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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 (EPAAct05; 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 sub-mandates for advanced biofuels, including cellulosic biofuel, biomass-based diesel, and other advanced biofuels.

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 for the overall RFS and waivers for two types of advanced biofuel: cellulosic biofuel and biomass-based diesel. Statute requires EPA to announce each 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 will 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 starting in 2016 and carried forward, if certain conditions are met.

In several instances, EPA has used, has proposed to use, or has been petitioned to use its waiver authority when implementing the RFS. In November 2017, EPA announced in its final rule for 2018 for the 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 cellulosic biofuel waiver to reduce the volume required for cellulosic biofuel. For the last few years, the use of the cellulosic biofuel waiver led EPA 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.

The 2018 final RFS program rule issued by EPA—like the two previous final rules—triggers the RFS “reset” section of the waiver provision for both advanced biofuel and cellulosic biofuel. It is unclear what impact the use of the reset section will have on RFS standards in future years. In the 2018 final rule, EPA reported that comments about the “reset” were beyond the scope of the rulemaking.

A possible issue for Congress is whether the waiver authority and the reset provisions are sufficient options to address RFS 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 provision, and more specifically, whether the potential for full or partial RFS waivers, as well as an RFS reset, would contribute to uncertainty for policymakers, industry, financiers, and other interested parties. Further, the repeated use of the cellulosic biofuel waiver authority to reduce the statutory volumes could increase calls, by some, for Congress to address the advanced biofuel portion of the mandate through legislative action.

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Introduction

The Renewable Fuel Standard (RFS) requires that the nation’s transportation fuel supply contains 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 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 exacerbated 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 intense discussions 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 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 2022.⁴ The statute identifies four categories of renewable fuels that must be used to meet the mandate. However, these four categories essentially 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**. 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 non-food and non-feed 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%.

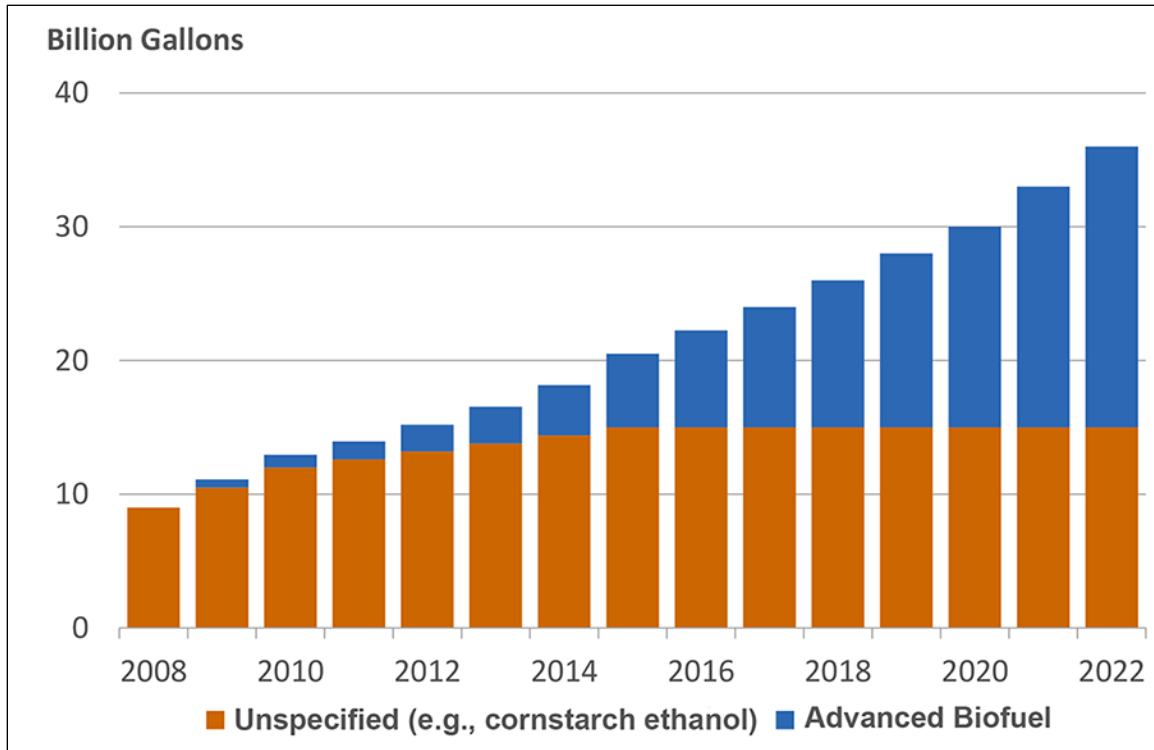
¹ For more information on the Renewable Fuel Standard (RFS) and related issues, see CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Bracmort.

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 partly with the requirement of larger annual volumes and the addition of greenhouse gas accounting requirements, among other things.

³ Legislation has been proposed in the 115th Congress that would limit, reduce, or repeal the RFS (e.g., H.R. 119, H.R. 776, H.R. 1314, and H.R. 1315).

⁴ For a discussion about RFS compliance, including obligated party requirements, see CRS Insight IN10576, *Renewable Identification Numbers (RINs) and Renewable Fuel Standard (RFS) Compliance*, by Kelsi Bracmort, or CRS In Focus IF10121, *The Renewable Fuel Standard (RFS): Compliance and Penalties*, by Kelsi Bracmort.

Figure I. Scheduled Renewable Fuel Standard (RFS) Mandates Under EISA



Sources: Congressional Research Service (CRS) using mandates in the Energy Independence and Security Act of 2007 (EISA; P.L. 110-140).

RFS Annual Volume Reduction Deadlines

Congress gave the EPA Administrator waiver authority to adjust the renewable fuel volumes specified in statute given certain conditions (e.g., inadequate domestic renewable fuel supply).⁵ The EPA Administrator is required to set the standards by November 30 of the preceding year (e.g., the 2019 standard should be announced by November 30, 2018).⁶ Further, when the EPA Administrator reduces the cellulosic biofuel volume, the Administrator also may reduce the total renewable fuel and total advanced biofuel volumes by the same or a lesser volume. For biomass-based diesel, the statute specifies volumes for four years (2009-2012) and requires EPA to announce the remaining annual biomass-based diesel volume “14 months before the first year for which such applicable volume will apply” (e.g., the 2020 biomass-based diesel standard should be announced by November 2018).

⁵ These conditions are further explained in the “RFS Waiver Provision” section of this report.

⁶ 42 U.S.C. 7545 (o)(3)(B)(i).

Current RFS Requirements

EPA issued the final 2018 standards (and the 2019 standard for biomass-based diesel) in November 2017.⁷ The RFS statutory requirements and the EPA requirements for 2014 through 2018 are provided in **Table 1**.

Table 1. EISA and EPA RFS Requirements
(in billions of gallons)

Year	Total Renewable Fuel	Unspecified Biofuel	Advanced Biofuel (cellulosic biofuel component) ^a
2014 Statutory	18.15	14.40	3.75 (1.750)
2014 EPA Final	16.28	13.61	2.67 (0.033)
2015 Statutory	20.50	15.00	5.50 (3.000)
2015 EPA Final	16.93 ^b	14.05	2.88 (0.123)
2016 Statutory	22.25	15.00	7.25 (4.250)
2016 EPA Final	18.11 ^b	14.50	3.61 (0.230)
2017 Statutory	24.00	15.00	9.00 (5.500)
2017 EPA Final	19.28	15.00	4.28 (0.311)
2018 Statutory	26.00	15.00	11.00 (7.000)
2018 EPA Final	19.29	15.00	4.29 (0.288)

Sources: EISA (P.L. 110-140); 42 U.S.C. 7545(o); U.S. Environmental Protection Agency (EPA), “Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017; Final Rule,” 80 *Federal Register* 239, December 14, 2015; EPA, “Renewable Fuel Standard Program: Standards for 2017 and Biomass-Based Diesel Volume for 2018; Final Rule,” 81 *Federal Register* 89746, December 12, 2016; EPA, “Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019; Final Rule,” 82 *Federal Register* 58486, December 12, 2017.

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.
- b. The D.C. Circuit Court vacated EPA’s 2016 total renewable fuel volume requirement and remanded the 2015 final rule to EPA for reconsideration. *Americans for Clean Energy v. EPA*, No. 16-1005, 2017 U.S. App. LEXIS 13692, at *4-5 (D.C. Cir. July 28, 2017).

RFS Waiver Provision

The RFS provisions of the CAA contain a waiver provision.⁸ The provision contains three separate waivers—a general waiver, a cellulosic biofuel waiver, and a biomass-based diesel waiver—that the EPA Administrator may use to waive, in whole or in part, the volume of renewable fuel mandated by statute. If a waiver is issued, it expires after one year (60 days for the

⁷ U.S. Environmental Protection Agency, “Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019; Final Rule,” 82 *Federal Register* 58486, December 12, 2017.

⁸ 42 U.S.C. 7545(o)(7).

biomass-based diesel waiver), unless the Administrator renews the waiver. Additionally, starting in 2016, the waiver provision allows for a modification of applicable volumes. 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 overall RFS requirements, in whole or in part, if

- domestic renewable fuel supply is inadequate to meet the mandate, or
- implementation of the requirement would severely harm the economy or environment of a state, a region, or the United States.⁹

The Administrator may issue the general waiver at his or her discretion or if petitioned by a state or fuel provider. 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.¹⁰ 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. If a general waiver is granted, any adjustment applies to the total national renewable fuel requirement. Thus, EPA may not issue a general waiver for an individual state or supplier within a state.

Cellulosic Biofuel Waiver

CAA section 211(o) obligates the EPA Administrator to reduce the cellulosic biofuel mandate when the projected production capacity for a given year is less than what is identified in statute.¹¹ 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 base the projection on the U.S. Energy Information Administration estimate provided under the applicable percentages provision.¹² Although it is not required by the statute to do so, EPA has consulted with federal agencies, industry, and others when the agency has considered issuance of a cellulosic biofuel waiver. EPA also has provided opportunity for public 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 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.¹³

⁹ 42 U.S.C. 7545(o)(7)(A).

¹⁰ Information regarding petitions is available at the EPA Requests for Volume Requirement Waiver under the Renewable Fuel Standard Program website, <https://www.epa.gov/renewable-fuel-standard-program/requests-volume-requirement-waiver-under-renewable-fuel-standard>.

¹¹ 42 U.S.C. 7545(o)(7)(D).

¹² 42 U.S.C. 7545(o)(3)(A).

¹³ 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 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 in a given compliance year.” U.S. Environmental Protection Agency, *What Is the Purpose of a Cellulosic Biofuel Waiver Credit?*. The formula to (continued...)

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.”¹⁴ 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.

Modification of Applicable Volumes

The last section of the waiver provision is the modification-of-applicable-volumes section, referred to by some as the “reset” section for the RFS.¹⁵ This section 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 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 analysis of certain factors (e.g., the impact of the production and use of renewable fuels on the environment).¹⁶

RFS Waiver Authority Use

EPA has repeatedly used its cellulosic biofuel waiver authority to reduce the cellulosic biofuel volume required, and, lately, to also reduce both the advanced biofuel and total renewable fuel volume required. In November 2017, EPA announced that it used the cellulosic biofuel waiver to reduce the applicable total renewable fuel, advanced biofuel, and cellulosic biofuel volume requirements for 2018.¹⁷ According to the agency, it has used the cellulosic biofuel waiver due to “slower-than-expected development of the cellulosic biofuels industry” (i.e., lack of actual domestic production of cellulosic biofuel at the volumes required to meet the RFS cellulosic biofuel mandate).¹⁸

(...continued)

calculate the price of these credits is written in statute. For more information on cellulosic biofuels and the RFS, see CRS Report R41106, *The Renewable Fuel Standard (RFS): Cellulosic Biofuels*, by Kelsi Bracmort.

¹⁴ 42 U.S.C. 7545(o)(7)(E); for more information on biodiesel, see CRS Report R41282, *Agriculture-Based Biofuels: Overview and Emerging Issues*, by Mark A. McMinimy.

¹⁵ 42 U.S.C. 7545(o)(7)(F).

¹⁶ The Administrator is directed to promulgate a rule that modifies the applicable volumes in compliance with 42 U.S.C. 7545(o)(2)(B)(ii).

¹⁷ U.S. Environmental Protection Agency, “Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019; Final Rule,” 82 *Federal Register* 58486, December 12, 2017.

¹⁸ *Ibid.*

The EPA Administrator issued a general waiver for prior final rules (which covered 2014 through 2016) and repeatedly issued cellulosic biofuel waivers for 2010 through 2018.¹⁹ The Administrator used the waivers for 2014, 2015, and 2016 to reduce the total renewable fuel (including a lowering of the unspecified biofuel mandate), advanced biofuel, and cellulosic biofuel volume requirements. The Administrator has not granted a biomass-based diesel waiver.

RFS Waiver Impacts

Waiver authority is intended, in part, to assist EPA with implementation of the RFS. 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, political pressure from some stakeholders, and other factors may have contributed to past delays in issuing final standards under the waiver authority.²⁰ 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 2018, EPA has 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 oil and gas industry. Some advanced biofuel advocates assert that granting of waivers, in conjunction with other factors, could weaken confidence in renewable fuel markets and the chosen technologies, specifically cellulosic biofuel.²¹ Advanced biofuel production, particularly cellulosic biofuel production, has not been produced at the levels called for in the statutory

¹⁹ U.S. Environmental Protection Agency, "Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017; Final Rule," 80 *Federal Register* 77420, December 14, 2015. The three-year final rule issued in 2015 marks the first time the Administrator used the general waiver. Previously, the Administrator had not issued a general waiver, even when petitioned to do so by states in 2008 and 2012. For more on waiver petitions from the states, particularly for 2008 and 2012, see CRS Report RS22870, *Waiver Authority Under the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci. On July 28, 2017, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) vacated EPA's decision to reduce the 2016 total renewable fuel volume requirements through its general waiver authority and remanded the 2015 final rule for review consistent with the court's decisions. The court agreed with a petitioner that EPA erred in its interpretation of "inadequate domestic supply" to use of the general waiver authority to reduce the volume requirements. *Americans for Clean Energy v. EPA*, No. 16-1005, 2017 U.S. App. LEXIS 13692, at *4-5 (D.C. Cir. July 28, 2017).

The EPA Administrator used the cellulosic biofuel waiver in 2010 to reduce the mandate from the statutory volume of 100 million gallons to 6.5 million ethanol-equivalent gallons, in 2011 from 250 million gallons to 6.0 million ethanol-equivalent gallons, in 2012 from 500 million gallons to 10.45 million ethanol-equivalent gallons, in 2013 from 1 billion gallons to 810,185 ethanol-equivalent gallons, in 2014 from 1.75 billion gallons to 33 million ethanol-equivalent gallons, in 2015 from 3.0 billion gallons to 123 million ethanol-equivalent gallons, in 2016 from 4.25 billion gallons to 230 million ethanol-equivalent gallons, and in 2017 from 5.5 billion gallons to 311 million ethanol-equivalent gallons. EPA's 2012 standard was vacated by a court decision, and EPA rescinded the 2011 cellulosic biofuel standard.

²⁰ 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 has been ongoing since its expansion. For example, see Devin Henry and Timothy Cama, "Pruitt Aims to Assure GOP Senators on Biofuels Mandate," *The Hill*, October 17, 2017 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.

²¹ Advanced Ethanol Council, "33 Advanced Biofuel Companies Ask President Obama to Reconsider the Proposed RFS Rule for 2014," press release, May 16, 2014; Advanced Ethanol Council, "AEC, BIO Joint Letter to White House over Proposed 2014 RFS Volumetric Blending Requirements," October 29, 2013.

provisions by a relatively large margin. Some conventional biofuel advocates have not always been content with EPA's proposals to use the waiver authority to reduce conventional biofuel volumes.²² Conventional biofuel production has remained in line with what the statutory provisions require. Some in the oil and gas industry assert that the waiver authority is an option that addresses the use of more ethanol than can be used by certain vehicles (i.e., the blend wall) or supported by existing infrastructure.²³ 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 are attainable.

Impacts of RFS Modification of Applicable Volumes

With both the 2018 and 2017 final rules and the previous RFS three-year final rule, EPA triggered the "reset" section of the waiver provision for both advanced biofuels and cellulosic biofuels. And, for the first time, with the 2018 final rule, EPA has reduced the total renewable fuel volume required by more than 20% of the statutory levels.²⁴ If the 2019 total renewable fuel volume required is again reduced by more than 20%, this could make the total renewable fuel category eligible for a reset.²⁵

Many have questions and concerns about whether and how EPA will implement the reset section (the modification-of-applicable-volumes section of the RFS). This section requires the EPA Administrator to modify the applicable volumes of the RFS in its entirety starting in 2016 if certain conditions are met. It is not clear how EPA will implement the reset section. To date, EPA has taken no action on the reset provision. In the 2018 final rule, EPA reported that comments about the "reset" were beyond the scope of the 2018 rulemaking.²⁶

The Administrator has the discretion to set the modified amounts. Depending on how the reset is applied, there could be interest in its impact on public and private investment for biofuels. 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 biofuel industry, given the potential for EPA to reduce the applicable volumes or maintain ambitious targets.

²² Renewable Fuels Association, "EPA's Draft 2017 RFS Rule Relies on Illegal Interpretation of Waiver Authority," press release, May 18, 2016.

²³ American Petroleum Institute, "Court Decision on EPA RFS Waiver Underscores Need for Legislative RFS Reform," press release, July 28, 2017.

²⁴ The 2018 statutory total renewable fuel volume called for is 26 billion gallons. EPA reduced the 2018 requirement for total renewable fuel to 19.29 billion gallons, which is 1.5 billion gallons below the 20% threshold of 20.8 billion gallons.

²⁵ The 2019 statutory total renewable fuel volume called for is 28 billion gallons. The 20% threshold is 22.4 billion gallons. A reduction in total renewable fuel below 22.4 billion gallons in 2019 combined with the 2018 total renewable fuel reduction could make the total renewable fuel category eligible for a reset.

²⁶ U.S. Environmental Protection Agency, "Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019; Final Rule," 82 *Federal Register* 58486, December 12, 2017.

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