Waiver Authority Under the Renewable Fuel Standard (RFS)

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Summary

Transportation fuels are required by federal law to contain a minimum amount of renewable fuel each year. This renewable fuel standard (RFS), established by the Energy Policy Act of 2005 (EPAct, P.L. 109-58) and amended by the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140), requires that 12.95 billion gallons of renewable fuels be blended into gasoline and other transportation fuels in 2010. Most of this mandate will be met using corn-based ethanol. However, within the overall RFS there are secondary mandates for the use of cellulosic biofuels, biomass-based diesel fuels, and other advanced biofuels. Questions have been raised over whether there is enough feedstock supply and production capacity to meet these carveouts.

The Environmental Protection Agency (EPA) has the authority to waive the RFS requirements, in whole or in part, if certain conditions outlined in the law are present. In 2008 the governor of Texas requested a waiver of the RFS because of high grain prices, although that waiver request was denied because EPA determined that the RFS requirements alone did not "severely harm the economy of a State, a region, or the United States," a standard required by the statute. In February 2010, as part of a final rulemaking implementing the RFS as expanded by EISA, EPA waived most of the 2010 cellulosic biofuel carveout—EISA set the mandate at 100 million gallons but EPA is only requiring 6.5 million gallons, more than 90% less than scheduled by EISA. EPA cited a lack of current and expected production capacity, driven largely by a lack of investment in commercial-scale refineries. Further, for 2011, EPA has proposed a cellulosic mandate of between 5.0 and 17.1 million gallons, well below the 250 million gallons scheduled in EISA. EPA plans to choose a single value when the rule is finalized in November.

This report provides a brief overview of the RFS program and discusses the process and criteria for EPA to approve a waiver petition.

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Introduction

The Energy Policy Act of 2005 (EPAct, P.L. 109-58) established a renewable fuel standard (RFS), requiring the blending of biofuels (such as ethanol) in the nation's fuel supply. The Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) significantly expanded this mandate. The RFS mandate has been a major impetus to the development of U.S. biofuels industries, especially the ethanol industry. As a result, ethanol production capacity and the demand for corn as a biofuel feedstock have grown dramatically over the past few years. In 2005, the United States produced 3.9 billion gallons of ethanol, requiring roughly 1.4 billion bushels of corn; in 2007, those numbers had increased to 6.5 billion gallons and 2.3 billion bushels. In 2007, roughly one-quarter of the U.S. corn crop was directed to ethanol production. In 2009, production had increased to roughly 11 billion gallons.

Increasing demand for corn for biofuels, the rise in energy prices, and other supply concerns in grain markets led to rapid increases in corn and other grain prices in 2008. These higher grain prices raised concern globally over food prices and availability. Because of these concerns, there was growing interest among some policymakers to amend or eliminate the RFS. Under the provisions of EPAct and EISA, the administrator of the Environmental Protection Agency (EPA) has the authority to waive the RFS requirements in whole or in part, in response to a petition by a state or a fuel provider, or on her own motion.

On April 25, 2008, Texas Governor Rick Perry sent a letter to EPA Administrator Stephen Johnson, petitioning for a 50% waiver from the RFS requirements.[1] In his letter, Governor Perry stated that he initiated the petition because of the negative effect of the requirements on the Texas economy and on global food prices. In August 2008 EPA denied the waiver request because the agency found that the effects of the RFS on food, feed, and fuel prices was minimal, and thus the economic effects of the RFS "could not be categorized as severe."[2]

Within the overall RFS there are secondary mandates for the use of cellulosic biofuels, biomass-based diesel fuels, and other advanced biofuels. However, questions have been raised over whether there is enough feedstock supply and production capacity to meet these carveouts, especially the cellulosic biofuel carveout. In February 2010, as part of a final rulemaking implementing the RFS as expanded by EISA, EPA waived most of the 2010 cellulosic biofuel carveout—EISA set the mandate at 100 million gallons but EPA is only requiring 6.5 million gallons, more than 90% less than scheduled by EISA. EPA cited a lack of current and expected production capacity, driven largely by delays in production plans and a lack of investment in commercial-scale refineries.[3] Similarly, for 2011 EPA has proposed a cellulosic biofuel mandate of between 5.0 and 17.1 billion gallons—93% to 98% lower than the amount scheduled in EISA.[4]

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[1] Rick Perry, governor of Texas, *Letter to The Honorable Stephen L. Johnson, Administrator, U.S. Environmental Protection Agency*, April 25, 2008.

[2] U.S. Environmental Protection Agency, *EPA Decision on Texas Request for Waiver of Portion of Renewable Fuel Standard (RFS)*, EPA420-F-08-029, Washington, DC, August, 2008, http://www.epa.gov/otaq/renewablefuels/420f08029.htm.

[3] U.S. Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule*, EPA-HQ-OAR-2005-0161, Washington, DC, February 3, 2010, pp. 173-174, http://www.epa.gov/otaq/renewablefuels/rfs2-preamble.pdf.

[4] Environmental Protection Agency, "Regulation of Fuel and Fuel Additives: 2011 Renewable Fuel Standards; Proposed Rule," 75 *Federal Register* 42242, July 20, 2010.

EPA plans to establish a single number (as required by the law) when it finalizes the 2011 RFS in November 2010.

Current RFS Requirements

Currently, the RFS requires the blending of 12.95 billion gallons of renewable fuel in transportation fuels in 2010, increasing to 36 billion gallons in 2022. Of this mandate, an increasing share must be met with "advanced biofuels"—biofuels produced from feedstocks other than corn starch—including cellulosic biofuel and bio-based diesel substitutes. As has been the case in previous years, in 2010 the vast majority of the mandate is expected to be met with U.S. corn ethanol (and a smaller amount of sugarcane ethanol from Brazil).

In future years, corn ethanol's share of the RFS is effectively capped at 15 billion gallons per year. The EISA amendments to the RFS specifically mandate the use of cellulosic biofuel (16 billion gallons by 2022) and biomass-based diesel fuel (1.0 billion gallons annually by 2012). However, advanced biofuels, especially cellulosic fuels, have been slow to develop and fuel production lags the EISA's mandate schedule.

Waiver Provisions

As amended by EISA, section 211(o)(7) of the Clean Air Act[5] gives the EPA administrator the authority to waive, in whole or in part, the total volume of renewable fuel mandated by the RFS if, in her determination, there is inadequate domestic supply to meet the mandate, or if "implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States."[6] Further, under certain conditions, the EPA administrator may waive (in whole or in part) the specific carve-outs for cellulosic biofuel and biomass-based diesel fuel.

General Waiver

On the petition of a state or a fuel provider, or at her own discretion,[7] the administrator may waive the overall RFS requirement for a given year. If a waiver is granted, any adjustment applies to total national requirement. Regardless of who initiates the waiver petition, all fuel suppliers' quotas would be reduced by a similar percentage. As the law is written, EPA may not waive the requirement for an individual state or supplier within a state, but must reduce the entire national mandate.

To grant the waiver, the EPA administrator must determine, in consultation with the Secretaries of Agriculture and Energy, that one of two conditions has been met:

- there is inadequate domestic renewable fuel supply; or

[5] 42 U.S.C. 7545(o)(7).

[6] 42 U.S.C. 7545(o)(7)(A)(i).

[7] Under EPAct, only states could petition EPA for the waiver. EISA amended the RFS to allow fuel providers to file a petition, and to give the EPA administrator authority to initiate the process on her own motion.

- implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States.

However, it is unclear how EPA will interpret these criteria. In its May 1, 2007, final rule for 2007 onward,[8] EPA explicitly stated that it would not establish more specific criteria for the waiver:

> While EPA realizes that the criteria provided by the statute are quite general, the rationales of severe environmental or economic harm or inadequate domestic supply are sufficient for a basic framework upon which a petition can be built and evaluated. Each situation in which a waiver may be requested will be unique, and promulgating a list of more specific criteria in the abstract may be counter-productive.[9]

Within 90 days of receipt of the waiver petition, EPA must act to approve or disapprove the petition, after public notice and opportunity for comment. If EPA does grant a waiver, the waiver expires after one year, but may be extended by the EPA administrator in consultation with the Secretaries of Agriculture and Energy.

Cellulosic Biofuel Waiver

As part of the RFS, EISA established a specific mandate for the use of cellulosic biofuels—ethanol or other fuels produced from woody or fibrous materials such as grasses, trees, etc. The cellulosic carveout was to start in 2010 at 100 million gallons, and increase to 16.0 billion gallons by 2022. Current cellulosic biofuel production is limited, with no commercial-scale plants in operation. Because of uncertainties over production capacity and cellulosic biofuel supply, in its February 2010 rulemaking, EPA reduced the cellulosic mandate from 100 million gallons to 6.5 million gallons for 2010.[10] For 2011, EPA has proposed a cellulosic mandate of between 5 and 17.1 million gallons—EPA will set the actual number in November 2010.

If the EPA administrator determines that the projected production volume of cellulosic biofuel for a given year is less than the mandated amount, she may reduce the carve-out. If she is going to do so, the administrator must reduce the required amount by November 30 of the preceding calendar year. If the administrator does reduce the mandated amount of cellulosic biofuel, she may also reduce the total volume required for that year under the RFS by an equal or lesser amount, but she is *not required* to do so. In the specific case of the 2010 level, EPA retained the overall RFS level mandated in EISA.[11]

Unlike the general wavier, only the EPA administrator may initiate a decision on a cellulosic biofuel waiver.

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[8] EPA, *Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program; Final Rule*, May 1, 2007. 72 Federal Register 23899-24014.

[9] 72 Federal Register 23928.

[10] For example, EPA cited projections from the Energy Information Administration (EIA) that roughly 5 million gallons of cellulosic fuels could be produced in 2010, although some of that fuel would be cellulosic diesel fuel, which generates more credits per gallon due to its higher energy content. As finalized in the rule, the RFS requirements are based on ethanol-equivalent gallons, and the 5 million gallon number from EIA translates to roughly 6.5 million ethanol-equivalent gallons. U.S. Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule*, EPA-HQ-OAR-2005-0161, Washington, DC, February 3, 2010, p. 174, http://www.epa.gov/otaq/renewablefuels/rfs2-preamble.pdf.

[11] It is likely that the difference, 93.5 million gallons, will likely be met using imported sugarcane ethanol.

Biomass-Based Diesel Waiver

Similar to the cellulosic biofuel carve-out, EISA also established a specific mandate for the use of biomass-based diesel fuel. Currently, most of this fuel is "biodiesel"—a diesel fuel substitute produced from soybean oil and other vegetable oils through a process called "transesterification"—but other fuels, some of which are termed "renewable diesel," would also qualify. The biomass diesel carve-out started in 2009 at 0.5 billion gallons and increases to a minimum of 1.0 billion gallons by 2012. Approximately 475 million gallons of biodiesel were produced in the United States in 2008. Because the EPA's rule was not finalized until 2010, the Agency has established a combined biomass diesel mandate for 2009 and 2010 of 1.15 billion gallons.[12]

If the EPA administrator (in consultation with the Secretaries of Energy and Agriculture) determines that there are significant market circumstances (including feedstock disruptions) "that would make the price of biomass-based diesel fuel increase significantly," the administrator may reduce the amount mandated for up to 60 days.[13] The administrator may extend the waiver for no more than an additional 60 days.

Reductions in the RFS

If the administrator waives a significant share of the above requirements, she must reduce the required volumes in all subsequent years. Specifically, she must reduce the applicable amounts in future years if she waives any of the above requirements by

- 20% or more for two consecutive years; or
- 50% or more in a single year.

For example, if the administrator reduced the overall RFS requirement by 6.0 billion gallons in both 2017 and 2018, then she would be required to reduce the total RFS requirement by 6.0 billion gallons in 2019 and beyond. The one exception is that these reductions in the RFS would not apply to the requirements before calendar year 2016.

Effects of a Waiver

Questions have been raised over how a waiver approval would affect food and fuel markets. As these markets are extremely complex, there is no simple answer. The effects of a waiver would likely depend on many factors:

- the degree to which the RFS requirements are relaxed under the waiver;
- the duration of the waiver;
- the scope of the waiver (cellulosic biofuel, biomass-based diesel, or the entire program);

[12] In this way, biomass-based diesel credits generated in 2009 can be used for compliance in 2009-2010. If the rule applied only to 2010, those credits generated by fuel blenders in 2009 would have been useless.

[13] However, the amount may not represent more than 15% of the total required amount for that year.

- whether the waiver is extended;
- prevailing supply and prices for oil, gasoline, biofuels, and feedstock commodities; and
- whether the current tax incentive system for biofuels has been maintained or modified.[14]

In the specific case of the 2010 waiver for cellulosic biofuel, a key question is whether this waiver will undermine the credibility of the mandates in future years and undercut investment. As EPA noted in the final rule, "In the proposal, we did a preliminary assessment of the cellulosic biofuel industry to arrive at the conclusion that it was possible to uphold the 100 million gallon standard in 2010 based on anticipated production."[15]

In the final rule, EPA does not state whether or not the agency believes there will be sufficient capacity to meet the cellulosic mandates in coming years (250 million gallons in 2011, 500 million gallons in 2012, and 1 billion gallons in 2013), although EPA states that "it is remarkable how much progress the industry has made in such a short time, and there is a tremendous growth opportunity for cellulosic biofuels over the next several years."[16] If EPA finds that mandates in later years likewise are unachievable, and if investors assume that future waivers are unavoidable, investment in cellulosic biofuel refineries may be limited.

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[14] In addition to the RFS mandate, biofuels are also subject to tax incentives for their production and use. Most significantly, fuel providers who blend ethanol into gasoline receive a tax credit of 45 cents for every gallon of ethanol they blend. In addition, small ethanol producers receive a tax credit of 10 cents per gallon on the first 15 million gallons they produce in a give year. Cellulosic biofuel producers may claim a credit of $1.01 per gallon (for cellulosic ethanol producers, this credit is reduced to 46 cents per gallon to offset the ethanol blender and small ethanol producer credits). Through the end of 2009, biodiesel and renewable diesel producers received a tax credit of up to $1.00 per gallon of fuel they produce. For more information, see CRS Report R40110, *Biofuels Incentives: A Summary of Federal Programs*, by Brent D. Yacobucci.

[15] U.S. Environmental Protection Agency, *Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program; Final Rule*, EPA-HQ-OAR-2005-0161, Washington, DC, February 3, 2010, p. 173, http://www.epa.gov/otaq/renewablefuels/rfs2-preamble.pdf.

[16] Ibid. p. 178.