July 12, 2012

VIA ELECTRONIC FILING

U.S. Environmental Protection Agency
EPA Docket Center (EPA/DC)
Air and Radiation Docket and Information Center
[Mail Code 2822T]
1200 Pennsylvania Ave., NW
Washington, D.C. 20460


RE: Notice of Data Availability Concerning Renewable Fuels Produced from Grain Sorghum under the RFS Program; 77 Fed. Reg. 34,915 (June 12, 2012)

Docket Clerk:

The Renewable Fuels Association (RFA) is pleased to submit these comments on the Notice of Data Availability (NODA) related to renewable fuels produced from grain sorghum under the Renewable Fuel Standard (RFS).

RFA is the leading national trade association for America’s ethanol industry. Its mission is to drive expanded production and use of American-made ethanol and co-products by raising awareness about the benefits of renewable fuels. Founded in 1981, our membership includes ethanol producers and suppliers, gasoline marketers, agricultural organizations, state agencies and others dedicated to the continued expansion and promotion of fuel ethanol. RFA’s 300-plus members are working to help America become cleaner, safer, energy independent and economically secure.

RFA is generally supportive of the proposal to add several grain sorghum ethanol pathways to Table 1 to Section 80.1426, allowing the generation of D6 and D5 Renewable Identification Numbers (RINs) provided certain conditions are met with regard to production methods. However, we offer several comments below that we believe will strengthen the proposal and help ensure the goals of the RFS are met in an efficient and technically sound manner.

I. The proposed modifications to Table 1 of 40 CFR 80.1426, as shown in Table II-14 of the NODA, should be revised to include biomass as an option for process energy

The NODA makes reference to the trend toward the use of “alternative fuel sources to replace traditional boiler fuels...” Specifically, EPA identifies “…biomass, co-products from the ethanol production process (bran, thin stillage or syrup), manure biogas (methane from nearby animal feedlots), and landfill gas (generated from the digestion of municipal solid waste)...” as examples of alternative process energy sources. However, only biogas is included in the new D-code pathways that are being proposed for addition to Table 1 to section 80.1426 (table II-14 of the NODA). The NODA further clarifies that “biogas” refers only to biogas from landfills, waste treatment plants, and waste digesters. It is unclear why biomass is excluded. Biomass, such as wood chips, forestry
thinnings or agricultural residues, should be included as an acceptable process energy source in the proposed pathway additions to Table 1 to section 80.1426.

EPA states, “CO2 emissions from biomass combustion as a process fuel source are not specifically shown in the lifecycle GHG inventory of the biofuel production plant; rather, [these emissions] are accounted for as part of the land use change calculations for each feedstock.” In the context of lifecycle analysis for the RFS2 regulations, this approach is problematic for two reasons.

- First, EPA did not conduct a separate lifecycle analysis for grain sorghum ethanol produced by a dry mill using biomass as boiler fuel; thus, it is impossible to determine how the use of biomass as boiler fuel would affect LUC emissions and overall lifecycle emissions in EPA’s analysis. If EPA plans to account for biomass combustion emissions at the biorefinery in the land use change category, it should explain how this would be accomplished and provide a full lifecycle analysis of a sorghum ethanol dry mill using biomass as boiler fuel. Because of the CO2 uptake credit afforded biomass feedstocks, it is likely that a dry mill using biomass as process fuel would have net lifecycle GHG emissions that are similar to, or slightly lower than, those associated with using biogas.

- Second, the method of accounting for biomass combustion within the land use category for renewable fuel lifecycle analysis appears inconsistent with the approach EPA took to its lifecycle analysis for the RFS2 final rule. EPA’s analysis of ethanol from sugarcane and switchgrass for the RFS2 final rule clearly included combustion of biomass for process energy in the “fuel production” category and not in the land use categories. Further, in the final regulatory impact analysis (RIA) for the RFS2 final rule, EPA analyzed 17 corn ethanol production pathways that explicitly utilized biomass as the process energy source (median GHG reductions were found to range from 38% to 48% for these corn ethanol pathways)\(^1\).

Biomass combustion was included in the “fuel production” phase of the lifecycle for these corn ethanol pathways. We believe this is the proper approach to accounting for combustion of biomass as boiler fuel in the biofuel production lifecycle. To ensure consistency with the RFS2 final rule analysis, we recommend that EPA utilize a similar biomass accounting approach (i.e., that biomass combustion emissions be included in “fuel production”) for this and future rulemaking actions related to the RFS2. Further, it should be noted that all of the existing pathways in Table 1 to section 80.1426 that make reference to specific process energy sources (under “production process requirements”) include “natural gas, biomass, or biogas (emphasis added)” as options. Indeed, the RFS2 final rule treats biogas and biomass process energy fuels similarly, if not interchangeably, throughout. Thus, it is unclear why biomass would be an approved process energy option for some existing pathways, but not for others (i.e., the newly proposed sorghum pathways).

For the foregoing reasons, we recommend adding biomass to the new proposed grain sorghum ethanol pathways, as shown below in the suggested revision to NODA Table II-14:

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Feedstock</th>
<th>Production Process Requirements</th>
<th>D-Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>Grain Sorghum</td>
<td>Dry mill process, using Natural Gas for Process Energy</td>
<td>6</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Grain Sorghum</td>
<td>Dry mill process, using Biogas or Biomass for Process Energy, without Combined Heat and Power</td>
<td>6</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Grain Sorghum</td>
<td>Dry mill process, using Biogas or Biomass for Process Energy, with Combined Heat and Power</td>
<td>5</td>
</tr>
</tbody>
</table>

\(^1\) See final RIA, Table 2.6-1 (“Results for New Corn Ethanol Plants by Type”). Pg. 471.
II. EPA should add D-code pathways to Table 1 to 80.1426 that account for the use of renewable process electricity

The NODA states EPA, through a separate rulemaking process, is evaluating and seeking comment on adding a definition for renewable process electricity from sources such as wind, solar, hydropower, and biogas or biomass. We agree that EPA should propose such a definition and seek comment on regulatory provisions that would allow renewable fuel producers to claim credit for using such sources of electricity. Specifically, we believe lifecycle analysis should be conducted to quantify the GHG reductions associated with the use of various forms of renewable electricity. Based on such analysis, new threshold determinations should be made for biofuels produced from various feedstocks by facilities using renewable electricity. In turn, additional pathways should be added to Table 1 to section 80.1426 allowing the use of renewable electricity for the range of biofuels and feedstocks already included in the table.

III. EPA should continue to examine the potential of adding D-code pathways to Table 1 to 80.1426 that account for the use of carbon capture and sequestration (CCS)

We are pleased that EPA is “...interested in developing methodologies that would allow us to properly evaluate CCS as an emissions reduction technology as a part of the lifecycle analysis of fuel production for a variety of feedstocks under the RFS2 program.” However, we also recognize that CCS technologies and their associated GHG emissions reductions are likely to vary substantially from site to site. As such, it is likely that it would be most appropriate for EPA to make individual facility determinations. Nevertheless, we believe the process to consider individual CCS projects must be more streamlined and easier to navigate than the current new pathway petition process as outlined in 40 CFR 80.1416 (which is the vehicle EPA proposes to use for submission of individual facility CCS information). The current petition process is highly uncertain in terms of the timing of approvals, necessary elements for the petition, and other key factors. A more efficient process with more certain timing should be developed for individual facility determinations related to CCS projects.

IV. Several elements of EPA’s grain sorghum ethanol lifecycle analysis highlight the need for EPA to update its lifecycle analysis of ethanol from other feedstocks, such as corn

Several aspects of EPA’s grain sorghum ethanol analysis underscore the constantly evolving nature of lifecycle analysis, input data, and assumptions. This highlights the need for updates to EPA’s lifecycle GHG analyses of other feedstocks. Specifically, EPA should revisit its analysis of corn ethanol in light of some of the data and methodological improvements reflected in the sorghum analysis.

For example, EPA found international livestock emissions and international rice methane emissions to be far lower for grain sorghum ethanol than it found for corn ethanol in the original RFS2 analysis (indeed, these international emissions resulted in GHG “credits” for sorghum). Additionally, international land use change emissions were found to be slightly lower for grain sorghum than for corn. These differences (see table below) seem totally implausible given EPA’s assumptions that corn and grain sorghum are perfect substitutes, and that increases in U.S. corn production and corn exports fill the “void” left by using sorghum for ethanol in the U.S. That is, if corn is replacing the grain sorghum that is “lost” from the global feed market when it is used for ethanol, then the associated international emissions for grain sorghum ethanol should be identical to those associated with corn ethanol. Thus, the only explanation for the large relative difference in corn and
Several new studies, model updates, and fresh data have become available since EPA published its original corn ethanol analysis; using the latest available science would substantially alter EPA’s sorghum emissions for international livestock and international rice methane is that updated input data were used and other improvements were made to the modeling framework. In other words, the international emissions originally assigned to corn ethanol under EPA’s 2009 analysis are too high and should be revisited using more recent data. Ultimately, international emissions for grain sorghum ethanol end up being 19% lower than international emissions for corn ethanol. There is no logical explanation for this difference (at least none is provided in the NODA), given that corn and sorghum are supposedly treated as perfect substitutes in the EPA analysis.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>International Farm Inputs and Fertilizer N2O</td>
<td>6,601</td>
<td>6,772</td>
</tr>
<tr>
<td>International Livestock Emissions</td>
<td>3,458</td>
<td>-917</td>
</tr>
<tr>
<td>International Rice Methane Emissions</td>
<td>2,089</td>
<td>-649</td>
</tr>
<tr>
<td>International Land Use Change Emissions</td>
<td>31,856</td>
<td>30,460</td>
</tr>
<tr>
<td>Total International Emissions</td>
<td>44,004</td>
<td>35,666</td>
</tr>
</tbody>
</table>

Similarly, EPA found transportation-related emissions to be 14% lower for grain sorghum ethanol than for corn ethanol, as determined in the 2009 RFS2 final rule analysis. This result underscores that transportation-related emissions for corn ethanol in the RFS2 final rule analysis are too high. While some of the difference between corn and sorghum transportation emissions is explained by the shorter transportation distances associated with larger output of wet distillers grains in EPA’s grain sorghum case, corn ethanol transportation emissions logically should be lower overall than sorghum ethanol transportation emissions due to the relative yield difference between the two crops. Average grain sorghum yields per acre are typically 40-50% the average yield of corn, meaning the feedstock “draw area” for a biorefinery using sorghum would be significantly larger than the draw area for a facility using corn, and thus would generate more miles traveled and more emissions. Using 2011 average yields per acre for corn and sorghum, the draw area for a plant using exclusively grain sorghum would be about 2.7 times as large as the draw area for a plant using exclusively corn. Thus, while the transportation distances and emissions in the sorghum analysis appear to be reasonable, the fact that they are 14% lower than the current corn ethanol transportation emissions highlights the need to significantly revise the corn ethanol transportation assumptions.

These factors and others emphasize the need to ensure EPA’s lifecycle analyses of various fuels and feedstocks are updated regularly and conducted equitably. In the RFS2 final rule, EPA stated that it “...recognizes that as the state of scientific knowledge continues to evolve in this area, the lifecycle GHG assessments for a variety of fuel pathways will continue to change. Therefore, while EPA is using its current lifecycle assessments to inform the regulatory determinations for fuel pathways in this final rule, as required by the statute, the Agency is also committing to further reassess these determinations and lifecycle estimates (emphasis added).” Yet, despite this commitment and the availability of better data and lifecycle analysis methods, EPA has made no attempt to update its corn ethanol lifecycle analysis since publication of the RFS2 final rule more than two years ago.

Several new studies, model updates, and fresh data have become available since EPA published its original corn ethanol analysis; using the latest available science would substantially alter EPA’s
Revisiting the corn ethanol lifecycle analysis would not purely be an academic pursuit; rather, EPA’s prevailing view of corn ethanol’s lifecycle GHG performance has important implications for expansion projects and non-grandfathered facilities. **As such, we strongly encourage EPA to make good on its commitment to “further reassess” its lifecycle GHG estimates for corn ethanol.**

**V. Conclusion**

RFA appreciates the opportunity to provide comment on the grain sorghum ethanol NODA. RFA remains steadfastly supportive of the RFS and looks forward to continued interaction with EPA to ensure successful implementation of the program. Please contact Geoff Cooper at [gcooper@ethanolrfa.org](mailto:gcooper@ethanolrfa.org) or 636.594.2284 if you have any questions.