The Renewable Fuel Standard (RFS): Waiver Authority and Modification of Volumes

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Summary

The Clean Air Act requires that transportation fuels contain a minimum volume of renewable fuel. This Renewable Fuel Standard (RFS) was established by the Energy Policy Act of 2005 (EPAct05; P.L. 109-58) and amended by the Energy Independence and Security Act of 2007 (EISA; P.L. 110-140). The RFS includes scheduled volume mandates that grow each year (starting with 9 billion gallons in 2008 and ascending to 36 billion gallons in 2022). The U.S. Environmental Protection Agency (EPA), which is responsible for administering the RFS, determines the annual volume after 2022. Within the overall RFS, there are submandates for advanced biofuels, including cellulosic biofuel and biomass-based diesel.

EPA has the authority to waive the RFS requirements, in whole or in part, if certain conditions outlined in statute prevail. More specifically, the statute identifies a general waiver and waivers for two types of advanced biofuel: cellulosic biofuel and biomass-based diesel. Statute requires EPA to announce the upcoming year’s standards by November 30 of the previous year, except for biomass-based diesel, which must be announced 14 months before the year for which the applicable volume is to apply. Further, the final section of the waiver provision—which some refer to as the “reset” section—requires a permanent modification of applicable volumes of the RFS if certain conditions are met (e.g., if the applicable volumes are reduced by at least 20% for two consecutive years or by at least 50% for a single year). The statute allows the modification of the applicable volumes to take place starting in 2016.

In several instances, EPA has used, has proposed to use, or has been petitioned to use its waiver authority when implementing the RFS. In December 2019, EPA announced in its final rule for the 2020 RFS that it was using the cellulosic biofuel waiver authority to reduce the cellulosic biofuel, advanced biofuel, and total renewable fuel volume requirements. EPA’s use of the cellulosic biofuel waiver authority is not new. EPA has repeatedly issued a waiver, reducing the volume required for cellulosic biofuel. For the 2014-2020 final rules, EPA has used the cellulosic biofuel waiver to also reduce the total advanced biofuel volume requirement. For various reasons (e.g., technology issues, financial support, policy uncertainty), the U.S. cellulosic biofuel industry has been unable, by a wide margin, to produce the volume amounts identified in statute.

EPA also has the authority to “reset” the RFS. The 2019 final RFS program rule issued by EPA triggered the RFS “reset” section of the waiver provision for total renewable fuel. The reset was triggered in previous final rules for both advanced biofuel and cellulosic biofuel. It is unclear what impact the use of the reset by EPA will have on RFS standards for future years given that only two years remain that have statutory volume requirements—2021 and 2022. EPA has statutory authority to determine the volume amounts after 2022.

At issue for Congress is the effectiveness of the RFS waiver authority and a potential programmatic reset. Congress may consider whether the waiver authority and the reset authority are sufficient options for EPA to address the statutory advanced biofuel volume shortfalls—shortfalls that may have been more than what Congress envisioned when it expanded the RFS in 2007. Another issue is how the Administration might apply the reset authority, and if it would contribute to uncertainty for industry, financiers, and other interested parties.
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Introduction

The Renewable Fuel Standard (RFS) requires that the nation’s transportation fuel supply contain renewable fuels.\(^1\) This mandate—established in the Energy Policy Act of 2005 (EPAct05; P.L. 109-58) and expanded in the Energy Independence and Security Act of 2007 (EISA; P.L. 110-140)—requires the use of renewable fuel, although it does not explicitly require the production of that fuel. Obligated parties, such as refiners or importers of gasoline or diesel fuel, are responsible for complying with the RFS requirements. The U.S. Environmental Protection Agency (EPA) administers the mandate, which is an amendment to Clean Air Act (CAA) provisions governing the regulation of fuels.\(^2\) The statutory renewable fuel volume increases annually until 2022, with EPA determining the volume after 2022 within certain limitations. In general, EPA has the authority to waive the RFS requirements, in whole or in part, if certain conditions outlined in statute prevail.

The RFS is a complex and highly technical policy initiative. It deals with multiple sectors of the economy and requires the use of some advanced renewable fuel production technologies that have yet to reach maturity. The RFS also incorporates thresholds for greenhouse gas emission reduction. This complexity is heightened by multiple stakeholders with differing perspectives on what the RFS should accomplish, how it should be implemented, and whether it should exist, which leads to debate about the RFS and its future. Congressional debate about the RFS is expected to continue with special attention to how EPA administers the program.\(^3\) As Congress continues its oversight of the RFS, it may be useful to understand the RFS waiver authority granted to EPA. This report discusses the waiver provisions of the RFS, including the modification-of-applicable-volumes (“reset”) section.

RFS Requirements

EPAct05 established a renewable fuel program (i.e., the RFS) requiring that transportation fuel sold or introduced into commerce in the United States, on an annual average basis, contain a specified amount of renewable fuel. The RFS mandate, as amended by EISA, calls for the consumption of 9 billion gallons of total renewable fuel in 2008, ascending to 36 billion gallons in 2022, with EPA determining the annual volume after 2022. The statute identifies four categories of renewable fuels that must be used to meet the mandate. These four categories can be aggregated into two major categories: unspecified biofuel (mainly cornstarch ethanol) and advanced biofuel (e.g., cellulosic biofuel, biomass-based diesel, and other advanced biofuels), shown in Figure 1.\(^4\) Over time, the growth in the RFS transitions from biofuels that, in practice, are made mostly from food and feed crops to biofuels made from nonfood and nonfeed crops. For instance, in 2022, the statute requires that advanced biofuels constitute close to 60% of the 36 billion gallon mandate and unspecified biofuels constitute about 40%.

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\(^2\) P.L. 109-58 (Title XV, Subtitle A, Section 1501) established the RFS under Clean Air Act Section 211(o); 42 U.S.C. §7545(o). P.L. 110-140 expanded the RFS, including the requirement of larger annual volumes and the addition of greenhouse gas accounting requirements.

\(^3\) Legislation has been introduced in the 116th Congress that would modify or repeal the RFS. For example, see S. 2873, S. 1840, H.R. 5113 (identical to S. 2873), H.R. 3427, and H.R. 3411.

\(^4\) The unspecified biofuel volume requirement equates to the difference between the total renewable fuel category and the advanced biofuel category.
Figure 1. Scheduled Renewable Fuel Standard (RFS) Mandates Under EISA


RFS Annual Volume Announcement Deadlines

Congress gave the EPA Administrator an annual deadline to determine and publish the renewable fuel obligations (i.e., final volume requirements). The EPA Administrator is required to announce the renewable fuel obligations (typically referred to as “set the standards”) by November 30 of the preceding year (e.g., under statute the 2021 standard is required to be finalized by November 30, 2020).\(^5\) For biomass-based diesel, the statute specifies volumes for four years (2009-2012) and requires EPA to announce the remaining annual biomass-based diesel standards “14 months before the first year for which such applicable volume will apply” (e.g., the 2022 biomass-based diesel standard is required to be finalized by November 2020).\(^6\) The requirement that EPA announce the standard 14 months prior is scheduled to apply to the other renewable fuel categories for calendar years 2023 and onward.


Current RFS Requirements

EPA issued the final 2020 standards (and the 2021 standard for biomass-based diesel) in December 2019. The RFS statutory requirements and the EPA requirements for 2014 through 2020 are provided in Table 1.

Table 1. EISA and EPA RFS Requirements

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Renewable Fuel</th>
<th>Unspecified Biofuel / Cap on Conventional Biofuel</th>
<th>Advanced Biofuel (cellulosic biofuel component)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Statutory</td>
<td>18.15</td>
<td>14.40</td>
<td>3.75 (1.75)</td>
</tr>
<tr>
<td>2014 EPA Final</td>
<td>16.28</td>
<td>13.61</td>
<td>2.67 (0.033)</td>
</tr>
<tr>
<td>2015 Statutory</td>
<td>20.50</td>
<td>15.00</td>
<td>5.50 (3.000)</td>
</tr>
<tr>
<td>2015 EPA Final</td>
<td>16.93b</td>
<td>14.05</td>
<td>2.88 (0.123)</td>
</tr>
<tr>
<td>2016 Statutory</td>
<td>22.25</td>
<td>15.00</td>
<td>7.25 (4.250)</td>
</tr>
<tr>
<td>2016 EPA Final</td>
<td>18.11b</td>
<td>14.50</td>
<td>3.61 (0.230)</td>
</tr>
<tr>
<td>2017 Statutory</td>
<td>24.00</td>
<td>15.00</td>
<td>9.00 (5.500)</td>
</tr>
<tr>
<td>2017 EPA Final</td>
<td>19.28</td>
<td>15.00</td>
<td>4.28 (0.311)</td>
</tr>
<tr>
<td>2018 Statutory</td>
<td>26.00</td>
<td>15.00</td>
<td>11.00 (7.000)</td>
</tr>
<tr>
<td>2018 EPA Final</td>
<td>19.29</td>
<td>15.00</td>
<td>4.29 (0.288)</td>
</tr>
<tr>
<td>2019 Statutory</td>
<td>28.00</td>
<td>15.00</td>
<td>13.00 (8.500)</td>
</tr>
<tr>
<td>2019 EPA Final</td>
<td>19.92</td>
<td>15.00</td>
<td>4.92 (0.418)</td>
</tr>
<tr>
<td>2020 Statutory</td>
<td>30.00</td>
<td>15.00</td>
<td>15.00 (10.50)</td>
</tr>
<tr>
<td>2020 EPA Final</td>
<td>20.09</td>
<td>15.00</td>
<td>5.09 (0.590)</td>
</tr>
</tbody>
</table>


Notes: All volumes are ethanol equivalent. Ethanol equivalent is the amount of fuel needed to give the same amount of energy as one gallon of ethanol.

a. Advanced biofuels can include cellulosic biofuel, biomass-based diesel, biogas, butanol, and others. Advanced biofuel is defined as renewable fuel, other than cornstarch ethanol, that has lifecycle greenhouse gas emissions that are at least 50% lower than the emissions from comparable petroleum products.

RFS Waiver Provisions

The statute for the RFS contains a waiver section with a set of waiver provisions. The provisions describe three separate waivers—a general waiver, a cellulosic biofuel waiver, and a biomass-based diesel waiver—that the EPA Administrator may use to waive, with certain stipulations for certain waivers, the volume of renewable fuel mandated by statute. The waivers referred to in this report should not be confused with small refinery exemptions. Additionally, there is a provision for the modification of applicable volumes (i.e., a “reset”) that the EPA Administrator may use. The waivers and the modification of applicable volumes are described in further detail in the following sections of this report.

General Waiver

The RFS statute gives the EPA Administrator the authority to waive the RFS requirements, in whole or in part, “by reducing the national quantity of renewable fuel required” if

- implementation of the requirement would severely harm the economy or environment of a state, a region, or the United States, or
- domestic renewable fuel supply is inadequate to meet the mandate.

The Administrator may issue the general waiver at his or her discretion or if petitioned by a state or any person subject to the RFS requirements (e.g., refiners and importers). Prior to making a decision, the Administrator is required to consult with the Secretary of Agriculture and Secretary of Energy and to allow for public notice and the opportunity for comment. In those instances in which the Administrator receives a petition for a waiver, the Administrator has 90 days after receipt of the petition to approve or disapprove it. If a general waiver is issued, it expires after one year, unless the Administrator renews the waiver.

Cellulosic Biofuel Waiver

The RFS statute obligates the EPA Administrator to reduce the cellulosic biofuel mandate when the projected production capacity for a given year is less than the volume required in the statute. The law does not require the EPA Administrator to consult with the Secretary of Agriculture or the Secretary of Energy when issuing a cellulosic biofuel waiver, or to give public notice and opportunity for comment. However, the Administrator must use the projected volume estimate from the U.S. Energy Information Administration provided under the applicable percentages section of the statute. In prior waiver determinations, EPA has provided opportunity for public

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9 Small refiners may petition the EPA Administrator for an exemption from the RFS mandate if they can prove compliance would subject them to disproportionate economic hardship. For more information on small refinery exemptions, see 42 U.S.C. §7545(o)(9) or CRS Report R46244, The Renewable Fuel Standard (RFS): Frequently Asked Questions About Small Refinery Exemptions (SREs), by Kelsi Bracmort.
comment. The Administrator must set the new required amount at the “projected available volume during that calendar year” by November 30 of the preceding year. Should the Administrator reduce the cellulosic biofuel volume, the Administrator also may reduce the volumes of advanced biofuel and total renewable fuel by the same or lesser volume. When the Administrator issues a cellulosic biofuel waiver, the Administrator must offer cellulosic biofuel waiver credits for obligated parties to purchase for that compliance year in lieu of using actual cellulosic biofuel.

Biomass-Based Diesel Waiver

The RFS statutory provisions give the EPA Administrator authority to reduce the amount of biomass-based diesel required for up to 60 days if the Administrator determines that there are significant market circumstances (including feedstock disruptions) “that would make the price of biomass-based diesel fuel increase significantly.” If these market circumstances continue past the initial 60-day period, the Administrator may issue another waiver for an additional 60 days. The Administrator is to consult with the Secretaries of Energy and Agriculture prior to issuing such a waiver. If the Administrator issues a biomass-based diesel waiver, the Administrator also may reduce the volumes of advanced biofuel and renewable fuel by the same or lesser volume. As of July 2020, EPA has not used the biomass-based diesel waiver authority.

Modification of Applicable Volumes

The last provision of the waiver section is the modification of applicable volumes provision, referred to by some as the “reset” provision for the RFS. This provision requires that the EPA Administrator modify the applicable volumes of the RFS in future years starting in 2016 if certain conditions are met. Specifically, it provides that, starting in 2016, the EPA Administrator shall modify the applicable volumes of the RFS for subsequent years if the Administrator waives the renewable fuel mandate, the advanced biofuel mandate, the cellulosic biofuel mandate, or the biomass-based diesel mandate by at least 20% for two consecutive years or by at least 50% for a single year. This reset section does not state what the modified amount must be. Rather, it

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15 For example, see U.S. Environmental Protection Agency, Renewable Fuel Standard Program - Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes: Response to Comments, EPA-420-R-19-018, December 2019, pp. 20-23. Additionally, when conducting its cellulosic biofuel volume assessment for the coming year, EPA has consulted with EIA and industry. For example, for the 2014 cellulosic biofuel volume assessment, EPA reports it “spoke with representatives of each company to discuss cellulosic biofuel target production levels for 2014” and that “[t]hroughout this process EPA has been in contact with EIA to discuss relevant information.” U.S. Environmental Protection Agency, “2014 Standards for the Renewable Fuel Standard Program; Proposed Rule,” 78 Federal Register 71739, November 29, 2013.

16 EPA reports that “[t]hese credits can then be used by obligated parties to comply with the cellulosic biofuel volume obligation in lieu of RINs [Renewable Identification Numbers] generated with the production of the cellulosic biofuel. Cellulosic biofuel waiver credits are for obligated parties who do not acquire sufficient RINs for their cellulosic biofuel RVO [Renewable Volume Obligation] in a given compliance year.” U.S. Environmental Protection Agency, What Is the Purpose of a Cellulosic Biofuel Waiver Credit? https://www.epa.gov/fuels-registration-reporting-and-compliance-help/what-purpose-cellulosic-biofuel-waiver-credit. The formula to calculate the price of these credits is in statute. For more information on cellulosic waiver credits, see U.S. Environmental Protection Agency, Cellulosic Waiver Credits under the Renewable Fuel Standard Program, April 7, 2020, https://www.epa.gov/renewable-fuel-standard-program/cellulosic-waiver-credits-under-renewable-fuel-standard-program. For more information on cellulosic biofuels and the RFS, see CRS Report R41106, The Renewable Fuel Standard (RFS): Cellulosic Biofuels, by Kelsi Bracmort.


requires that the Administrator determine the applicable volumes—in coordination with the Secretaries of Energy and Agriculture—based on a review of program implementation thus far and an analysis of certain factors (e.g., the impact of the production and use of renewable fuels on the environment). 19

**RFS Waiver Authority Use**

Since 2010, EPA has repeatedly used its cellulosic biofuel waiver authority to reduce the cellulosic biofuel volume required, and, since 2014, to also reduce both the advanced biofuel and total renewable fuel volume required. 20 In December 2019, EPA announced that it used the cellulosic biofuel waiver to reduce the applicable total renewable fuel, advanced biofuel, and cellulosic biofuel volume requirements for 2020. 21 According to the agency, “the 15.0 billion gallons specified in the statute for advanced biofuel cannot be reached in 2020 … primarily due to the expected continued shortfall in cellulosic biofuel. . . .” 22 The Administrator has not issued a biomass-based diesel waiver.

To date, EPA has only exercised the general waiver authority once to reduce the total renewable fuel volumes for 2014, 2015, and 2016, which the U.S. Court of Appeals for the D.C. Circuit subsequently vacated after concluding that EPA’s interpretation of “inadequate domestic supply” was not a permissible one. 23 In that rule, EPA had interpreted the general waiver provision as allowing the agency to reduce all or any of the four renewable fuel volume requirements (i.e., total renewable fuel, advanced biofuels, biomass-based diesel fuel, or cellulosic biofuel) in whole or in part. 24 In notices denying petitions for waivers, EPA has taken the position that any waiver must be nationwide in scope (i.e., reduce the statutory volumes nationwide). 25 However, EPA has not codified this position in its regulations and no court has reviewed this interpretation. The general waiver authority has not been fully exercised; thus, it is not clear if only the total renewable fuel category can be reduced or if any of the renewable fuel categories (e.g., advanced biofuel) can be reduced.

**RFS Waiver Impacts**

Waiver authority is intended, in part, to assist EPA with implementation of the RFS. 26 One of EPA’s program tasks is to use the waiver authority, when required, to determine the annual final
standard, and to announce that final standard by the statutory deadline. The challenge of projecting advanced biofuel production, pressure from some stakeholders, and other factors may have contributed to past delays (during the 2012-2015 timeframe) in issuing final standards under the waiver authority.\textsuperscript{27} Such delays could lead to difficulty for obligated parties who have to demonstrate program compliance and for renewable fuel producers who are interested in producing the required fuel. For 2016 through 2020, EPA has generally issued the final rule according to the statutory schedule.

There are three stakeholders that generally have had distinct views about the impacts of the waiver authority: the advanced biofuel industry, the conventional biofuel industry, and the petroleum industry. Some advanced biofuel advocates assert that issuing waivers, in conjunction with other factors, could weaken confidence in renewable fuel markets and the chosen technologies, specifically cellulosic biofuel.\textsuperscript{28} Advanced biofuel, particularly cellulosic biofuels, have not been produced at the levels called for in the statutory provisions by relatively large margins.

Some conventional biofuel advocates have not always agreed with EPA’s proposals to use the waiver authority to reduce conventional biofuel volumes.\textsuperscript{29} Conventional biofuel production has remained in line with what the statutory provisions require.

Some in the petroleum industry assert that the waiver authority can be used as an option to address the “blend wall,” or, the maximum ethanol limit that would serve to avoid causing damage to many engines, fuel systems, and fueling infrastructure of vehicles.\textsuperscript{30}

While perspectives about EPA’s use of the waiver authority vary among stakeholders, the waivers have provided EPA with the flexibility to establish volume requirements that have been attained.

Impacts of RFS Modification of Applicable Volumes

The 2019 final rule triggered the “reset” (i.e., the modification-of-applicable-volumes provision of the RFS) for total renewable fuel. Previous final rules had already triggered a reset for both advanced biofuels and cellulosic biofuels.\textsuperscript{31} The Office of Management and Budget (OMB)

\textsuperscript{27} For a list of final rule release dates for the RFS, see Table 1 in CRS Report R43325, The Renewable Fuel Standard (RFS): An Overview, by Kelsi Bracmort. For an explanation of some of the challenges with cellulosic biofuel projection, see CRS Report R41106, The Renewable Fuel Standard (RFS): Cellulosic Biofuels, by Kelsi Bracmort. Discussions— with input from elected officials, the oil and gas sector, the agricultural sector, the environmental community, and others— regarding the RFS have been ongoing since its expansion. For example, see Humeyra Pamuk and Jarrett Renshaw, “EPA Chief Defends Biofuel Waivers in Meeting with Farm Senators: Sources,” Reuters, July 30, 2019, or Robert Z. Lawrence, How Good Politics Results in Bad Policy: The Case of Biofuel Mandates, Harvard Kennedy School, Belfer Center for Science and International Affairs, September 2010.


reported in fall of 2019 that “EPA is proposing a rulemaking that will propose modifying the applicable volumes targets for cellulosic biofuel, advanced biofuel, and total renewable fuel for the years 2020 to 2022.”32 It is not clear when or how EPA may carry out this action.

The Administrator has the discretion to set the modified amounts.33 Depending on how the reset is applied, there could be interest in its impact on public and private investment for renewable fuels. There might also be interest in the reset’s potential impact on the transition of the program from mostly conventional biofuel to mostly advanced biofuel by 2022. Additionally, there may be interest about whether a reset could address the concerns expressed by some obligated parties (i.e., refiners) about high compliance costs. Going forward, reset implementation could have implications for the entire fuel industry, given the potential for EPA to reduce the applicable volumes or maintain ambitious targets.

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33 The Administrator may do so based on a review of program implementation and an analysis of certain factors, among other things.