



January 30, 2015

*Sent electronically*

Mr. Jon Monger  
Office of Transportation and Air Quality  
MC 6406J  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Subject: The Lifecycle Greenhouse Gas Emissions for Renewable Fuels Produced from  
Biomass Sorghum  
Docket No. EPA-HQ-OAR-2014-0537

Dear Mr. Monger:

The American Fuel & Petrochemical Manufacturers (“AFPM”) and the American Petroleum Institute (“API”) are pleased to submit comments on EPA’s notice on its preliminary evaluation of lifecycle greenhouse gas (GHG) emissions for renewable fuels produced from biomass sorghum.<sup>1</sup> This issue is important because it is a significant factor in the Agency’s approval of the type of Renewable Fuel Standard (RFS) renewable identification number (RIN) that could be generated.

AFPM is a national trade association of more than 400 companies, including virtually all U.S. refiners and petrochemical manufacturers. AFPM’s refinery members operate 122 U.S. refineries comprising more than 95% of U.S. refining capacity. AFPM’s refining

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<sup>1</sup> 79 *Federal Register* 78855 (December 31, 2014).

members produce gasoline and diesel for domestic consumption and are regulated by EPA as RFS obligated parties.

API is a national trade association that represents all segments of America's technology-driven oil and natural gas industry. Its more than 500 members – including large integrated companies, exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms – provide most of the nation's energy. The industry also supports 9.2 million U.S. jobs and 7.7 percent of the U.S. economy, delivers \$85 million a day in revenue to our government, and, since 2000, has invested over \$2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

AFPM and API support EPA's perspective that this is only a "preliminary evaluation"<sup>2</sup> and that "EPA will evaluate petitions for fuel produced from biomass sorghum feedstock on a case-by-case basis."<sup>3</sup> Given the uncertainties on crop yields and the cellulosic content of biomass sorghum and the variability in types (e.g., grain, sweet, forage), EPA's analysis of an individual petition will be important in providing confidence to all stakeholders that the associated RINs are valid and appropriate. We support the Agency's commitment that the producer satisfy all "applicable definitional, registration, recordkeeping and reporting requirements."<sup>4</sup>

We believe that there is a serious lack of data in support of the claims in this Notice.

1. EPA's methodology assumes that the GHG emissions generated from the agricultural production and use of biomass sorghum are the same as those associated with the production and use of switchgrass, which the Agency has already modeled and approved as a pathway for cellulosic biofuel. There are no data to support EPA's claim "...that on a per dry ton of feedstock basis GHG emissions associated with biomass sorghum production and use are the same as those associated with the production and use of switchgrass for biofuel production." This simplified approach tends to ignore variability and rely on overly optimistic assumptions. This approach potentially overlooks unintended consequences associated with each new pathway under review. We are deeply concerned that the Agency continues to follow a general methodology vs. a scientific analysis specific to biomass sorghum. To avoid an arbitrary outcome, we strongly recommend that EPA instead perform a rigorous modeling analysis of each new pathway, including biomass sorghum, to fully quantify the lifecycle GHG impact, including addressing uncertainty.
2. EPA's claim that biomass sorghum is > 75% cellulosic is not supported by the data. EPA's analysis of the chemical composition of sorghum samples as depicted in Table 2 of the Notice shows a range of adjusted cellulosic content that

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<sup>2</sup> *Id.* at 78856.

<sup>3</sup> *Id.* at 78859.

<sup>4</sup> *Id.* at 78861.

ranges from 50.5 to 88.6%. Table 2 has two columns with biomass sorghum data: one shows average cellulosic composition 66.7% and the other 59.2% (adjusted cellulosic composition of 75.4% and 63.2%). Both studies are conducted by the same group of authors, and thus use consistent methodology. One of the studies referenced showed that none of the sorghum samples tested met the 75% adjusted cellulosic content threshold. EPA acknowledges that sorghum producers have had mixed results in breeding sorghums that increase cellulosic content when aiming to increase biomass content – one study showing an increase in sugar content. The limited amount and variability in the data creates uncertainty in the GHG estimates associated with agricultural production of biomass sorghum and that additional study is needed to definitively assert that this feedstock can be used to qualify a cellulosic biofuel pathway for the RFS program.

3. Detailed lifecycle GHG analysis, including uncertainty, is missing. As stated, depending on sorghum type there is variability in cellulosic content and other factors. EPA should provide detailed data and seek public comments supporting proposed new pathways.

### Definitional requirements

EPA explained its view on cellulosic content in a memo to the RFS Pathways II rulemaking docket.<sup>5</sup> The Agency explains that “cellulosic content” means cellulose, hemicellulose and lignin. EPA acknowledges that there is significant variation in sorghum feedstock component compositions and lists several reasons:

- Differences between varieties or species;
- Variability in the environmental conditions where the feedstock was grown;
- Sampling different parts of the plant;
- Harvesting at different stages of maturity;
- Variability in different years;
- Differences in agronomic practices to grow the crop; and
- Degradation or alteration of the biomass during storage.<sup>6</sup>

This memo notes that an adjustment is necessary to exclude inorganics (ash). Therefore, the “adjusted cellulosic content” is defined as the total cellulosic content/(total cellulosic content + other organics).<sup>7</sup> Other organics include protein, extractives and starch.<sup>8</sup>

We are concerned with the variability in feedstock component compositions. To address this acknowledged variability and comply with the statutory thresholds for cellulosic fuel

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<sup>5</sup> “Cellulosic Content of Various Feedstocks – 2014 Update,” July 1, 2014, EPA-HQ-OAR-2012-0401-0240

<sup>6</sup> *Id.* at 3.

<sup>7</sup> *Id.* at 6.

<sup>8</sup> In the RFS Pathways II rule at 80.1401, EPA defined *adjusted cellulosic content* as “the percent of organic matter that is cellulose, hemicellulose, and lignin.” 79 *Federal Register* 42159 (7/18/14).

designation, the Agency must consider an annual requirement for testing to document the cellulosic content of the feedstock.

### RIN confidence

The workability of the RFS program is predicated on confidence in renewable identification numbers (RINs), the currency for RFS compliance. Stakeholders need assurance that purchased RINs are valid. This need was partially addressed by EPA's RFS RIN Quality Assurance Program (QAP). However, the Agency requires the replacement of a QAP RIN if EPA determines that the RIN is invalid. In this case, a cellulosic biofuel RIN could be assessed as invalid if the feedstock did not meet the minimum 75% cellulosic content or the cellulosic biofuel production facility did not meet the minimum 60% reduction in lifecycle GHG emissions. For example, the cellulosic biofuel production facility could change its processes or sources of feedstocks, and fail to meet the necessary conditions for a valid cellulosic biofuel RIN. Moreover, feedstock production processes could vary year-to-year, altering the final categorization of the fuel produced. Therefore, purchasers of cellulosic biofuel RINs may not have the necessary confidence, even if the RIN is a QAP RIN.

This potential liability increases EPA's responsibility to approve only valid pathways and to ensure the statutory and regulatory requirements applicable to RIN generators are met.

### Conclusions

AFPM and API are concerned by EPA's *preliminary* lifecycle GHG emissions analysis for the sorghum pathway and believe that this analysis is incomplete. The inherent data deficiencies hamstring our ability to quantify and reproduce the Agency's assertions and characterization of lifecycle GHG emissions. To ensure that the pathway is data driven and grounded in sound science and to facilitate informed comment, AFPM and API expect the Agency to address the concerns outlined in this letter. We appreciate EPA's release of the preliminary analysis for biomass sorghum. Release of a complete draft analysis for public comment is necessary before the Agency's approval of any individual biofuel facility petitions that will use biomass sorghum as feedstock.

Thank you for the opportunity to comment.

For specific questions concerning these comments, please contact Tim Hogan, AFPM's Motor Fuels Director at (202) 552-8462, or Patrick Kelly, Senior Policy Advisor, Downstream, American Petroleum Institute, at (202) 682-8192.

Sincerely,



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Director, Motor Fuels  
American Fuel & Petrochemical  
Manufacturers



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cc: Byron Bunker  
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Docket No. EPA-HQ-OAR-2014-0537