

## EPA Issues Final Rule for Additional Qualifying Renewable Fuel Pathways under the RFS Program

**T**he U.S. Environmental Protection Agency (EPA) is taking final action to identify additional fuel pathways that the Agency has determined meet the lifecycle greenhouse gas (GHG) reduction requirements for biomass-based diesel, advanced biofuel, and cellulosic biofuel under the National Renewable Fuel Standard (RFS) program. This final rule describes EPA's evaluation of biofuels produced from camelina oil, which qualify as biomass-based diesel or advanced biofuel, as well as biofuels from energy cane which qualify as cellulosic biofuel.

This final rule also qualifies renewable gasoline and renewable gasoline blendstock made from certain qualifying feedstocks as cellulosic biofuel.

By qualifying these new fuel pathways, this rule provides opportunities to increase the volume of advanced, low-GHG renewable fuels—such as cellulosic biofuels—under the RFS program. EPA's comprehensive analyses show significant lifecycle GHG emission reductions from these fuel types, as compared to the baseline gasoline or diesel fuel that they replace.

Lastly, the rule clarifies the definition of renewable diesel to explicitly include jet fuel. This clarification offers additional market certainty and opportunity for renewable diesel producers.

## Background

In the final Renewable Fuel Standard (RFS) rule, published in March 2010, EPA assessed the lifecycle GHG emissions of multiple renewable fuel pathways (defined as feedstock, fuel type, and fuel production process). Assessment of lifecycle GHG emissions is necessary to determine which fuel pathways meet the GHG reduction thresholds for the four required renewable fuel categories specified in the Energy Independence and Security Act of 2007 (EISA), which made revisions to the RFS program. EISA requires a 20% reduction in lifecycle GHG emissions for renewable fuel produced at new facilities (those constructed after enactment), a 50% reduction for biomass-based diesel or advanced biofuel, and a 60% reduction for cellulosic biofuel.

Assessing whether a fuel pathway meets these thresholds requires a comprehensive evaluation of the lifecycle GHG emissions of the renewable fuel as compared to the lifecycle GHG emissions of the gasoline or diesel fuel that it replaces.

Although EPA included lifecycle GHG assessments for a number of fuel pathways in the final RFS rule, EPA recognized during the rulemaking that there would be new pathways requiring assessment in the future. Therefore, we provided § 80.1416 in the RFS regulations, “Petition process for evaluation of new renewable fuels pathways.” This mechanism allows parties to request that EPA conduct a lifecycle GHG assessment for a new fuel pathway and provide a determination of the RFS fuel category for which the new pathway may be eligible. In response to requests we received through the petition process, this final rule adds determinations for new feedstock and process technology pathways to the regulations.

## Our Analysis

In order to calculate lifecycle GHG emissions for this final rule, EPA utilized models developed for the 2010 RFS final rule. These models take into account energy and emissions inputs for fuel and feedstock production, distribution, and use, as well as economic models that predict changes in agricultural markets. In developing these models, the Agency employed a collaborative, transparent, and science-based approach. Through technical outreach, the peer review process, and the public comment period, EPA received and reviewed a significant amount of data, studies, and information on our proposed approach, and in the 2010 RFS final rule, we incorporated a number of new, updated, and peer-reviewed data sources into our methodology.

## Rulemaking Process

EPA published a direct final rule (77 FR 700) and a parallel proposed rule on January 5, 2012 (77 FR 462) to amend the RFS regulations Table 1 of § 80.1426 to identify the additional renewable fuel production pathways and pathway components described here. We subsequently received adverse comment on certain aspects of the direct final rule and on March 5, 2012, EPA withdrew the direct final rule (77 FR 13009).

The adverse comments we received centered on a few narrow aspects of the assumptions underlying the greenhouse gas (GHG) estimates of producing biofuel feedstocks, including camelina, energy cane, napier grass, giant reed and corn stover. These comments were based on a misinterpretation of our analysis. In this final rule, we provide additional clarification regarding our assumptions, and the underlying analysis remains unchanged from the proposed rule.

Commenters also stated the direct final rule did not properly address issues related to control of invasive species under Executive Order 13112. The information provided did not raise significant concerns about the threat of invasiveness and related GHG emissions for camelina and energy cane. Therefore, we are finalizing the camelina and energy cane pathways in this rule based on our lifecycle analysis. We are not finalizing at this time determinations on biofuels produced from giant reed (*Arundo donax*) or napier grass (*Pennisetum purpureum*), or biodiesel produced from esterification. We continue to consider the issues concerning these proposals, and will make a final decision on them at a later time.

## Pathway Determinations

This final rule describes EPA's analysis and determinations for the following new fuel pathways:

### Camelina oil (new feedstock)

- Biodiesel and renewable diesel (including jet fuel and heating oil)— *qualifying as biomass-based diesel and advanced biofuel*
- Naphtha and liquefied petroleum gas (LPG)— *qualifying as advanced biofuel*

### Energy cane cellulosic biomass (new feedstock)

- Ethanol, renewable diesel (including renewable jet fuel and heating oil), and naphtha— *qualifying as cellulosic biofuel*

### Renewable gasoline and renewable gasoline blendstock (new fuel types)

- Produced from crop residue, slash, pre-commercial thinnings, tree residue, annual cover crops, and cellulosic components of separated yard waste, separated food waste, and separated municipal solid waste (MSW)
- Using the following processes— all utilizing natural gas, biogas, and/or biomass as the only process energy sources— *qualifying as cellulosic biofuel*:
  - Thermochemical pyrolysis
  - Thermochemical gasification
  - Biochemical direct fermentation
  - Biochemical fermentation with catalytic upgrading
  - Any other process that uses biogas and/or biomass as the only process energy sources

## **For More Information**

For more information, please visit the RFS website at:

[www.epa.gov/otaq/fuels/renewablefuels/regulations.htm](http://www.epa.gov/otaq/fuels/renewablefuels/regulations.htm)

To submit a question on the RFS program, and to view Frequently Asked Questions, please visit:

[www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/index.htm](http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/index.htm)