

EPA PROPOSAL FOR RENEWABLE FUEL STANDARD 2017 VOLUMES

ICCT POLICY UPDATES

SUMMARIZE

REGULATORY

AND OTHER

DEVELOPMENTS

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On May 18, 2016 the U.S. Environmental Protection Agency (EPA) released the pre-publication version of its proposed rule for volume standards for the Renewable Fuel Standard (RFS) program in 2017, as well as the biomass-based diesel (BBD) volume for 2018.¹ EPA will take public comments on the proposed rule until July 11 and is expected to finalize the rule by November 31, 2016, in accordance with the statutory deadline for annual volume rulemakings.

This policy proposal provides an overview of the main elements of the proposed rule, how the proposed volumes have changed in comparison with those for 2016, and what this indicates for EPA's approach moving forward.

MAIN ELEMENTS OF THE RULE

EPA has proposed reducing the volumes of all biofuel categories under the RFS for 2017 compared to those specified in the statute. Table 1 shows statutory volumes for each category for 2016, 2017, and 2018, as well as EPA's final volume requirements for 2016 and proposed volumes for 2017. According to the statute, EPA must set BBD volumes one year ahead of the deadline for the other fuel categories, and so the 2017 BBD volume shown here was finalized in last year's rulemaking. EPA has now proposed the BBD volume for 2018. Note all volumes in this table, including BBD, are presented as ethanol-equivalent gallons. One gallon of BBD counts as 1.5 ethanol-equivalent gallons for the purposes of compliance with the RFS, due to the higher energy density of biodiesel.

¹ The proposed rule summary is available at <https://www.epa.gov/renewable-fuel-standard-program/proposed-renewable-fuel-standards-2017-and-biomass-based-diesel>; the full proposed rule is available at https://www.epa.gov/sites/production/files/2016-05/documents/rfs-2017-standards-nprm-2016-05-18_0.pdf

Table 1. RFS statutory volumes compared to volumes set in EPA’s final rule for 2016 and in EPA’s proposed rule for 2017 and biomass-based diesel for 2018.

| Billion ethanol-equivalent gallons per year | Statutory volumes | | | Volumes in final rule | | |
|---|-------------------|------|------|-----------------------|-------|------|
| | 2016 | 2017 | 2018 | 2016 | 2017 | 2018 |
| Cellulosic | 4.25 | 5.5 | 7.0 | 0.230 | 0.312 | |
| BBD | >1.5 | >1.5 | >1.5 | 2.85 | 3.00 | 3.15 |
| Advanced | 7.25 | 9.0 | 11.0 | 3.61 | 4.0 | |
| Renewable | 22.25 | 24.0 | 26.0 | 18.11 | 18.8 | |
| Other Advanced* | 0.15 | 0.5 | 0.85 | 0.53 | 0.688 | |
| Other Renewable* | 15 | 15 | 15 | 14.5 | 14.8 | |

** Due to the nesting categorization of biofuels under the RFS, advanced biofuel contains the BBD and cellulosic volumes, and renewable fuel contains the advanced biofuel volume. Other advanced refers to non-BBD, non-cellulosic advanced biofuel, and other renewable refers to non-advanced renewable fuel. For the purposes of these estimations, statutory BBD volumes were assumed to be the same as actual proposed and finalized BBD volumes.*

EPA has invoked use of both the cellulosic waiver authority and the general waiver authority under the Clean Air Act in reducing 2017 volumes below the statutory levels. EPA has used the cellulosic waiver authority in every year of RFS implementation, as cellulosic biofuel production has fallen short of the statutory targets. As it did for the 2014-2016 rulemaking, EPA has argued that the general waiver authority should also apply because of insufficient supply of renewable fuels to vehicles that can consume them. In essence, this logic refers to the issue of the “blendwall”—most gasoline sold in the United States contains a maximum of 10% ethanol, and while some vehicles can consume higher blends of ethanol, sales of E15 (15% ethanol in gasoline) and E85 (51-83% ethanol in gasoline) have remained low. A number of stakeholders have sued EPA for its interpretation of the general waiver authority.

The biofuel categories under the RFS are nested: cellulosic biofuel and BBD are subsets of advanced biofuel, and advanced biofuel is itself a subset of renewable fuel.² Table 1 shows the volumes in each of the nested categories, and also breaks out other advanced and other renewable fuel—these are the volumes of advanced and renewable fuel excluding their subset categories. Other advanced biofuel in the 2016 volume requirements and the 2017 proposal is actually greater than what is expected in the statute (if one assumes that the statutory levels of BBD were the same as have actually been implemented—Congress set BBD volumes at a minimum of 1.5 billion ethanol-equivalent gallons from 2013 forward, but clearly intended this volume to grow if feedstock availability, production capacity, and other factors allowed). This is because EPA did not reduce the advanced biofuel volumes as much as the agency has reduced cellulosic biofuel. EPA states that it is allowing advanced biofuel to backfill a portion of the cellulosic mandate, and argues that this is appropriate in order to maximize the greenhouse gas (GHG) savings of the RFS program. Advanced biofuel and cellulosic biofuel are required to meet a 50% and 60% GHG savings threshold, respectively, compared to the 20% GHG savings threshold for renewable fuel. It is also notable that other renewable fuel has increased since 2016, and in 2017 it would almost reach its statutory level of 15 billion gallons. In the statute, other renewable fuel, which EPA expects to be met mostly with corn ethanol, remained flat

² The basics of the RFS are explained in http://www.theicct.org/sites/default/files/publications/ICCTBriefing_RFS2_20140211.pdf

at 15 billion gallons starting in 2015, and growth in the RFS program after this point comes mostly from cellulosic biofuel.

Figure 1 shows EPA’s proposed volumes for 2017 broken down by type of fuel (ethanol, biomass-based diesel, biogas, or other). EPA has used these specific volumes in estimating how much biofuel can be supplied and consumed in 2017, but does not require these volumes by fuel type to be met. The only requirements are on total renewable fuel, advanced biofuel, BBD, and cellulosic biofuel. This figure shows other renewable and other advanced biofuel, rather than the nested categories. “Other fuel” refers to non-ethanol, non-BBD fuels.

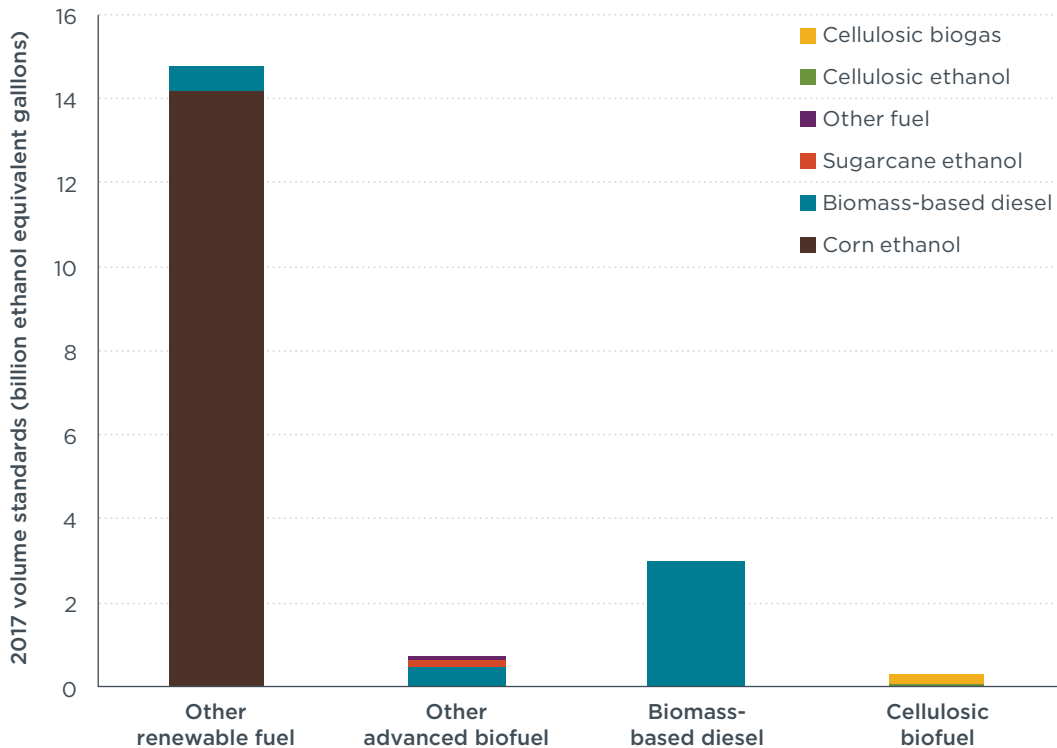


Figure 1. Volume standards for 2017 by RFS category and by fuel type, in billion ethanol-equivalent gallons

The BBD category must be met with BBD. EPA also expects a fraction of other advanced biofuel to be met with additional BBD. EPA decided to set the BBD volume lower than the amount of BBD they actually expect to be used to meet the RFS, in order to allow flexibility in how the advanced mandate is met. It is possible that the other advanced volume will be met entirely by sugarcane ethanol, or by higher volumes of cellulosic biofuel than are currently expected. Some BBD is also expected to fill the other renewable category—this is grandfathered biodiesel and renewable diesel that does not meet the required 50% GHG reduction threshold for the advanced category. Much of grandfathered renewable BBD is likely imported palm biodiesel and renewable diesel³ that does not even meet the 20% GHG reduction threshold for renewable fuel

³ Stephanie Searle, “An unexpected tax bill for imported palm oil biodiesel,” The International Council on Clean Transportation, Jan. 25, 2016, <http://www.theicct.org/blogs/staff/unexpected-tax-bill-for-imported-palm-oil-biodiesel>

according to EPA’s proposed rule on palm biodiesel,⁴ largely due to the very high GHG emissions associated with peat drainage for increased palm oil production.⁵

EPA expects most of the cellulosic biofuel category to be met with cellulosic biogas used in compressed and liquefied natural gas (CNG/LNG) vehicles. Of the total 312 million gallon standard proposed for 2017, EPA expects 27 million gallons to be met with liquid cellulosic biofuels. This is likely to be mostly cellulosic ethanol, but EPA expects up to 3 million gallons could be cellulosic heating oil. EPA has used the same approach in estimating actual production of cellulosic biofuel for 2017 that they used in 2016: for liquid cellulosic biofuels the agency assumes that the 25th and 50th percentiles of the production ranges for facilities that have not yet reached commercial volumes and commercially producing facilities, respectfully. For cellulosic biogas, EPA assumes the 50th and 75th percentiles for pre-commercial and commercially producing facilities. No production of RINs from cellulosic biogas electricity used in electric vehicles is expected in 2017.

CHANGE FROM 2016 RFS VOLUMES

As shown in Table 1, the proposed volumes for 2017 are higher in every category compared to 2016. Figure 2 shows these increases over 2016 and breaks these increases down by fuel type. In all categories, the increases are fairly modest compared to the overall volumes for 2016. The percent increase in other advanced and cellulosic biofuel is large, but the total volumes are small relative to renewable fuel and BBD (Figure 1).

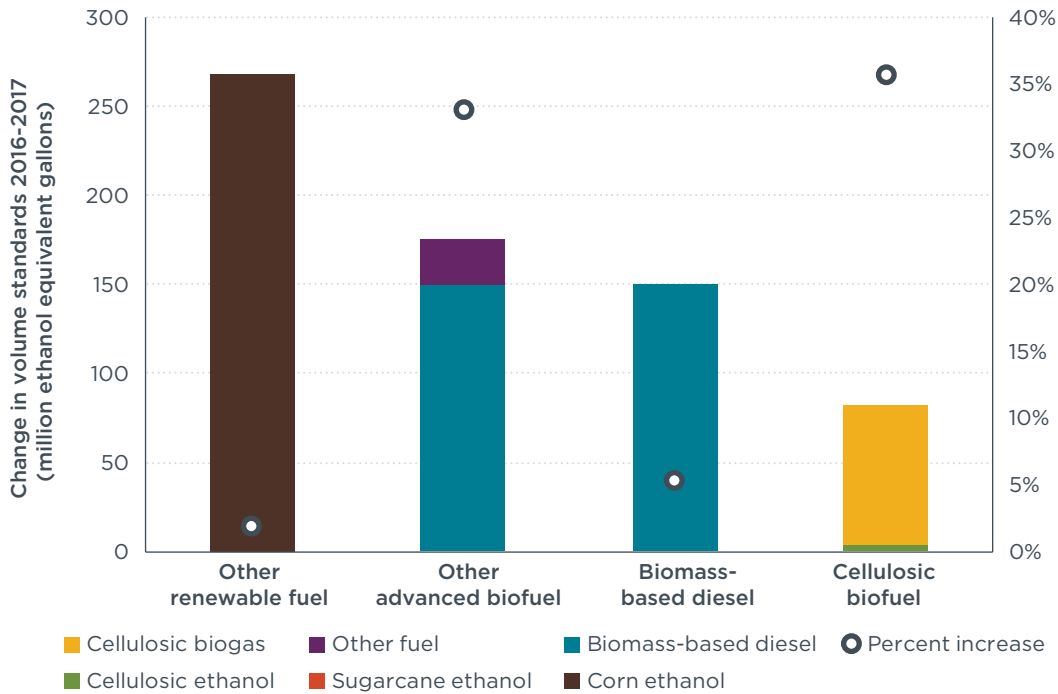


Figure 2. Change in volume standards from 2016 to 2017 by RFS category and by fuel type (left axis), and percent increase in total category (right axis)

4 “Notice of Data Availability Concerning Renewable Fuels Produced From Palm Oil Under the RFS Program,” Vol. 77, No. 18, Fed. Reg., Jan. 27, 2012, <https://www.gpo.gov/fdsys/pkg/FR-2012-01-27/pdf/2012-1784.pdf>.

5 See Jukka Miettinen, et al., “Historical Analysis and Projection of Oil Palm Plantation Expansion on Peatland in Southeast Asia,” The International Council on Clean Transportation, Feb. 22, 2012, <http://www.theicct.org/historical-analysis-and-projection-oil-palm-plantation-expansion-peatland-southeast-asia>; and S.E. Page, et al., “Review of peat surface greenhouse gas emissions from oil palm plantations in Southeast Asia,” The International Council on Clean Transportation, Oct. 4, 2011, <http://www.theicct.org/review-peat-surface-greenhouse-gas-emissions-oil-palm-plantations-southeast-asia>

EPA expects the increase in other renewable fuel to be met virtually entirely with additional corn ethanol. In calculating the total ethanol volume for 2017, EPA considered the volume of each type of ethanol blend that is likely to be supplied and consumed. EPA expects a small amount of additional ethanol to be consumed through increased E15 volumes, which are projected at 600-800 million gallons for 2017, compared to the estimated 320 million gallons used to set the 2016 RFS standards. Because E15 only contains 5% more ethanol than the standard E10 supplied to most gasoline vehicles, this increase amounts to only an additional 20 million gallons of ethanol in 2017 compared to 2016. For the 2016 rulemaking, EPA estimated 200-400 million gallons of E85 would be consumed, and this projection has not changed for 2017. The remainder of the expected increase in ethanol consumption is due to growing gasoline demand. The expected volume of EO (gasoline containing no ethanol) is 200 million gallons, the same as in 2016. Thus, EPA does not expect higher blends of ethanol to significantly drive an increase in ethanol consumption in 2017.

In last year's rulemaking, EPA set an increase in the BBD standard of 100 million biodiesel-equivalent gallons or 150 million ethanol-equivalent gallons from 2016 to 2017, and has proposed the same level of increase in the BBD category for 2018 (Table 1). EPA expects an equivalent level of increase in BBD used to meet the other advanced volumes (Figure 2). All of this increase is expected to come from growth in domestic BBD production; EPA assumes imports and exports to remain constant from 2016. For the 2014-2016 rulemaking, ICCT commented that this annual level of BBD increase cannot be sustained based on the growth in domestic feedstock availability without having negative consequences on the markets and other uses of these commodities.⁶ We cited an analysis by economist Wade Brorsen showing that expected increases in domestic feedstock could supply only an additional 25 million gallons of BBD (37.5 million ethanol equivalent gallons) per year, in contrast to the total growth of 200 million gallons (300 million ethanol equivalent gallons) expected by EPA in 2017. In particular, ICCT's prior analysis has shown that diversion of soybean oil from the food sector and other uses is likely driving increased importation of palm oil, which can substitute for soy and other types of vegetable oils.⁷

Although most of the growth in cellulosic biofuels from 2016 to 2017 comes from increased production of cellulosic biogas, the expected increase in liquid cellulosic biofuels (mostly cellulosic ethanol) is notable because it represents a relatively large increase from 2016 for this subcategory. For the 2016 rulemaking, EPA estimated that only 4 million gallons of liquid cellulosic biofuel would be available; in 2017 this projection has increased to 27 million gallons. These estimates reflect a nascent but rapidly growing cellulosic biofuel industry.

EPA'S APPROACH MOVING FORWARD

The comment period for this rulemaking is currently active and will close on July 11, 2016. EPA has indicated an intention to finalize the rulemaking by November 31, 2016, in accordance with its statutory obligation.

6 "Comments on RFS 2014-2015 RVO," The International Council on Clean Transportation, July 27, 2015, <http://www.theicct.org/news/comments-rfs-2014-2016-rvo>

7 Stephanie Searle, "Is the Renewable Fuel Standard inadvertently driving up U.S. palm oil imports?," The International Council on Clean Transportation, Sept. 2, 2014, <http://www.theicct.org/blogs/staff/renewable-fuel-standard-inadvertently-driving-us-palm-oil-imports>

In this proposed rule, EPA has continued much of the same logic it introduced in the 2014-2016 proposal. In that rulemaking, the agency laid out specific approaches for calculating the volumes for each type of biofuel:

- » Ethanol volumes are estimated based on blending constraints and the expected consumption of E0, E10, E15, and E85.
- » BBD volumes are estimated based on production capacity, feedstock availability, infrastructure, and blending constraints.
- » Cellulosic biofuel volumes are estimated based on expected production.

EPA has followed the same approach in its proposed volumes for 2017, and is likely to continue the same logic until 2022 if there is no change in direction from the presidential administration. However, in 2017 a new administration will be present and EPA's implementation of the RFS program could change with that administration's priorities.

One question is whether EPA will limit other renewable fuel to the volume expected under the statute, in the event that blending constraints allow the consumption of more than 15 billion gallons of other renewable fuel in 2018 or later (Table 1). In 2010-2013, EPA reduced the cellulosic biofuel volumes from the statutory levels but did not reduce the total renewable fuel volumes, thereby allowing other renewable fuel to increase above the level expected in the statute. ICCT commented on the 2013 volume rulemaking that allowing corn ethanol to backfill the gap in cellulosic biofuel does not fulfill the aims of the RFS program, which clearly intended to drive the large increases in very low carbon biofuels from non-food feedstocks.⁸ This issue will become increasingly important if gasoline demand continues to rise beyond 2017, or if consumption of higher blends of ethanol becomes more prevalent.

⁸ http://www.theicct.org/sites/default/files/ICCT_comments_RFS2%E2%80%932013-14_volumes.pdf