contrary to EPA's claims, however, Congress' actions clearly indicate that RFA's interpretation of the statute was correct.

[45] Section 211(o)(5) requires EPA to provide: (i) for the generation of an appropriate amount of credits by any person that refines, blends, or imports gasoline that contains a quantity of renewable fuel that is greater than the quantity required; (ii) for the generation of an appropriate amount of credits for biodiesel; and (iii) for the generation of credits by small refineries. 42 U.S.C. § 7545(o)(5). This provision required EPA to provide credits for excess *volumes*, not higher energy value as compared to *ethanol*, and to provide credits for biodiesel to account for the fact that it could be used in neat form.

The revisions to the RFS under the EISA evidenced Congress' intent to require *volumes* of renewable fuel. Although the 2.5-1 credit for cellulosic and waste-derived ethanol was to be in place until 2013, Congress eliminated it completely in favor of a volume mandate for advanced biofuels and cellulosic biofuels. In addition, Congress established a separate biomass-based diesel requirement, indicating that it did not intend for EPA to rely on the "appropriate" credit language in Section 211(o)(5) to provide incentives for advanced biofuels. Moreover, Congress wanted EPA to focus on GHG emission reductions, making EPA's use of a comparison of energy content with ethanol questionable. Indeed, such values would favor other fuels over cellulosic ethanol, clearly against the intent of Congress. As such, if EPA does retain equivalence values, RFA supports setting the values at 1 for all liquid fuels and all of the volume mandates.

Notwithstanding the foregoing, RFA does support EPA's proposal to change ethanol energy content from 77,550 Btu per gallon to 77,930 Btu per gallon in making its comparisons under either option.[46] 74 Fed. Reg. at 24,944. RFA agrees that EPA should use the more accurate value.

3. EPA should reject its proposed alternative to reduce the overall volume based on excess RINs.

One of the approaches identified by EPA to allegedly help ensure access to RINs would be to use RINs that expire without being used for compliance by an obligated party to reduce the nationwide volume of renewable fuel required in the following year. Under this approach, EPA asserts that it "would only reduce the required volume of renewable fuel to the degree that sufficient RINs had been generated to permit all obligated parties to demonstrate compliance, but some obligated parties nevertheless could not acquire a sufficient number of RINs." 74 Fed. Reg. at 24,964. EPA inexplicably asserts that this approach "would ensure that the volumes required in the statute would actually be produced." *Id.* But, EPA would *reduce* the volumes the next year. The mandated volumes are a *minimum*, and EPA should not take actions that may otherwise reduce the volumes in any year. Moreover, while EPA claims this approach would prevent "hoarding" from driving up demand for renewable fuel, it, in fact, may provide incentives for obligated parties to hoard RINs. This approach should be rejected.

In addition the approach violates the limits Congress imposed on EPA's authority. As EPA recognizes, it violates the statutory limit on the valid life of RINs. 74 Fed. Reg. at 24,964. Section 211(o)(5)(C) limits the valid life of a credit (*i.e.*, a RIN) to 12 months. 42 U.S.C. § 7545(o)(5)(C). This approach would essentially give life to a credit that had expired in violation of this limitation. In addition, it would also impermissibly circumvent the statutory criteria Congress imposed on waivers under the Act. Section 211(o)(7) provides strict limits on when EPA can reduce the RFS volumes. 42 U.S.C. § 7545(o)(7). As EPA asserts, it would only apply this approach "to the degree that sufficient RINs had been generated." 74 Fed. Reg. at 24,964. In such a case, there is adequate supply, and no justification to issue a waiver. EPA, therefore, has no authority to implement this approach.

[46] Under the second option, ethanol is used as the basis for converting use of non-liquid renewable fuels into gallons.

C. RFA Supports EPA's Proposal to Use 4 D Codes to Show Compliance with the RFS2 Mandated Volumes.

In expanding the RFS in the EISA, Congress established additional mandates for advanced biofuels, cellulosic biofuel and biomass-based diesel, which are nested within the overall renewable fuel requirement. To implement these four standards, EPA proposes to use 4 D codes as follows:

D value	Meaning under RFS1	Meaning under RFS2
1	Cellulosic biomass ethanol	Cellulosic biofuel
2	Any renewable fuel that is not cellulosic biomass ethanol	Biomass-based diesel
3	Not applicable	Advanced biofuel
4	Not applicable	Renewable fuel

74 Fed. Reg. at 24,920 Table III.A-1. RFA supports EPA's proposal, which makes minimal changes to the current RIN. RFA opposes the alternative approach to create 5 D codes to give obligated parties the choice to apply RINs for cellulosic biodiesel to either its cellulosic biofuel or biomass-based diesel obligation, but not both. 74 Fed. Reg. at 24,946. Congress clearly intended to treat biomass-based diesel separately from cellulosic biofuel, and promote increased use of cellulosic forms of feedstock.

If EPA continues to allow for some rollover of credits into the next year, RFA supports EPA's proposed treatment of RINs generated under RFS1 to show compliance with RFS2 requirements:

Excess 2009 RINs	Treatment in 2010
RFS1 RINs with RR code of 15 or 17.	Equivalent to RFS2 RINs with D code of 2.
RFS1 RINs with D code of 1.	Equivalent to RFS2 RINs with D code of 1.
All other RFS1 RINs.	Equivalent to RFS2 RINs with D code of 4.

74 Fed. Reg. at 24,962 Table III.G.3.a-1.

D. RFA Supports Proposal to Allow Small Blenders to Delegate Their Obligations.

With the expansion of the RFS program to nonroad uses, which may introduce numerous new small blenders into the program, EPA has proposed to permit blenders who only blend a small amount of renewable fuel to allow the party directly upstream to separate RINs on their behalf. 74 Fed. Reg. at 24,973. EPA proposes this provision to "eliminate undue burden on small parties who would otherwise not be regulated by this program," limiting the provision to small blenders who blend and trade less than 125,000 total gallons of renewable fuel per year. *Id.* RFA supports this proposal.

Experience with RFS1 shows that it is difficult for parties to transfer a small amount of RINs. This proposal would also make it easier to track RINs, than would be requiring numerous small entities to report RIN transactions.

E. EPA Should Limit Waivers of the RFS Only Based on the Statutory Criteria Outlined by Congress in Section 211(o)(7)(A).

EISA added a specific waiver provision for the cellulosic biofuel requirement. 42 U.S.C. § 7545(o)(7)(D) (2009). Under this provision, a waiver is required if the projected volume of cellulosic biofuel production for the next year is less than the minimum applicable volume required by the statute for that year. In such a case, EPA "may also reduce the applicable volume of renewable fuel and advanced biofuels requirement" by the same or a lesser volume of the waived amount.[47] *Id.*

For the cellulosic biofuel waiver, EPA indicated that it believed it would be appropriate to allow excess advanced biofuels to make up some or all of the shortfall in cellulosic biofuel. 74 Fed. Reg. at 24,914. For example, EPA indicated that "if we determined that sufficient biomass-based diesel was available, we could decide that the required volume of advanced biofuel need not be lowered, or that it should be lowered to a smaller degree than the required cellulosic biofuel volume." *Id.* RFA supports this interpretation, and agrees that if other advanced biofuels are available they should be allowed to make up the waived amount of cellulosic biofuel. This would ensure that the GHG emission reductions sought by Congress are still met, and the mandated volumes are sold.

EPA further noted, however, that, if the advanced biofuel requirement were also lowered, the total renewable fuel volume would be lowered to the same degree. 74 Fed. Reg. at 24,914-24,915. RFA believes that, as long as other renewable fuels are available, the renewable fuel standard should not be reduced. Other renewable fuels would still provide GHG emission reduction benefits over petroleum, and allowing other fuels to make up the difference fulfills Congress' intent to require that a specific volume of renewable fuels be sold each year.

Moreover, there is no indication that these provisions override the criteria for a waiver of the overall standard in Section 211(o)(7), which should be met before EPA lowers either the advanced biofuel or renewable fuel standards. Congress imposed strict criteria and limits on EPA's authority. *See New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008) (finding more specific provision related to regulation of electric utilities under Clean Air Act Section 112(n) did not override more general provisions governing delisting of sources). Thus, in event of a waiver of any of the volumes, including cellulosic biofuel, EPA should allow other renewable fuels to make up the difference and not reduce the other mandates.

[47] The statute provides similar language in the event the biomass-based diesel requirement is reduced under 42 U.S.C. § 7545(o)(7)(E).

F. EPA Should Limit the Ability of Obligated Parties to Use Cellulosic Allowances.

1. While RFA supports EPA's proposed limits on the uses of cellulosic biofuel allowances, they are not sufficient.

On June 8, 2009, RFA wrote EPA a letter expressing its concern regarding the provisions in the Proposed Rule that address cellulosic biofuel, which it believes may undermine, rather than advance, Congress' intent. EPA-HQ-OAR-2005-0161-0975.1. As noted in the letter, the new program, as proposed, could have some important shortcomings with respect to how RINs are issued and applied for cellulosic biofuel in the event EPA waives all or part of the cellulosic biofuel requirement.

Under the Act, EPA must issue allowances in the event it waives the cellulosic biofuel volume requirement up to the reduced volume for sale at a price capped by the statute. 42 U.S.C. § 7545(o)(7)(D). These provisions were intended to promote an orderly market for cellulosic biofuel, recognizing that projections may not be accurate. This was to ensure a reasonably stable and predictable market for cellulosic biofuel, while the industry developed.

EPA is allowed to place limits on the use of these allowances to, among other things, "provide appropriate certainty for regulated entities and renewable fuel producers" and "limit any potential misuse of cellulosic biofuel credits to reduce the use of other renewable fuels." 42 U.S.C. § 7545(o)(7)(D)(iii) (2009). Pursuant to this authority, EPA includes the following limits on the use of allowances:

- Allowances would only be available for the current compliance year for which EPA waived some portion of the cellulosic biofuel standard;
- Allowances would only be available to obligated parties;
- Allowances would be nontransferable and nonrefundable; and
- Obligated parties would only be able to purchase allowances up to the level of their cellulosic biofuel RVO less the number of cellulosic biofuel RINs that they own.

74 Fed. Reg. at 24,967. RFA believes these limitations are supported under the Act and warranted. Trading allowances is not necessary to facilitate compliance, and could lead to speculation, disrupting the market.

While RFA supports EPA's limitations on purchasing and trading such allowances as provided in the proposal, these limits are not adequate to protect against reduction in the amount of renewable fuel sold or to ensure continued investments being made in the industry -- two clear goals of Congress. This is largely because, under the Proposed Rule, EPA would issue such allowances in the amount of the reduced cellulosic biofuel requirement and allow them to be used to show compliance not only with the cellulosic biofuel requirement, but also the advanced biofuel and renewable fuel requirements. 74 Fed. Reg. at 24,967.

As EPA recognizes, its proposal still runs the risk of affecting the overall volumes sold. 74 Fed. Reg. at 24,967. Obligated parties utilizing cellulosic allowances purchased directly from

the EPA may not be required to purchase a volume of renewable fuel equal to the number of cellulosic credits that it retires. These paper credits, rather than actual volumes, then will be used to meet these requirements. Thus, EPA-issued credits could be used to reduce the overall volume requirements of the RFS. If EPA reduces the RFS commensurate with the reduction in the cellulosic biofuel requirement, this reduction in actual volumes sold is even more pronounced. Similarly, the proposal does not provide sufficient certainty to investors in cellulosic biofuels, as the price cap on EPA's allowances may also result in placing cellulosic biofuels at a price disadvantage, affecting investments and creating disincentives to develop cellulosic biofuels.

Additional limits are needed to fulfill Congressional intent to promote investment in cellulosic biofuel. First, EPA should limit amount of allowances to the amount actual production does not meet the reduced volume. This would ensure allowances are available in the event projections overestimates the available volume of cellulosic biofuel, but would not allow parties to hold onto excess cellulosic biofuel RINs, creating certainty for regulated entities. Once the applicable volume is reduced, it is difficult to understand what the need would be for credits to displace the already reduced volume requirement.

Second, EPA should limit the use of allowances to meet the cellulosic biofuel requirement only. Under EPA's proposal, obligated parties that posses more cellulosic biofuel RINs than needed to comply with their RVO may choose to either hold some for future compliance, or may retire surplus RINs to reduce their need to use other fuels to comply with their advanced biofuel or renewable fuel RVO. In the latter case, allowances could be used to reduce these other volume mandates even further. By restricting their use, EPA would ensure actual volumes are being sold and provide certainty for renewable fuel producers, protecting investment and continued develop of cellulosic biofuel.

2. EPA should implement the Dual RIN System to ensure sale of Cellulosic Ethanol and ensure the volume mandates are met.

As an alternative, EPA identifies a "dual RIN" system to help address the problems identified with the cellulosic allowance program. 74 Fed. Reg. at 24,968. Under the Proposed Rule, obligated parties have an incentive to purchase allowances from EPA up to their full cellulosic biofuel RVO anytime the credit price was below the market price for cellulosic biofuel with its RIN attached, rather than purchase the fuel itself. Obligated parties also would have an economic incentive to retire excess cellulosic RINs, rather than selling those RINs to other market players and purchasing more expensive conventional RINs. These incentives would work toward reducing the total volume of renewable fuel that would be sold, allowing "paper" credits to be used to meet the *volume* mandates of the statute.

Under the dual RIN system, both cellulosic biofuel RINs (with a D code of 1) and allowances could only be applied to an obligated party's cellulosic biofuel RVO, but producers of cellulosic biofuel would also generate an additional RIN representing advanced biofuel (with a D code of 3). The producer would only be required to transfer the advanced biofuel RIN with a batch of cellulosic biofuel, and could retain the cellulosic biofuel RIN for separate sale to any party. This would give the separate cellulosic biofuel RIN an independent market value that would be effectively limited by the pricing formula for allowances. EPA declined to utilize this

approach because it "would be a more significant deviation from the RIN generation and transfer program structure that was developed cooperatively with stakeholders during RFS1." 74 Fed. Reg. at 24,968. EPA notes that it would "provide cellulosic biofuel producers with significantly more control over the sale and price of cellulosic biofuel RINs, which was one of the primary concerns of obligated parties during the development of RFS1." *Id.* But, EPA recognized that RFS1 sought to *promote* cellulosic ethanol and, in RFS1, allowed renewable fuel producers to retain some of the 2.5 cellulosic ethanol RINs generated for sale separate from the gallon to ensure they were able to obtain the economic benefits intended by Congress. 72 Fed. Reg. 23,900, 23,938 (May 1, 2007). The same is true here. Moreover, Congress requires EPA to ensure that the mandated *volumes* are sold. Finally, it makes no sense why EPA should allow a system where obligated parties could hoard RINs to the detriment of renewable fuel producers, which could undermine investment in the advanced biofuels Congress sought to promote.

RFA understands there may be some additional administrative burdens associated with a dual RIN system, and urges EPA, at a minimum, to implement the additional limitations on use of allowances noted above.

XIII. EPA SHOULD ALLOW FACILITIES TO PRESENT LIFECYCLE ANALYSIS BASED ON FACILITY SPECIFIC CONFIGURATIONS.

EPA has proposed to utilize general "pathways" to for facilities to determine what D Code to use. For corn ethanol, EPA proposes only five pathways in Table 1 to 40 C.F.R. § 80.1426. 74 Fed. Reg. at 25,119. These pathways include:

Fuel Type	Feedstock	Production Process Requirements	D code
Ethanol	Starch from corn, wheat, barley, oats, rice, or sorghum	Process heat derived from biomass	4
Ethanol	Starch from corn, wheat, barley, oats, rice, or sorghum	Dry mill plant Process heat derived from natural gas Combined heat and power (CHP) Fractionation of feedstocks Some or all distillers grains are dried	4
Ethanol	Starch from corn, wheat, barley, oats, rice, or sorghum	Dry mill plant Process heat derived from natural gas All distillers grains are wet	4
Ethanol	Starch from corn, wheat, barley, oats, rice, or sorghum	Dry mill plant Process heat derived from coal Combined heat and power (CHP) Fractionation of feedstocks Membrane separation of ethanol Raw starch hydrolysis Some or all distillers grains are dried	4
Ethanol	Starch from corn, wheat, barley, oats, rice, or sorghum	Dry mill plant Process heat derived from coal Combined heat and power (CHP) Fractionation of feedstocks Membrane separation of ethanol All distillers grains are wet	4

Although EPA analyzed 25 different pathways for corn ethanol (Table VI.C.1–2), 74 Fed. Reg. at 25,042-25,043, these pathways are limited and do not accurately reflect the various configurations of ethanol plants and variations in their operations.[48] In particular, these limited pathways do not recognize the numerous improvements ethanol plants have made to increase their efficiency and reduce their overall carbon footprint.

EPA should allow sources to submit their own facility-specific analysis to establish whether it can meet the GHG reduction requirements of RFS2. This alternative approach was also identified by one of the peer reviewers, who noted: "The only alternative to approach that might be considered by EPA would be one in which individual technology/fuel providers are permitted to develop detailed data on the specific impacts of their technology." Model Linkage Report at D-3 (Comments of Mr. Sheehan). This would provide facilities incentives to continue to become more efficient and invest in new technologies to limit their GHG emissions, promoting further reductions. The limited procedures in the Proposed Rule for pathways not listed in the table are unduly restrictive.

[48] EPA does not explain how it translated its pathways in Table VI.C.1–2 to the five pathways listed in Table 1.

A. Ethanol Facilities Have Continued to Improve Efficiencies, Which are Not Adequately Reflected in EPA's Proposed Pathways.

Energy efficiency at ethanol plants has increased steadily over time. *See* (S&T) Consultants Inc., *An Examination of the Potential for Improving Carbon/Energy Balance of Bioethanol*, A Report to IEA Bionergy Task 39, at 24-25 (Feb. 15, 2009), *available at* http://www.ethanolrfa.org/objects/documents/2297/iea.pdf. For example, between 1983 and 2005, energy requirements at a dry mill plant *decreased by 63 percent. Id.* at 24. As production increased, energy requirements reduced significantly. *Id.* Indeed, petroleum energy use and thereby GHG emissions have increased during this same time period, resulting in an increase in GHG reductions compared to gasoline from 26.2 percent reduction in 1995 to a 39 percent reduction in 2005. *Id.* at 33 Table 3-5. Continued improvements are expected both in terms of feedstock production and the production process itself. *See id.* at 35-42. Under one analysis, GHG emissions reductions in 2015 for ethanol as compared to petroleum are estimated to be above 50 percent.[49] *Id.* at 44 Table 4-5.[50] There are numerous ways that plants have already acted to reduce their GHG emissions, which may not be accurately reflected by EPA's analysis of limited pathways.

1. EPA's proposed treatment of processing of distiller grains does not adequately reflect practices.

Ethanol facilities produce distiller grains as co-products with the ethanol. These distiller grains can either be transported wet or dry. The drying process can influence a facility's lifecycle analysis. As such, the amount of distiller grains a facility dries may impact its ability to qualify for the RFS. Although two of EPA's five pathways for corn ethanol refer to some or all dried distiller grains, EPA's lifecycle analysis focused on estimated emissions from a facility that has either all dried distiller grains or all wet distiller grains. 74 Fed. Reg. at 24,949. Facilities should be able to adjust EPA's proposed percentages in its lifecycle analysis based on the amount of distiller grains it distributes as wet versus dry. Although we dispute EPA's estimated percentages in Table VI.C.1-2 for the reasons noted above, this adjustment may allow additional production processes to qualify that are otherwise under the 20 percent reduction requirement. For example, natural gas dry mills with dry distiller grains are listed at 16 percent reduction compared to baseline gasoline, and natural gas dry mills with dry distiller grains and CHP are listed at 19 percent. 74 Fed. Reg. at 25,042. Adjusting the percentage of wet versus dry distiller grains could allow these facilities to meet the 20 percent threshold.

In the alternative, EPA should analyze and provide additional pathways, as few facilities dry their distiller grains or sell wet distiller grains 100 percent of the time. Proposed additional pathways for each production process identified by EPA to address average dry distiller grains are as follows:

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[49] Although this analysis did not include international indirect land use changes, it did include a land use change component.

[50] This further illustrates the policy problem with EPA's inclusion of international land use changes in the Proposed Rule. It eliminates all incentives for facilities to improve the factors they can control for the reduction of GHG emissions because they are being substantially penalized for acts over which they have no control -- land use decisions in other countries.

Dry Distiller Grains - less than 25% wet distiller grains
Dry/Wet Distiller Grains - 50/50
Wet Distiller Grains - less than 25% dry distiller grains

2. Although RFA generally supports EPA's proposal for facilities that have multiple pathways, facilities often mix energy sources to improve energy efficiency, which may not be accurately addressed in EPA's pathways.

EPA recognizes that a facility's operations may meet more than one of its listed pathways. 74 Fed. Reg. at 24,948. This may involve using different feedstocks or fuel types. EPA proposes the following:

- If more than one pathway applies to a facility within a compliance period, no special steps would need to be taken if the D codes were the same for all the applicable pathways. In this case, all RINs generated at the facility would have the same D code.

- If the pathway applicable to a facility changes on a specific date, such that one single pathway applies before the date and another single pathway applies on and after the date, the applicable D code used in generating RINs must change on the date that the fuel produced changes pathways.

- If one facility produces two or more different types of renewable fuel at the same time, the volumes of the different types of renewable fuel should be measured separately, with different D codes applied to the separate volumes.

- If one facility uses two or more different feedstocks at the same time to produce a single type of renewable fuel, for any given batch of renewable fuel, the producer should assign the applicable D codes using a ratio defined by the amount of each type of feedstock used.

Id. at 24,948-24,949. RFA generally supports EPA's approach with respect to multiple pathways.

However, facilities often use more then one process fuel. EPA's proposal does not address this scenario, and, similar to the case for distiller grains, EPA's pathways are limited to an all or nothing approach. For example, several pathways for natural-gas fired ethanol plants are excluded from Proposed Table 1 to Section 80.1426, presumably because EPA's estimated reductions are below 20 percent. Congress clearly contemplated the ability of these plants to burn natural gas and renewable biomass, providing specific transition rules for such facilities in EISA Section 210, but EPA did not assess these pathways. These varying operations are further evidence why EPA should allow sources to submit facility-specific analysis.

3. Ethanol facilities have taken great strides in addressing GHG emissions, including carbon capture and sequestration projects, which are not reflected in EPA's pathways.

Ethanol facilities have been on the forefront of technology to address GHG emissions. Ethanol plants have long captured carbon dioxide (CO_2) from the fermentation process for sale in other industries. A 2007 survey showed over 23% of facilities reporting captured CO_2 emissions. May Wu, Argonne National Laboratory, *Analysis of the Efficiency of the U.S. Ethanol Industry 2007*, *available at* http://www.ethanolrfa.org/objects/documents/1652/2007_analysis_of_the_efficiency_of_the_us_ethanol_industry.pdf. These CO_2 emissions are generally sold for use in dry ice production and carbonated beverage bottling. For example, a facility in Milton, Wisconsin was reported to plan on capturing CO_2 from the fermentation process for sale to more than 50 customers in southern Wisconsin and northern Illinois who use CO_2 for "a hundred different applications" in the chemical, food-processing and beverage industries. Stacey Vogel, *Milton gas could end up in your soda: Ethanol plant will capture, sell CO_2*, The Janesville Gazette, Feb. 8, 2008, *available at* http://gazettextra.com/news/2008/feb/08/milton-gas-could-end-your-soda-ethanol-plant-will-/. These sales avoid additional new production of CO_2, providing GHG benefits that are not considered in EPA's pathways.

Ethanol facilities are also participating in pilot projects to capture and sequester CO_2 from the fermentation process. (S&T) Consultants Inc., *An Examination of the Potential for Improving Carbon/Energy Balance of Bioethanol*, A Report to IEA Bionergy Task 39, at 50 (Feb. 15, 2009). The CO_2 captured is a net reduction in atmospheric CO_2 not just a reduction in emissions, and, because of its high purity level, the CO_2 is easily captured in terms of energy requirements. *Id.* In 2015, a natural gas-fired ethanol plant with carbon capture and sequestration is estimated to increase its GHG emission reductions compared to gasoline from 54.8 percent to 86 percent.[51] *Id.* at 52 Table 4-13. Again, EPA should allow facilities to submit a facility specific analysis in order for the facility to take advantage of the measures they are taking to reduce their overall carbon footprint. Indeed, these improvements are what Congress contemplated, and are the purpose of conducting lifecycle analyses.

B. EPA Should Promote Use Of Landfill Gas, Which May Be Transported Through Common Carrier Pipelines.

As part of RFS1, Congress provided incentives to all ethanol facilities that seek to displace 90 percent of their fossil fuel use with gas from waste materials, regardless of the feedstock used by treating the ethanol as "cellulosic biomass ethanol" that was eligible for the 2.5 added value. 42 U.S.C. § 7545(o)(1)(A) (2005). Although these provisions were eliminated by the EISA amendments, which replaced the cellulosic biomass ethanol definition with one for cellulosic biofuel and included a specific cellulosic biofuel volume mandate, EPA has recognized the benefits of using biogas over fossil fuels.

One of the many ways ethanol facilities have looked to reduce their carbon footprint is to replace their natural gas use with use of biogas produced from animal wastes or landfill waste.

[51] Although this analysis did not include international indirect land use changes, it did include a land use change component.

While some of these facilities are on-site,[52] other ethanol facilities have purchased methane from off-site landfill-to-gas facilities, which transport the methane through common carrier pipelines.[53] Both provide substantial environmental benefits regarding reduction of GHG emissions, consistent with the intent of Congress. In particular, EPA's guidance recognizes that injection of landfill-to-gas energy into pipelines provides GHG benefits, and "always 'displace' conventional natural gas sources in the pipeline." EPA, *Climate Leaders Greenhouse Gas Inventory Protocol Offset Project Methodology for Captured Methane End Use*, at 9, 21 (Aug. 2008) (hereinafter "EPA Offset Protocol"). EPA also recognized, "[i]n the case of end use of captured CH_4, the performance threshold is based on the emissions rate from the type of fuel or energy input that will be avoided by operation of the project activity using CH_4." EPA Offset Protocol, at 9 (emphasis added).

In eliminating the 90 percent displacement provision, Congress did not indicate that the environmental benefits from such a transaction were no longer a goal, but that Congress expected the 20 percent reduction requirement for renewable fuel generated from new facilities would promote these types of transactions. Consistent with this approach, EPA should include the use of methane from animal wastes and landfill gas, including methane transported through common carrier pipelines, as part of the pathways in the final rule implementing the RFS2 program.

C. EPA's Treatment of New Fuels and New Pathways Does Not Adequately Protect Investment or Recognize the Improved Efficiencies of New Facilities.

EPA's only procedure to add new pathways is to essentially petition EPA. 74 Fed. Reg. at 24,951. But, EPA need not act on such petition under the Proposed Rule, and EPA excludes certain facilities from being able to use temporary D codes. *Id.* Specifically, EPA prohibits a producer whose fuel pathway is ethanol made from starches in a process that uses natural gas or coal for process heat from using a temporary D code for their fuel pathway. *Id.* at 25,117 (proposed 40 C.F.R. § 80.1416(c)(3)). EPA cannot broadly exclude new corn ethanol plants using natural gas (or even all coal plants). As noted above, Congress clearly recognized the benefits of natural gas-fired ethanol plants in developing transition rules to protect investment in such facilities. This is particularly the case where there is no time limit on EPA to approve a petition for a new pathway, which would lead to substantial uncertainty in investment in new plants.

Planning and construction of new ethanol facilities require substantial investment of time and resources, EPA should be required to provide prompt lifecycle analysis or allow parties to

[52] In the Regulatory Impact Analysis for the RFS1 regulations, EPA identified 3 facilities that were planned or under construction with on-site potential waste energy plants using biogas from animal manure. EPA, *Regulatory Impact Analysis: Renewable Fuel Standard Program*, EPA420-R-07-004, at 36 (Apr. 2007).

[53] EPA recognized that the biogas need not be generated on-site or produced by the ethanol facility to fall under the 90 percent displacement provision of the cellulosic biomass ethanol definition. 72 Fed. Reg. at 23,916; EPA, *Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program, Summary and Analysis of Comments*, EPA420-R-07-006, at 3-19 (Apr. 2007). "[U]sing the existing public natural gas pipeline would be the most efficient and cost-effective way to move the biomethane." Ken Krich, et al., Biomethane from Dairy Waste: A Sourcebook for the Production and Use of Renewable Natural Gas in California, at 171 (July 2005), *available at* http://www.suscon.org/news/biomethane_report/Full_Report.pdf.

submit their own analysis to support RIN generation. The potential delay in EPA action would discourage investment in new, more efficient ethanol facilities, contrary to the intent of Congress.

D. EPA Should Clarify that Ethanol from Grain Sorghum Qualifies as Advanced Biofuels.

Grain sorghum is currently used in dry mill ethanol production. According to a study funded by the United Sorghum Checkoff Program (USCP), ethanol production is estimated to account for 29.7 percent of the sorghum usage for the 2009 marketing year (September 1, 2008 – August 31, 2009). EPA, in the proposed rule, does not separate out grain sorghum from other grain starch sources for the purposes of generating RINs. According to Table VI.E.2–1 in the Proposed Rule and the text following, 74 Fed. Reg. at 25,050-25,051, other starch sources are assumed to be similar to corn in processing and land use. However, EISA clearly denotes that an advanced biofuel includes any ethanol derived from starch other than corn:

> (i) In general. The term "advanced biofuel" means renewable fuel, other than ethanol derived from corn starch, that has lifecycle greenhouse gas emissions, as determined by the Administrator, after notice and opportunity for comment, that are at least 50 percent less than baseline lifecycle greenhouse gas emissions.
>
> (ii) Inclusions. The types of fuels eligible for consideration as "advanced biofuel" may include any of the following:
>
> (I) Ethanol derived from cellulose, hemicellulose, or lignin.
>
> (II) Ethanol derived from sugar or starch (other than corn starch)….

42 U.S.C. § 7545(o)(1)(B) (2009). Grain sorghum is not corn starch, and, if it meets the GHG requirements of the rule, should be assigned a separate pathway and classified as an advanced biofuel.

According to a study funded by the USCP, grain sorghum dry mill ethanol production fueled by natural gas would result in a 60.5 percent reduction in GHG compared to the 2005 fossil fuels baseline. *See* Y. Zhang, *et al.*, Texas A&M University, *Sorghum As A Biofuel Feedstock: Final Report* (Sept. 23, 2009). This would be over the 50 percent reduction requirement to be classified as an advanced biofuel. As such, EPA should make clear that ethanol derived from sorghum would qualify as advanced biofuel, and revise the pathways.

XIV. EPA SHOULD IMPLEMENT PRACTICAL AND LESS BURDENSOME REGISTRATION, RECORDKEEPING AND REPORTING REQUIREMENTS.

A. RFA Generally Supports EPA's Proposed Changes to the Registration Requirements, Except for the On-Site Engineering Review Requirements.

RFA generally supports using a one-time registration requirement to identify grandfather status and identify pathways to generate RINs. EPA, however, also requires an on-site engineering review as part of the registration process, which must be updated every three years and when the facility seeks to qualify for a new renewable fuel code. 74 Fed. Reg. at 24,942. The requirement for on-site engineering reviews is arbitrary.

There is no valid reason to require on-site engineering reviews. EPA only references current requirements in the RFS1 rule for cellulosic-biomass and waste-derived ethanol facilities. 74 Fed. Reg. at 24,942. These provisions, however, only required, for facilities in the United States, a third party to review and verification of documentation to support the producer's claims that their fuel meets the requirements. 40 C.F.R. § 80.1155. For *foreign* producers, on the other hand, EPA required an on-site inspection and report from the engineer. 40 C.F.R. § 80.1166. These provisions were not in the RFS1 proposed rule, and EPA provides no explanation for their inclusion in the final rule. 71 Fed. Reg. at 55,636-55,651. However, cellulosic ethanol and waste-derived ethanol cannot be readily distinguished from other types of ethanol, and the definition of cellulosic-biomass ethanol in the RFS1 included a provision allowing corn ethanol facilities to meet the definition so long as the facility displaced 90 percent of its fossil fuel use with biogas derived from waste materials. 42 U.S.C. § 7545(o)(1)(A) (2005). In this context, it made sense to require on-site inspection of the facility for foreign producers where EPA does not have the same access to records or ability to inspect. But this is not the case for U.S. facilities, where EPA retains authority to inspect the facility and the records retained to support the facility's use of a D Code.

Moreover, a facility's production process and sources of heat and power are already reviewed and outlined by the relevant governmental authorities in issuing permits. The on-site engineering review for facilities in the United States is redundant, and unnecessary for enforcement. It is also overly burdensome, adding economic burdens particularly onto smaller facilities. EPA already requires substantial recordkeeping and reporting, including attest engagement requirements that are sufficient to meet any enforcement needs. EPA, therefore, should remove this requirement for on-site engineering reviews of U.S. facilities.

B. Registration, Recordkeeping and Reporting Requirements Regarding Renewable Biomass Are Overly Burdensome.

As described above, a comprehensive and burdensome administrative program for the "existing cropland" requirement is unnecessary and unwarranted. There is little risk that "new" lands will be cleared for crops for biofuel production. EPA should revise the registration, recordkeeping and reporting requirements for the renewable biomass definition to simply require registrants to identify the types of feedstock they use, to keep verifiable records of the amount and type of feedstocks used in producing the renewable fuel, *see* 40 C.F.R. § 80.1151(c)(2)), and to report the total amount of feedstock used.

C. While RFA Supports Streamlined Reporting, It Also Supports EPA's Efforts to Provide Faster and More Efficient Validation of RINs.

1. RFA does not oppose requiring monthly transaction reports until the EPA-Moderated Trading System can be implemented.

Starting January 1, 2011, EPA expects to have an EPA-Moderated Trading System (EMTS) operating, which would provide quicker and more efficient validation of RINs. RFA agrees with EPA's proposal to provide faster and more efficient validation of RINs. Although RFA does not believe EPA can implement the RFS2 for an effective date of January 1, 2010, RFA does not oppose requiring monthly transaction reports until the EMTS is operational. Parties should be able to adjust their reporting from quarterly to monthly without significant burden, and it would provide EPA with information sooner to validate RINs to avoid the problems with finding potential problems down the road.

2. RFA opposes EPA's proposal to require reporting of RIN prices.

While EPA generally retains the RIN transaction report requirements in the RFS1 rule, it would also require that prices of RINs be included in the reports, noting it as a "minor" addition. 74 Fed. Reg. at 24,969. EPA contends that price information, along with production outlook reports, "has great programmatic value to EPA because it may help us to anticipate and appropriately react to market disruptions and other compliance challenges, will be beneficial when setting future renewable standards, and will provide additional insight into the market when assessing potential waivers." *Id.* RFA opposes this requirement, as well as the requirement for production outlook reports, as unnecessary and raising substantial business confidential issues that EPA does not address in the Proposed Rule. Price information is considered confidential business information and should not be required to be disclosed.

None of EPA's asserted benefits justifies requiring this information. *See* 74 Fed. Reg. at 24,969, 24,975-24,976. EPA provides no evidence that the RIN market is not working, and requires EPA to "assess the general health and direction of the market and overall liquidity of RINs." *Id.* Indeed, EPA need not interfere in the RIN market. The purpose of a credit trading program is to allow the market to work without government interference, and give the regulated parties flexibility. *See* 151 Cong. Rec. S6601, S6613 (daily ed. Sept. 13, 1985) (statement of Sen. Durbin) (noting the credit trading provisions were intended to ensure that ethanol is used "where it is most efficient and economical"). The RIN market is already transparent, and parties should not be required to submit pricing information to EPA, which may then be available to the public.

In addition, the information is not needed for any regulatory action by EPA. The operation of the RIN market is not a factor for EPA to consider in setting future standards. 42 U.S.C. § 7545(o)(2)(B) (2009). RIN prices also cannot serve as a basis for any waiver under Section 211(o)(7), which is limited to cases of inadequate domestic supply of renewable fuel and severe environmental or economic harm to a State or States, not regulated entities. 42 U.S.C.

§ 7545(o)(7) (2009).[54] There is no indication that Congress intended EPA to step in to address RIN prices. Moreover, fuel prices are readily available to address any potential waiver of the biomass-based diesel requirement under Section 211(o)(7)(E), which requires EPA to consult with the Secretary of Energy and Secretary of Agriculture prior to issuing such waiver. 42 U.S.C. § 7545(o)(7)(E) (2009).

The remainder of EPA's justifications regarding providing information to obligated parties can also easily be dismissed. 74 Fed. Reg. at 24,969, 24,976. There is sufficient information in the marketplace as to the supply of renewable fuels, and prices of those fuels, and obligated parties will know how much RINs are costing in the marketplace. Because there is no reasonable purpose of the information, EPA should eliminate this requirement in the final rule.

3. EPA should not interfere with market.

EPA also seeks comment on whether to provide a program review as recommended by the Small Business Advocacy Review Panel. 74 Fed. Reg. at 25,110. The panel suggested that such a review would provide small entities "some insight to the RFS program's progress and alleviate some uncertainty regarding the RIN system." *Id.* This asserted "uncertainty," however, is not explained, and, as EPA notes, it already provides information regarding projections of availability of renewable fuels. As RFA believes that the vast majority, if not all, renewable fuel in the United States will be targeted for inclusion in the RFS program, EPA's projections as to the availability of such fuel is sufficient information to assess whether RINs will be available. There is no valid reason to include review of RIN trading system.

D. EPA's Proposal to Require Annual Production Reports is Arbitrary.

Another major change from the RFS1 rule is that EPA proposes that annual production outlook reports be required of all domestic renewable fuel producers, foreign renewable fuel producers who register to generate RINs, and importers of covered renewable fuels starting in 2010. 74 Fed. Reg. at 24,970. This production outlook report is required to include:

(1) The type, or types, of renewable fuel expected to be produced or imported at each facility owned by the renewable fuel producer or importer.
(2) The volume of each type of renewable fuel expected to be produced or imported at each facility.
(3) The number of RINs expected to be generated by the renewable fuel producer or importer for each type of renewable fuel.
(4) Information about all the following:
    (i) Existing and planned production capacity.
    (ii) Long-range plans.
    (iii) Feedstocks and production processes to be used at each production facility.

[54] For the waiver provisions to apply, the economy of a State, a region, or the United States must be harmed by the implementation of the RFS and such harm must be severe -- a high threshold -- as weighed against the benefits of the RFS. 73 Fed. Reg. 47,168, 47,171-47,172 (Aug. 13, 2008).

(iv) Changes to the facility that would raise or lower emissions of any greenhouse gases from the facility.

(5) For expanded production capacity that is planned or underway at each existing facility, or new production facilities that are planned or underway, information on all the following:
   (i) Strategic planning.
   (ii) Planning and front-end engineering.
   (iii) Detailed engineering and permitting.
   (iv) Procurement and construction.
   (v) Commissioning and startup.

(6) Whether capital commitments have been made or are projected to be made.

74 Fed. Reg. at 25,127-25,128 (proposed 40 C.F.R. § 80.1449(a)). For the information required, parties will have to project out for the following five years.[55] These requirements are simply not justified and should be eliminated.

EPA has sufficient information available to track production and future plans for production from the Energy Information Administration and RFA. RFA's website has served as a reliable source of ethanol production statistics, and provides annual outlook information. EPA provides no valid justification to require annual production reports from each individual producers.

The annual production report requirement imposes an undue burden on facilities, and may create disincentives for facilities to plan ahead on improvements that would be beneficial for the environment. It also raises substantial business confidentiality concerns, where facilities are essentially being required to make known their business plans for the future.

EPA attempts to rely on the reports that were required in the highway diesel program to justify its inclusion of this burdensome requirement. But, these pre-compliance reports are not the same as the requested production outlook reports in the Proposed Rule. 66 Fed. Reg. 5001 (Jan. 18, 2001). In that case, the requirement was only for 3 years (2003-2005) and EPA found the information important to refiners as they make plans for complying with the temporary compliance option under the rule. *Id.* at 5069. Unlike here, for the diesel program, the reports were used to assist facilities to come into compliance. EPA provides no reasonable explanation to require the information being requested for the outlook reports, and such information is not needed to assist parties to come into compliance.

[55] The Proposed Rule notes that the reports would be required until 2022 and that projections would be to 2022. 74 Fed. Reg. at 24,970. Although RFA believes this provision should be eliminated entirely, the regulations do not actually end the requirement at 2022, but also only require projections for 5 years. At a minimum, EPA should make the following changes: (a) EPA must clarify that producers are only required to do a limited projection for 5 years; (b) the regulation should end the requirement in 2022; (c) the report should be required only every five years, rather than annually; and (d) the reports should be protected as confidential business information.

XV. EPA SHOULD PROMOTE HIGHER LEVEL BLENDS OF ETHANOL TO ENSURE AVAILABILITY OF RENEWABLE FUELS.

A. EPA Should Continue to Promote Expansion of E85 Use.

An important goal of the RFS1 was to spur the development of E85. Even health groups support the expansion in use of E85. As noted in testimony by Blake Early of the American Lung Association, E85 is seen an important benefit of the RFS because: flexible fuel vehicles must certify to the same emissions standards as gasoline; E-85 is lower in evaporative emissions than gasoline; and, from a volume perspective, every gallon of E-85 consumes eight times more ethanol than E-10. Testimony of A. Blakeman Early, Presented on behalf of The American Lung Association Before the Senate Environment and Public Works Committee Subcommittee on Clean Air and Nuclear Safety, April 1, 2009, at 1, *available at* http://www.epw.senate.gov /public/index.cfm?FuseAction=Files.View&FileStore_id=ebda0df8-a1ce-4dad-bed9-b9ef4f397de6.

The market for E-85 is growing, driven by many factors, including fluctuating gasoline prices and energy security. With consumer demand for alternative fuel vehicles increasing, auto manufacturers are working to produce more flex fuel vehicles (FFVs). There are more than seven million FFVs on the roads today in virtually all vehicle classes, including compacts, sedans, minivans, trucks and SUVs. The number of E-85 fueling stations also is growing rapidly nationwide. As of early 2009, there are some 1,900 retail stations (out of 170,000 stations nationwide), offering E85 across the country. E85 remains a key component of this nation's energy policy, and EPA should continue to promote expansion of its use.

EPA also proposes to require labeling on pumps for ethanol blends greater than 10 percent. RFA believes that EPA has authority to require such labeling, and that the labeling requirement would not impose undue burdens given the current labeling requirements for retail stations. As EPA has found, these label warnings are sufficient to protect against misfueling. 74 Fed. Reg. at 24,977. EPA has previously required labeling to support fuel regulation and to help prevent misfueling. 69 Fed. Reg. 38,957, 39,084 (June 29, 2004). *See also* 40 C.F.R. § 80.35 (labeling of retail gasoline pumps; oxygenated gasoline); 40 C.F.R. §§ 80.570-80.574 (labeling requirements for highway and nonroad, locomotive or marine (NRLM) diesel fuel (including nonroad (NR) and locomotive or marine (LM)), or heating oil). In addition, the Federal Trade Commission and many states already require labeling of pumps for gasoline containing ethanol.[56] Thus, the proposed requirements should be a significant burden on retailers.

B. Obligated Parties Must Meet the RFS.

EPA dedicates several pages of the preamble to the so-called "blend wall" issue. The "blend wall," however, is largely irrelevant to the RFS mandate requirements. Congress required that a certain volume of renewable fuel be sold each year, and there is adequate supply of ethanol to meet the mandates for several years. As noted above, EPA is limited in its ability to waive the

[56] *See generally* Federal Trade Commission, Labeling Alternative Fuels, *available at* http://www.ftc.gov/bcp/ edu/pubs/business/energy/ bus30.shtm; American Coalition for Ethanol, *Status '07, A State-by-State Handbook*, at 72, *available at* http://www.ethanol.org/pdf/contentmgmt/ACE120_Status_07_web.pdf.

RFS requirements, and Congress imposed these aggressive requirements to spur development and promote expansion of renewable fuels. Therefore, any perceived blend wall that may arise should not impact the RFS requirements.

As such, RFA believes that this discussion is best addressed in context of the petition for a waiver that is currently pending before EPA, rather than as part of the final rule. Ultimately, allowing mid-level blends, will be an important part of meeting the RFS volume requirements under the EISA, and EPA should move expeditiously to approve the waiver request or otherwise allow increased use of ethanol in gasoline. RFA incorporates by reference its comments on the E15 waiver request, which are included here (without attachments) as Appendix O.

XVI. EPA SHOULD PREEMPT STATE PROGRAMS DESIGNED TO ADDRESS CARBON CONTENT AND LIFECYCLE ANALYSIS OF FUELS.

EPA should use its authority to preempt state low carbon fuel standards. EPA has recognized its authority to preempt state fuel requirements:

> Whenever the federal government regulates in an area, the issue of preemption of State action in the same area is raised. The regulations proposed here will affect virtually all of the gasoline sold in the United States. As opposed to commodities that are produced and sold in the same area of the country, gasoline produced in one area is often distributed to other areas. The national scope of gasoline production and distribution suggests that federal rules should preempt State action to avoid an inefficient patchwork of potentially conflicting regulations. Indeed, Congress provided in the 1977 Amendments to the Clean Air Act that federal fuels regulations preempt non-identical State controls except under certain specified circumstances (see, section 211(c)(4) of the Clean Air Act). EPA believes that the same approach to federal preemption is desirable for the reformulated gasoline and anti-dumping programs. EPA, therefore, is issuing today's final rule under the authority of sections 211 (k) and (c), and promulgate under section 211(c)(4) that dissimilar State controls be preempted unless either of the exceptions to federal preemption specified by section 211(c)(4) applies. Those exceptions are sections 211(c)(4) (B) and (C).

59 Fed. Reg. 7716, 7809 (Feb. 16, 1994).[57] State low-carbon fuel requirements conflict with RFS2 implementation.

Federal preemption occurs when state laws conflict with federal requirements, and a conflict will be found when the state law "'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.'" *Int'l Paper Co. v. Ouellette*

[57] RFA recognizes there may be certain exceptions to this authority to allow specific fuel regulations in California, if California can meet the requirements for the waiver from preemption.

("Ouellette"), 479 U.S. 481, 492 (1987) (quoting *Hillsborough County v. Automated Med. Labs., Inc.*, 471 U.S. 707, 713 (1985)). The RFS program requires EPA to regulate transportation fuels sold in the United States to ensure that a certain volume of renewable fuel be sold each year. The renewable fuels that may be eligible under the program, however, are limited to those which *EPA* determines meets certain GHG reduction requirements.

State low carbon fuel standards attempt to assign a carbon value to fuels. As evidenced by the current rulemaking in California and the disparate results of the lifecycle analysis California conducted compared to EPA's, these programs may conflict with EPA's lifecycle analysis by assigning values to fuels that may limit their sale in California even though those fuels otherwise comply with the RFS program. This impacts the ability of the credit program to work, which Congress included specifically to give the industry flexibility to ensure the fuels are sold in the areas that make the most economic and environmental sense. Indeed, Congress specifically prohibited EPA from restricting the geographic areas in which renewable fuel may be used. 42 U.S.C. § 7545(o)(2)(A)(iii)(II). Because of the questionable results of its lifecycle analysis, California's regulations, for example, could restrict the use in California of renewable fuels that meet the RFS. Thus, under a low carbon fuel standard, States are making judgment calls that Congress expressly placed in the hands of EPA.[58] This conflicts with the federal provisions. *See Clean Air Mkts. Group v. Pataki*, 338 F.3d 82, 87 (2d Cir. 2003) ("Even where federal and state statutes have a common goal, a state law will be preempted 'if it interferes with the *methods* by which the federal statute was designed to reach this goal.'") (quoting *Ouellette*, 479 U.S. 494).

Moreover, a State low carbon fuel standard would likely have the opposite intended effect on GHG emissions in the nation as a whole. State low carbon fuel requirements would only result in the shuffling of emissions, and will not result in a reduction of GHG emissions. Whatever lesser GHG emissions that might occur in California as a result of the low carbon fuel standard will likely be completely offset by fuel used in other States. Since climate change impacts on California are a result of total GHG emissions, not just those in California, there is absolutely no benefit from a regulatory regime that would not assure that there is any net reduction in emissions. The RFS, on the other hand, provides clear, GHG emissions reductions nationwide.

XVII. COMMENTS ON REGULATORY IMPACT ANALYSIS

A. Air Quality Impact Analysis

The Proposed Rule and DRIA included an analysis of air quality impacts allegedly associated with the RFS. The following are RFA's technical comments on EPA's analysis.

On Road Vehicles, Evaporative Emissions, Permeation

In estimating changes in evaporative emissions, EPA indicates the following:

[58] This is different from State volume mandates, many of which were in place prior to the RFS, that promote, not restrict the use of renewable fuels. Such mandates do not conflict with EPA's RFS credit program.

> Permeation effects were developed from Coordinating Research Council's (CRC) E-65 program, which measured evaporative emissions from ten fuel systems that were removed from the vehicles on E0 and E5.7 fuels; fuel systems were removed to ensure that all evaporative emissions measured were from permeation of the fuel through the different components of the fuel system. For this analysis, we estimated the effect by calculating the percent increase in average emissions from all vehicles between E0 and E5.7 fuels over the 65-105 degree Fahrenheit diurnal test. This value was 46 percent. In order to estimate the effect at E10 we simply multiplied this result by 1.75 (10/5.7), resulting in a 79 percent increase applied to cars and light trucks from all model years.

DRIA at 441. A later phase of this CRC project, E65-3, tested vehicles on E0, E6, and E10. CRC, Fuel Permeation from Automotive Systems: E0, E6, E10, E20, and E85, Final Report, CRC Project No. E-65-3 (Dec. 2006), *available at* http://www.crcao.com/reports /recentstudies2006/E-65-3/CRC%20E-65-3%20Final%20Report.pdf. There were a number of conclusions from this study, but one in particular speaks to EPA's 79 percent increase in permeation emissions for all cars and light-duty trucks: "Diurnal permeation rates do not appear to increase between E6 and E10, but do appear to increase between E6 and E20; however, this increase is not statistically significant." *Id.* at 2 ((emphasis added).

We therefore recommend that EPA review CRC E-65-3. We do not think permeation emission rates should be increased at all between E6 and E10.

Effects of E85 on Acetaldehyde Emissions

In table 3.1-6 of the DRIA (at 446), EPA estimates the changes in emissions from E0 to E85 for FFVs, based on several testing programs. These relevant results are repeated in the table below.

Pollutant	E85 Change from E0
NMOG	8.6%
CO	-38.7%
NOx	-20.9%
Toxics (mg/mile)	
Benzene	-59.6%
1,3 Butadiene	-61.2%
Acetaldehyde	3739.8%
Formaldehyde	62.3%
PM2.5	-68.2%

One number stands out in this table – the 3739.8% increase in acetaldehyde. This percentage is high not because acetaldehyde emissions are very high from these vehicles, rather the percent is so high because acetaldehyde emissions from E0 are very close to zero. In situations like these, where the increase in emissions is extremely sensitive to the denominator, it is far preferable to

model this pollutant with an offset in mg/mi, rather than a multiplicative percentage. The concern is that as the non-methane organic gas (NMOG) emissions of the FFV increase with age, or with lower temperature, or some combination of the two, the acetaldehyde emissions still are assumed to increase by 3739.8%. It is likely that they increase as the vehicle ages or at low temperatures, but it is highly unlikely that they increase at the same percent that they do under relatively low mileage and 75F testing temperature. Thus, it is far preferable to develop an emission offset for acetaldehyde, and apply this under all conditions.

There is precedent in emission modeling to use an offset model rather than a multiplier. EPA used CO offset to model these emissions in MOBILE5 and MOBILE6 at low temperatures. Further, EPA has used an offset model to estimate both HC and CO emissions at low temperatures in MOVES.

Spark Ignited Off-Road Engines

EPA estimates the following changes in emissions for spark ignited off-road engines for the exhaust effect of E10 on emissions (DRIA at 447, table 3.1-8):

Pollutant	4 stroke	2 stroke
HC Exhaust	-15.75%	-2.1%
NOx	+40.25%	+65.1%
CO	-21.7%	-22.75%

We note that EPA did not evaluate any change in PM emissions. In 2005, Air Improvement Resource, Inc. evaluated oxygen effects on PM for 2-stroke engines. *See* AIR Inc., *Potential Maryland Air Emission Impacts of a Ban on MTBE in the Reformulated Gasoline Program* (Oct. 18, 2005), *available at* http://www.airimprovement.com/reports/lyondell_maryland_mtbe_repo. pdf. The relevant section of the report prepared is shown below:

> An examination of the literature turned up two other sources with tests of two-stroke engines that were tested on both oxygen and non-oxygenated gasolines. One study evaluated effects of ethanol fuel on emissions from snowmobile engines. A second study by The College of Engineering Center for Environmental Research and Technology (CE-CERT) evaluated two 4.5 hp Sachs engines. In all, five 2-stroke engines have been tested in various programs. This study developed oxygen impacts on HC, CO, NOx, and PM emissions from the 5 engines, ... The emission effects are shown in Table 1, as compared to the NONROAD model.

Table 1. Comparison of Oxygen Effects on 2-Stroke Engines (percent change in emission per 1.0 weight percent of oxygen)

Source	HC	CO	NOx	PM
NONROAD	-0.6%	-6.5%	+18.6%	-
5-engine database	-2.4%	-3.0%	+9.5%	-2.6%

Id. at 11. Note that the data in the table above is the percent change in emissions per 1 wt percent of ethanol. Ten percent ethanol is 3.2 wt percent, so the HC reduction is 7.7 percent, the CO reduction is 9.6 percent, the NOx increase is 30.4 percent (NOx emissions are very low from 2-storkes), and the PM reduction is 8.3 percent. These values are quite different than EPA's current values. We realize there may be other testing that has been completed since this time, but recommend these testing programs be included with other testing programs EPA will assemble for the final rule.

B. Water Quality Issues

In the Proposed Rule, EPA states that it "is seeking comment on how best to reduce the impacts of biofuels on water quality," and "on the use of section 211(c) of the Clean Air Act, as amended by EISA, to address these water quality issues." 74 Fed. Reg. at 25,105. This is not the appropriate forum for EPA to seek comment on regulation of renewable fuel to address water quality. EPA's authority under Section 211(c) is limited and is intended to addresses the fuel itself or emissions, not any potential impact that might arise as a result of the RFS program. 42 U.S.C. § 7545(c). Indeed, Congress required EPA to conduct a study of the potential impacts of the program, including potential impacts on water quality from agricultural practices. Pub. L. No. 110-140, § 204(a), 121 Stat. 1492 (2007).

In particular, EPA does not have the authority to regulate agricultural practices, and there is no indication Congress intended EPA to regulate agricultural practices by imposing additional requirement on the feedstock that can be used by renewable fuel producers through Section 211(c). This is a blatant example of EPA seeking to overstep its authority to regulate the agricultural industry.

C. Economic Analysis

Although the ethanol industry has not been held harmless by the recent economic downturn, it has still provided substantial economic benefit to this country. Ethanol producers add substantial value to agricultural commodities produced in the United States and makes a significant contribution to the American economy. In 2008, the economic contribution of the American ethanol industry include:

- The full impact of the spending for annual operations, ethanol transportation, capital spending for new plants under construction, and R&D spending added $65.6 billion to the nation's Gross Domestic Product (GDP) in 2008.

- New jobs are created as a consequence of increased economic activity caused by ethanol production. The increase in economic activity resulting from ongoing production, construction of new capacity, and R&D supported more than 494,000 jobs in all sectors of the economy during 2008.

- Increased economic activity and new jobs result in higher levels of income for American households. The economic activities of the ethanol industry put an additional $19.9 billion into the pockets of American consumers in 2008.

- The ethanol industry more than paid for itself in 2008. The combination of increased GDP and higher household income generated an estimated $11.9 billion in tax revenue for the Federal government and nearly $9 billion of additional tax revenue for State and Local governments. The estimated cost of the two major Federal incentives in 2008, the Volumetric Ethanol Excise Tax Credit (VEETC) and ethanol Small Producer Credit, totaled $4.7 billion. Consequently, the ethanol industry generated a surplus of $7.1 billion for the Federal treasury.

- Ethanol reduces our dependence on imported oil and reduces the U.S. trade deficit. The production and use of ethanol displaces crude oil needed to manufacture gasoline. According to the Energy Information Administration imports account for more than 65 percent of our crude oil supplies and oil imports are the largest component of the expanding U.S. trade deficit. The production of nine billion gallons of ethanol means that the U.S. needed to import 321.4 million fewer barrels of oil in 2008 to manufacture gasoline, or roughly the equivalent of five percent of total U.S. crude oil imports. The value of the crude oil displaced by ethanol amounted to $32 billion in 2008. This is money that stayed in the American economy.

John M. Urbanchuk, LECG LLC, *Contribution Of The Ethanol Industry To The Economy Of The United States*, at 4-6 (Feb. 23, 2009), *available at* http://www.ethanolrfa.org/objects/documents/2187/2008_ethanol_economic_contribution.pdf.

In its regulatory impact analysis, EPA includes a discussion of food prices, and the potential impacts of the RFS. As EPA found in its decision to deny Texas' request for a waiver of the RFS due to alleged impacts of increased corn prices, 73 Fed. Reg. 47,168 (Aug. 13, 2008), EPA properly notes that "many factors have contributed to recent increases in food prices." 74 Fed. Reg. at 24,919. In denying the waiver request, EPA found "that potential changes in U.S. corn and fuel prices resulting from a waiver would have at most a limited impact on the food, feed, and fuel markets." 73 Fed. Reg. at 47,180. In the Proposed Rule, EPA largely confirms that the RFS does not have a significant impact on food prices:

> While the increase in renewable fuel production has contributed to the increase in commodity prices, the magnitude of the contribution of the RFS has most likely been minor, as market conditions have continued to push renewable fuel use beyond the mandated levels.
>
> As the mandated levels of renewable fuels continue to rise in the future, our economic modeling suggests that the impact of the RFS2 program on food prices will continue to be modest, particularly with the expansion of cellulosic biofuels.

74 Fed. Reg. at 24,919-24,920. RFA agrees that the RFS is not likely to impact food prices, and incorporates by reference its comments on the Texas waiver request.[59] RFA further notes that

[59] Comments of the Renewable Fuels Association on the Request from the State of Texas for a Waiver of a Portion of the Renewable Fuel Standard, 73 Fed. Reg. 29,753 (May 22, 2008), June 23, 2008 (EPA-HQ-OAR-2008-0380-

EPA's analysis on food prices, while correct, is additional evidence that the RFS will have little, if any, impact on land use changes.

D. Production and Distribution of Ethanol

RFA would also like to make some clarifications regarding analysis in the DRIA of the production and distribution of ethanol.

Overview of Ethanol Distribution, Section 1.6.1.1 (p. 203): EPA states that ethanol cannot be shipped by pipeline because it can cause stress corrosion cracking. This has not been established as applying to pipelines, and work is ongoing and various mitigation strategies are being investigated.

Shipment of Ethanol to Petroleum Terminals, Section 1.6.2 (pp. 209-210): EPA assumes 50 percent of new unit train facilities will be located at petroleum terminals and 50 percent at rail terminals. But, it is highly unlikely that 50 percent of petroleum terminals would install unit train rail receipt capability. The Northeast prefers barge receipt. Moreover, many others would not have the real estate for the spur and additional tankage. Finally, petroleum terminals may not need the volume because they don't want to serve as hub terminals due to increased outbound traffic. In addition, when EPA implies that 50 percent of new unit train facilities would be located at rail facilities, hub terminals would not be located at rail terminals. Rather, a spur would be built to a new stand alone hub terminal.

Rail Transportation System Accommodations, Section 1.6.6 (p. 218): EPA again refers to space at rail terminals which would be highly unlikely to accommodate truck traffic. EPA states that "rail terminals" would hold minimal inventories believing petroleum terminals would hold the buffer inventory. Thus far it has been the hub distribution terminals that hold the buffer inventory.

EPA also states that all ethanol storage for unit trains to rail facilities would require new tankage. This overlooks unique synergies such as the Albany terminal that CSX set up with no new tankage whatsoever. Indeed, there may be other idle terminals, (both petroleum and petrochemical) which, could be re-commissioned at much lower costs.

0479.1); Renewable Fuels Association's Response to Selected Comments Submitted on the Request of the State of Texas for a Waiver of the Clean Air Act's Renewable Fuels Standard, 73 Fed. Reg. 29,753 (May 22, 2008), July 14, 2008 (EPA-HQ-OAR-2008-0380-2333).

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Appendix D:

Tom Darlington, *et al.*, *Review of EPA's RFS2 Lifecycle Emissions Analysis for Corn Ethanol* (Sept. 2009)

Appendix E:

Letter from Blake A. Simmons, *et al.*, to the Honorable Arnold Schwarzenegger, Office of the Governor (Mar. 2. 2009);Letter from Bruce Dale, *et al.*, to Stephen L. Johnson, Administrator, EPA (Oct. 2008); Letter from Blake A. Simmons, *et al.*, to Mary D. Nichols, Chairman, California Air Resources Board (June 24, 2008); Letter from Bruce Dale to Colleagues (Mar. 3, 2008)

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Appendix P:

Thomas L. Darlington, *Air Improvement Resource, Inc., Land Use Effects of U.S. Corn-Based Ethanol* (Feb. 2009), *available at* http://www.ethanolrfa.org/ objects/documents/2192/land_use_effects_of_us_corn-based_ethanol.pdf