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The Top Percent: Revising the Renewable Fuel Standard Program to Include Percentage-Based Volumes

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The Top Percent: Revising the Renewable Fuel Standard Program to Include Percentage-Based Volumes

*Scott Dorman**

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INTRODUCTION

The Renewable Fuels Standard (RFS) program was a valiant attempt at protecting national security and preserving the environment. While the program's enactment brought progress on both fronts, it also brought some unintended consequences. This Comment discusses some of those consequences and proposes a legislative solution to transform a flawed regulatory scheme into one that will work effectively to meet its original policy goals.

Congress first created the RFS program under the Energy Policy Act of 2005 (EPAAct) and further expanded the RFS program through the Energy Independence and Security Act of 2007 (EISA).¹ The RFS program was designed “[t]o move the United States toward greater energy independence and security” and “to increase the production of clean renewable fuels.”² The RFS program seeks to accomplish these goals by mandating a gradual phase-in of four different categories of renewable fuel

1. Energy Policy Act of 2005, Pub. L. No. 109-58; Energy Independence and Security Act of 2007, Pub. L. No. 110-140 (codified at 42 U.S.C. § 7545(o) (2009)).

2. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, pmb., 121 Stat. 1492; *see also* §§ 201–210 of the Energy Independence and Security Act of 2007 (amending the Program); Energy Policy Act of 2005, Pub. L. No. 109-58, § 1501, 119 Stat. 594, 1067-76 (enacting the Program).

into the United States' transportation fuel supply:³ (1) total renewable fuel; (2) advanced biofuel; (3) cellulosic biofuel; and (4) biomass-based diesel.⁴

The broadest category, "total renewable fuel," is defined as "fuel that is produced from renewable biomass and that is used to replace or reduce the quantity of fossil fuel present in a transportation fuel."⁵ This category includes renewable biomass produced from agricultural crops and crop residues,⁶ including corn and corn residue.⁷ "Advanced biofuel[s]" are defined as any "renewable fuel, other than ethanol derived from corn starch, that has lifecycle greenhouse gas emissions . . . at least 50 percent less than . . . the average lifecycle greenhouse gas emissions . . . for gasoline or diesel" as of 2005.⁸ The last two categories are subsets of advanced biofuels.⁹ "Cellulosic biofuel" is defined under the statute as "renewable fuel derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass and that has lifecycle greenhouse gas emissions . . . that are at least 60 percent less than the baseline lifecycle greenhouse gas emissions."¹⁰ Lastly, biomass-based diesel is a renewable alternative for standard diesel.¹¹

The RFS program mandates that U.S. fuel production include certain minimum amounts of each category of renewable fuel each year.¹² These amounts are expressed in terms of billions of gallons.¹³ Mandating fuel amounts in terms of absolute volumes distinguishes the RFS program from other compulsory demand statutory regimes.¹⁴ For example, laws that require certain levels of renewable electricity are generally based on a percentage of the total electricity sold.¹⁵ However, these amounts or "applicable volumes," as they are referred to in the statute, are not always

3. See 42 U.S.C. § 7545(o)(2)(B).

4. *Id.* § 7545(o)(2)(A)(i).

5. *Id.* § 7545(o)(1)(J). All of these categories are defined to give the reader a more complete understanding of the RFS program. The arguments set forth in this Comment would apply to any of the categories.

6. *Id.* § 7545(o)(1)(I)(i).

7. John J. Perona, *Biodiesel for the 21st Century Renewable Energy Economy*, 38 ENERGY L.J. 165, 190 (2017).

8. 42 U.S.C. § 7545(o)(1)(B)(i), (C).

9. See *Am. Fuel & Petrochemical Mfrs. v. EPA*, 937 F.3d 559, 569 (D.C. Cir. 2019); *Valero Energy Corp. v. EPA*, 140 S. Ct. 2792 (2020).

10. 42 U.S.C. § 7545(o)(1)(E).

11. *Id.* §§ 7545(o)(1)(D), 13220(f).

12. See *id.* § 7545(o)(2)(B).

13. See *id.*

14. See Christopher M. Holman, *The Renewable Fuel Standard Reimagined: Clearing A Path for Truly Advanced Biofuels*, 86 UMKC L. REV. 805, 818 (2018).

15. *Id.*

absolute—they are subject to three discretionary waivers.¹⁶ Two waivers concern cellulosic biofuel,¹⁷ while a broader, general waiver deals with renewable fuel as a whole.¹⁸ The general waiver provision allows the Environmental Protection Agency (EPA) to reduce the applicable volume of required renewable fuel if: (1) “implementation of the requirement would severely harm the economy . . . of a State, a region, or the United States,” (2) “implementation of the requirement would severely harm the . . . environment of a State, a region, or the United States,” or (3) “there is an inadequate domestic supply.”¹⁹ Notably, the RFS program also includes certain exemptions for “small refiner[ies],”²⁰ which the statute defines as a refinery that produces less than 75,000 barrels per day.²¹ The RFS program allows small refineries to petition the EPA to extend its exemption under 42 U.S.C. § 7545(o)(7)(A) “for the reason of disproportionate economic hardship.”²²

To enforce these statutory volumes, the EPA must convert the applicable volumes into individual compliance obligations.²³ This is done by dividing the yearly mandate by the projected gasoline usage to determine the “percentage standards,” which inform “each obligated party of how much renewable fuel it must introduce into U.S. commerce based on the volumes of fossil-based gasoline or diesel it imports or produces.”²⁴ An “obligated party” under the RFS program is defined as any refiner or importer of gasoline or diesel located in any state other than Alaska.²⁵ For example, if the total projected volume of transportation fuel to be used in the United States in 2022 is 100 billion gallons, and the required volume of renewable fuel for that year is 10 billion gallons (10% of the projected volume of transportation fuel), then 10% of the total volume that an

16. See 42 U.S.C. § 7545(o)(2)(B).

17. *Id.* § 7545(o)(7)(D)(i).

18. *Id.* § 7545(o)(7)(A)(i).

19. *Id.*; *Id.* § 7545(o)(7)(A)(ii).

20. *Id.* § 7545(o)(9)(B).

21. *Id.* § 7545(o)(1)(K).

22. *Id.* § 7545(o)(9)(B)(i); for a more in-depth discussion of the small refinery exception, see *infra* Part I.B.3; see also *HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass’n*, 141 S. Ct. 2172 (2021) (discussing small refinery exemptions).

23. 42 U.S.C. § 7545(o)(3)(B)(ii)(II).

24. *Am. Fuel & Petrochemical Mfrs. v. EPA*, 937 F.3d 559, 571 (D.C. Cir. 2019); *Valero Energy Corp. v. EPA*, 140 S. Ct. 2792 (2020) (quoting *Ams. for Clean Energy v. EPA*, 864 F.3d 691, 699 (D.C. Cir. 2017)); see also 40 C.F.R. § 80.1405(c) (2021) (setting out the percentage-standard formula); 42 U.S.C. § 7545(o)(3)(B).

25. 40 C.F.R. § 80.1406(a)(1) (2021).

obligated party introduces into the United States market must be renewable fuel.²⁶

The statute's absolute volume requirements create significant problems for the implementation of the program. These problems include: (1) no established mechanism to adequately account for renewable fuel left unproduced due to small refinery waivers and the subsequent impact on other obligated parties; (2) confusion amongst obligated parties due to the EPA's failure to provide percentage standards by the statutory deadline and the EPA's continued modification of the statutory volumes; and (3) potential conflicts with the E10 blendwall.²⁷ Because this is a federal statute, its impact is felt throughout the country. However, its impact is especially felt in Louisiana, given the high number of oil refineries in the state. Currently, there are 130 operable oil refineries in the United States, 15 of which are located in Louisiana.²⁸ This Comment addresses how best to resolve these issues and how to realign the RFS with the initial policy goals behind its enactment.

The RFS program is a valuable statutory regime that has the potential to introduce more renewable fuel sources into the nation's fuel supply and help protect the environment. However, economic and technological problems are inhibiting the program from achieving its full potential.²⁹ This Comment addresses how best to revise the RFS program so it can be more effective in moving the economy forward and protecting the environment. Additionally, this Comment addresses why the absolute volume requirements of the statute contravene logic and the intended purpose of the statute.

Revising the program to mandate minimum percentage values of yearly transportation fuel used instead of absolute volumes would remedy the above-mentioned problems. For example, if the statute required 10% of all transportation fuel to be renewable fuel, instead of requiring 36

26. This example is a simplified version of the actual calculations the EPA must undertake. Holman, *supra* note 14, at 816 ("In practice the calculation is a bit more complex, but this simplified example suffices for the purpose of the present discussion."); for an examination of the actual calculations the EPA must undertake, see 40 C.F.R. § 80.1405 (2021).

27. E10 refers to a fuel mixture of 10% ethanol and 90% gasoline. "Blendwall" refers to the maximum amount of ethanol that can be sold in E10 gasoline. Further explanation of the E10 blendwall will be provided *infra*.

28. *Number and Capacity of Petroleum Refineries*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm [<https://perm.a.cc/HH6N-3M8Y>] (last visited Oct. 4, 2022).

29. John Turney & Patrick Maloney, *Air Quality*, 50 TEX. ENVTL. L. J. 199, 200 (2020).

billion gallons, the EPA would not need to adjust volume requirements to offset small refinery exemptions.³⁰ Regardless of what obligated parties were exempt from the RFS program, all other obligated parties would be required to include 10% renewable fuel in the fuel it introduces into the market. This would ensure the statutory requirements are actually met—which rarely happens under the current regime.³¹

Similarly, it would be much more feasible for the EPA to promulgate annual percentage standards in a timely manner.³² A shift to a pure percentage standard would eliminate the EPA's current burdensome process of converting the absolute volume criteria into percentage standards. Consequently, obligated parties would receive proper notice of their obligations. Moreover, minimum percentage values coincide more with the RFS program's legislative purpose compared to the current fixed volume criteria. Under the current regime, if more fuel is used in the U.S. than anticipated by the government in a given year, the required percentage of renewable fuel sold by obligated parties is lower, which releases more carbon dioxide into the atmosphere.³³ Thus, introducing more carbon dioxide into the atmosphere reduces the relative burden on obligated parties to incorporate renewable fuel, contravening the RFS program's intended purpose.³⁴ Conversely, if the U.S. uses less transportation fuel than projected, obligated parties are levied with a more significant obligation.³⁵ This seems entirely contrary to the idea of increasing "the production of clean renewable fuels," which is at the heart of the RFS program.³⁶ Instead, it seems to create the wrong incentive to oil refiners.³⁷

One of the current manufacturing difficulties encountered when mixing renewable fuels into conventional gasoline is the "E10 blendwall,"

30. 42 U.S.C. § 7545(o)(2)(B)(i)(I). 36 billion gallons is the 2022 renewable fuel volume requirement.

31. See Steve Hanson & Sean Hill, *Today in Energy: EPA Finalizes Renewable Fuel Standards for 2019, Reflecting Cellulosic Biofuel Shortfalls*, U.S. ENERGY INFO. ADMIN. (Dec. 6, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=37712> [<https://perma.cc/BA76-3YWC>] (discussing EPA setting volumes well below statutory required volume); see also Renewable Fuel Standard Program, 80 Fed. Reg. 77420 (Dec. 14, 2015) (showing EPA's decision to lower total renewable fuel volumes for 2014, 2015, and 2016).

32. See Holman, *supra* note 14, at 844.

33. *Id.*

34. *Id.*

35. *Id.*

36. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, pmb., 121 Stat. 1492.

37. *Id.*

in which ethanol concentrations higher than 10% of the total volume of fuel create manufacturing, storage, and engine problems. Changing to a percentage-based model will prevent any E10 blendwall issues from arising. By basing the required volumes on percentages, the program can ensure that the blendwall will not be surpassed. If the statutory percentage volumes remain under the E10 blendwall, it will be impossible for the blendwall to be breached.

Part I of this Comment provides background information necessary to evaluate the problems of and proposed solutions for the RFS program. Part I begins by examining a brief history of renewable fuel programs in the United States. It then explores the motivations behind the legislation, with an in-depth examination of the relevant statutory provisions that created the RFS program. Part I also examines the RFS program's operation and enforcement.

Part II of this Comment examines various problems with the current statutory scheme, including small refinery exemptions, failure to meet statutory deadlines, and blendwall issues. Part II dives into the root causes of the current problems with the RFS program and concludes with an examination of current consequences and deficiencies that the RFS program imposes on obligated parties and other stakeholders.

Part III of this Comment proposes a legislative cure to the RFS program's current issues. Specifically, Part III suggests that Congress should amend the RFS program, basing it on minimum percentage values of yearly transportation fuel used instead of the absolute volumes used under the current regime. Part III further explains how this solution combats the current problems associated with the RFS program.

Finally, this Comment concludes that amending the RFS program to be based on minimum percentage values of yearly transportation fuel used instead of absolute volumes remedies many of the current problems ailing the program and strikes a balance between the public policy goals and views of the various stakeholders.

I. BACKGROUND

To evaluate how best to revise the RFS, it is important to understand how and why it was enacted in the first place. It is also necessary to understand how the statute operates and how it is enforced. This section begins by reviewing the history of renewable fuel programs in the United States to provide an understanding of how U.S. renewable fuel programs have developed and how the current RFS program came into existence.

A. History of Renewable Fuel Programs in the United States

Legislation in the United States encouraging renewable fuel sources is not a new phenomenon. Renewable fuel sources, particularly ethanol, have been promoted legislatively since the end of the nineteenth century.³⁸ Promulgation of laws promoting ethanol was mostly a result of war or other emergencies.³⁹ For example, after fuel supplies were interrupted by enemy forces during World War II, the United States began relying on ethanol production.⁴⁰ However, after the war, the United States reverted back to relying on petroleum for its fuel needs.⁴¹

In the 1970s, the United States began experiencing mass gasoline shortages caused by, *inter alia*, the Arab oil embargo.⁴² In response, policymakers promoted renewable energy production.⁴³ One such encouragement was The National Energy Act of 1978, which granted certain tax exemptions on ethanol-blended gasoline.⁴⁴ Other efforts to increase ethanol production followed.⁴⁵

Environmental concerns also contributed to the development of ethanol and other renewable fuel sources.⁴⁶ In an effort to reduce air pollution, Congress passed certain amendments to the Clean Air Act in 1990.⁴⁷ The 1990 Clean Air Act Amendments created the Oxygenated Fuels Program and the Reformulated Gasoline Program to combat problems associated with carbon monoxide and ozone depletion in urban areas around the United States.⁴⁸ These programs required that oxygenates

38. Kaylan Lytle, *Driving the Market: The Effects on the United States Ethanol Industry if the Foreign Ethanol Tariff Is Lifted*, 28 ENERGY L. J. 693, 698 (2007).

39. *Id.*; James A. Duffield et al., *Ethanol Policy: Past, Present, and Future*, 53 S.D. L. REV. 425, 427 (2008).

40. *Id.*

41. *Id.*

42. *Id.*

43. *Id.* at 428.

44. Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174.

45. See Energy Security Act of 1980, Pub. L. No. 96-294, 94 Stat. 611; see also Crude Oil Windfall Profit Tax Act of 1980, Pub. L. No. 96-223, 94 Stat. 229; see also Alternative Motor Fuels Act of 1988, Pub. L. No. 100-494, 102 Stat. 2441.

46. Duffield et al., *supra* note 39, at 430.

47. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (codified as amended at 42 U.S.C. § 7401-7642 (2000)).

48. 42 U.S.C. § 7545(m) (1994); Regulation of Fuels and Fuel Additives: Standards for Reformulated Gasoline, 56 Fed. Reg. 31176, 31218 (July 9, 1991); Duffield et al., *supra* note 39, at 431.

constitute 2% of finished gasoline.⁴⁹ When it is combined with gasoline, ethanol acts as an oxygenate.⁵⁰ Consequently, ethanol use increased substantially following the 1990 amendments to the Clean Air Act.⁵¹

After the terrorist attacks of September 11, 2001, the United States began facing the same uncertainty around energy supplies and national security concerns experienced during the energy crises of the 1970s.⁵² These concerns drove the enactment of the Energy Policy Act of 2005, which created the RFS program.⁵³

B. In Depth Examination of the RFS Program

Congress first enacted the RFS program under the EPAct and further expanded the program through the EISA.⁵⁴ Its promulgation aimed at increasing U.S. energy security, reducing greenhouse gas emissions, and counteracting steep oil prices by developing the country's renewable fuel sector.⁵⁵

49. Oxygenates are compounds that deliver oxygen to gasoline. U.S. GOV'T ACCOUNTABILITY OFF., GAO/RCED-96-121, MOTOR FUELS: ISSUES RELATED TO REFORMULATED GASOLINE, OXYGENATED, FUELS, AND BIOFUELS 3 (1996).

50. Jeff Broin et al., *Legal Issues Involving Ethanol Production in South Dakota*, 53 S.D. L. REV. 454, 483 (2008).

51. *Id.*

52. Duffield et al., *supra* note 39, at 432.

53. *See id.* at 435.

54. Energy Policy Act of 2005, Pub. L. No. 109-58; Energy Independence and Security Act of 2007, Pub. L. No. 110-140 (codified at 42 U.S.C. § 7545(o) (2009)).

55. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, § 801 (amending 42 U.S.C. § 17281):

The production of transportation fuels from renewable energy would help the United States meet rapidly growing domestic and global energy demands, reduce the dependence of the United States on energy imported from volatile regions of the world that are politically unstable, stabilize the cost and availability of energy, and safeguard the economy and security of the United States.

See also Koutney Lanea Kech, *Supply and Demand, One and the Same Since When: The EPA's Failed Attempt to Find a Loophole in the Renewable Fuel Standard*, 5 LSU J. ENERGY L. & RESOURCES 397, 403 (2017); *see also* James W. Coleman, *How Cheap Is Corporate Talk? Comparing Companies' Comments on Regulations with Their Securities Disclosures*, 40 HARV. ENVTL. L. REV. 47, 57 (2016).

1. Compliance Obligations

Instead of mandating transportation fuel to contain a certain percentage of renewable fuel, the RFS program took the unusual approach of mandating a minimum volume of renewable fuel to be sold in the U.S. each year.⁵⁶ The renewable fuel categories covered by the RFS program are: (1) total renewable fuel; (2) advanced biofuel; (3) cellulosic biofuel; and (4) biomass-based diesel.⁵⁷ The statute expresses these minimum volumes in terms of billions of gallons.⁵⁸ The statute tasks the EPA with enforcing these minimum volumes.⁵⁹ The EPA must allocate the statutory volumes into individualized volumes for each obligated party⁶⁰ and publish obligated parties' obligations under the statute in the Federal Register by November 30th of each year.⁶¹ An "obligated party" under the RFS program is any refiner or importer of gasoline or diesel located in any state other than Alaska.⁶² Blenders of gasoline or diesel are not included under this definition.⁶³ These yearly standards are published by the EPA as a volume percentage, which is then used by obligated parties to determine their individual renewable volume obligations (RVOs).⁶⁴ An RVO is the obligated party's total gasoline and diesel sales multiplied by the annual renewable fuel percentage standards published by the EPA.⁶⁵

These calculations are very burdensome for the EPA.⁶⁶ First, projections for nationwide gasoline and diesel consumption for the upcoming year must be determined.⁶⁷ The RVOs are then based on these

56. See 42 U.S.C. § 7545(o)(2)(B); see also Coleman, *supra* note 55, at 58; see also James W. Coleman, *Policymaking By Proposal: How Agencies Are Transforming Industry Investment Long Before Rules Can Be Tested In Court*, 24 GEO. MASON L. REV. 497, 505 (2017).

57. 42 U.S.C. § 7545(o)(2)(A)(i).

58. See *id.* § 7545(o)(2)(B).

59. *Id.* § 7545(o)(3)(B)(ii)(II).

60. *Id.* § 7545(o)(3)(B); 40 C.F.R. § 80.1407(a) (2021).

61. 42 U.S.C. § 7545(o)(3)(B)(i).

62. 40 C.F.R. § 80.1406(a)(1) (2021).

63. *Id.*

64. DAVID R. WOOLEY & ELIZABETH M. MORSS, CLEAN AIR ACT HANDBOOK § 5:64 (2021).

65. KELSIE BRACMORT, CONG. RSCH. SERV., R43325, THE RENEWABLE FUEL STANDARD (RFS): AN OVERVIEW 4 (2020).

66. Holman, *supra* note 14, at 834.

67. Wooley & Morss, *supra* note 64.

projections.⁶⁸ The percentages are set so that if the projected transportation fuel use is accurate and each obligated party meets their respective RVO, then the statutorily required volumes are met nationwide.⁶⁹

Compliance is regulated using a tradable credit system.⁷⁰ These credits, called renewable identification numbers (RINs), are submitted to the EPA by obligated parties for each gallon of fuel they introduce into the fuel supply.⁷¹ Obligated parties use their RVOs to determine how many RINs they must submit to comply with the RFS mandate.⁷² Each RIN represents a certain quantity of renewable fuel blended into the final fuel product.⁷³ An obligated party that blends renewables may either use the credits it has earned to satisfy its RVO or sell those RINs to a different obligated party that needs them.⁷⁴ Thus, an obligated party may comply with the RFS mandates through its own blending efforts, purchasing credits from another obligated party, or both.⁷⁵

It is also important to note that different categories of biofuel are treated differently under the RFS program, with some categories overlapping.⁷⁶ Thus, some fuels may qualify for multiple categories under the program, while others may satisfy only one.⁷⁷ For example, a cellulosic biofuel may be used to meet the volume requirements for the cellulosic biofuel category, advanced biofuel category, or the total renewable fuel category.⁷⁸ Moreover, some biofuels generate more RINs due to their varying energy content.⁷⁹

68. For a simplified example of this process, *see* discussion *supra* Introduction; for an examination of the actual calculations the EPA must undertake, *see* 40 C.F.R. § 80.1405 (2021).

69. WOOLEY & MORSS, *supra* note 64; for a simplified example of this calculation, *see* discussion *supra* Introduction; *see also* Holman, *supra* note 14, at 816.

70. 42 U.S.C. § 7545(o)(5); *see also* BRACMORT, *supra* note 65.

71. BRACMORT, *supra* note 65; for an explanation of how RINs are generated, *see* 40 C.F.R. § 80.1425 (2021).

72. *Id.*

73. 42 U.S.C. § 7545(o)(5)(A)(i); 40 C.F.R. §§ 80.1415, 80.1429 (2022); HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172, 2175 (2021).

74. 42 U.S.C. § 7545(o)(5)(B); 40 CFR §§ 80.1425–80.1427; HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172, 2175 (2021).

75. HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172, 2175 (2021).

76. BRACMORT, *supra* note 65.

77. *Id.*

78. *Id.* at 5.

79. *Id.* at 4.

2. Waivers Under the RFS Program

The required applicable volumes under the RFS program are not absolute. In fact, the volumes dictated by the statute are rarely met.⁸⁰ For example, the EPA reduced the 2020 applicable statutory volumes for all renewable fuel categories under the statute, except for biomass-based diesel, as illustrated in Table 1 below.

Table 1: Final Volume Requirements*⁸¹

	2019	2020 Statutory Volumes	2020 Proposed Volumes	2020 Final Volumes	2021 Final Volumes
Cellulosic biofuel (billion gallons)	0.42	10.50	0.54	0.59	n/a
Biomass- based diesel (billion gallons)	2.1	≥1.0	n/a	2.43	2.43
Advanced biofuel (billion gallons)	4.92	5.00	5.04	5.09	n/a
Renewable fuel (billion gallons)	19.92	30.00	20.04	20.09	n/a

80. See, e.g., Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, 80 Fed. Reg. 77420 (Dec. 14, 2015) (discussing the EPA's lowering of the statutory volumes for three of the four categories of renewable fuel under the RFS program); see also Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016 (Feb. 6, 2020) (discussing again the EPA's reduction of three of the four renewable fuel categories).

81. *Final Renewable Fuel Standards for 2020 and Biomass-Based Diesel Volume for 2021*, EPA, <https://www.epa.gov/renewable-fuel-standard-program/final-renewable-fuel-standards-2020-and-biomass-based-diesel-volume#rule-summary> [<https://perma.cc/9FZX-85YX>] (last updated Mar. 3, 2022); see also Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016-01 (Feb. 6, 2020).

The possibility of not meeting statutory requirements arises because the statute grants the EPA discretion to waive certain volume requirements. Under certain circumstances, these discretionary waivers allow the EPA to set volume requirements lower than those facially mandated by the RFS program.⁸² The RFS program allows three different waivers. First, a broad general waiver permits the EPA to waive any of the renewable fuel categories under certain listed circumstances.⁸³ Next, there is a specific waiver concerning cellulosic biofuel.⁸⁴ Lastly, another specific waiver addresses biomass-based diesel.⁸⁵

a. General Waiver Authority

The general waiver provision affords the EPA discretionary power to waive fuel-blending obligations.⁸⁶ This waiver allows the EPA to administer partial or full waivers if petitioned by “one or more states, by any person subject to the requirements of [the RFS program], or by the Administrator on his own motion.”⁸⁷ The EPA may reduce the applicable volume of required renewable fuel if: (1) “implementation of the requirement would severely harm the economy . . . of a State, a region, or the United States”;⁸⁸ (2) “implementation of the requirement would severely harm the . . . environment of a State, a region, or the United States”;⁸⁹ or (3) “there is an inadequate domestic supply.”⁹⁰ In 2015, the EPA invoked this general waiver provision for the first and only time to reduce the statutory applicable volumes of total renewable fuel, based on a finding of “inadequate domestic supply.”⁹¹ The EPA published its final rule on December 14, 2015, two weeks after the November 30th statutory deadline.⁹² A group of consolidated petitioners challenged the EPA’s rule.⁹³ Then, Circuit Judge Brett Kavanaugh held that the EPA exceeded

82. These waivers are set forth in 42 U.S.C. § 7545(o)(7).

83. *Id.* § 7545(o)(7)(A)(i).

84. *Id.* § 7545(o)(7)(D)(i).

85. *Id.* § 7545(o)(7)(E)(ii).

86. *See id.* § 7545(o)(7)(A).

87. *Id.* § 7545(o)(7)(A).

88. *Id.* § 7545(o)(7)(A)(i).

89. *Id.*

90. *Id.* § 7545(o)(7)(A)(ii).

91. *See* Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, 80 Fed. Reg. 77420 (Dec. 14, 2015).

92. *See id.*; *see also* *Ams. for Clean Energy v. EPA*, 864 F.3d 691 (D.C. Cir. 2017).

93. *See Ams. for Clean Energy*, 864 F.3d 691.

its statutory authority in promulgating the 2015 rule regarding the RFS program.⁹⁴ The court found the EPA erred, *inter alia*, in conflating the RFS's language of "inadequate domestic supply" with factors affecting the demand of renewable fuel.⁹⁵ The court concluded that the EPA may consider "only supply-side factors" relating to the supply of renewable fuels and not "demand side factors" relating to the demand for renewable fuel.⁹⁶ Since this decision, the EPA has not used the general waiver.

b. Cellulosic Waiver Authority

Since *Americans for Clean Energy*, the EPA has relied on its cellulosic waiver authority, instead of its general waiver authority, to reduce RFS statutory applicable volumes.⁹⁷ Cellulosic biofuel was added to the RFS program in 2007.⁹⁸ The RFS program defines cellulosic biofuel as "renewable fuel derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass and that has lifecycle greenhouse gas emissions . . . that are at least 60 percent less than the baseline lifecycle greenhouse gas emissions."⁹⁹ This requirement makes cellulosic biofuel the "greenest" type of renewable fuel under the RFS.¹⁰⁰ The cellulosic

94. *Id.* at 707.

95. *Id.* at 709.

96. *Id.* at 710.

97. See Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7020 (Feb. 6, 2020):

EPA has used the cellulosic waiver authority to lower the advanced biofuel and total renewable fuel volumes every year since 2014 as a result of waiving the cellulosic volumes. Further discussion of the cellulosic waiver authority, and EPA's interpretation of it, can be found in the preamble to the 2017 final rule. In this action we are using the cellulosic waiver authority to reduce the statutory volume targets for advanced biofuel and total renewable fuel by equal amounts, consistent with our long-held interpretation of this provision and our approach in setting the 2014-2019 standards.

(footnote omitted).

98. *Ams. for Clean Energy*, 864 F.3d at 723.

99. 42 U.S.C. § 7545(o)(1)(E).

100. *Ams. for Clean Energy*, 864 F.3d at 723; see also 42 U.S.C. § 7545(o)(1)(C): ("The term 'baseline lifecycle greenhouse gas emissions' means the average lifecycle greenhouse gas emissions, as determined by the Administrator . . . for gasoline or diesel (whichever is being replaced by the renewable fuel)."); compare 42 U.S.C. § 7545(o)(1)(E), with 42 U.S.C. § 7545(o)(1)(B)(ii), and 42 U.S.C. § 7545(o)(1)(D).

biofuel waiver authority, in a sense, is not discretionary like the general waiver above. The cellulosic biofuel waiver provides that when the applicable volume of cellulosic biofuel exceeds projected production, the EPA administrator “*shall* reduce the applicable volume of cellulosic biofuel . . . to the projected volume available during that calendar year.”¹⁰¹ Congress’ usage of “*shall*” reflects the lack of discretion given to the EPA administrator under the cellulosic waiver of § 7545(o)(7)(D)(i). The EPA has used this provision to reduce the statutory volume of cellulosic biofuel every year since 2010.¹⁰²

However, this cellulosic waiver also has a discretionary component. In any year the EPA administrator reduces the applicable volume of cellulosic biofuel, the EPA administrator “*may* also reduce the applicable volume of [total] renewable fuel and advanced biofuels requirement established under [the RFS program] by the same or a lesser volume.”¹⁰³ The inclusion of “*may*” underscores the discretion granted to the EPA in this regard. As discussed above, this is the provision the EPA uses to implement the reductions of total renewable fuel and advanced biofuel categories.¹⁰⁴ Interestingly, the *Americans for Clean Energy* court held that the EPA has the authority under the cellulosic biofuel waiver to consider both supply-side and demand-side factors when assessing what volumes of advanced biofuels are “reasonably attainable.”¹⁰⁵ As discussed earlier, this type of inquiry is outside the EPA’s statutory authority when it is acting under the general waiver provision.¹⁰⁶

c. Biomass-based Diesel Waiver

Biomass-based diesel is defined as “renewable fuel that is biodiesel as defined in [42 U.S.C. 13220(f)] and that has lifecycle greenhouse gas emissions . . . that are at least 50 percent less than the baseline lifecycle greenhouse gas emissions.”¹⁰⁷ Thus, it is “a nested subset of advanced and

101. 42 U.S.C. § 7545(o)(7)(D)(i) (emphasis added).

102. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016-01, 7020 (Feb. 6, 2020).

103. 42 U.S.C. § 7545(o)(7)(D)(i) (emphasis added).

104. See Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7020 (Feb. 6, 2020).

105. *Ams. for Clean Energy*, 864 F.3d at 735–37.

106. See *supra* Part I.B.3.a.

107. 42 U.S.C. § 7545(o)(1)(D).

total renewable fuels.”¹⁰⁸ So, any “‘excess’ [biomass-based diesel] produced beyond the mandated [biomass-based diesel] volume can be used to satisfy both [advanced biofuel and total renewable fuel] applicable volume requirements.”¹⁰⁹ Unlike the other categories of renewable fuel covered by the RFS program, biomass-based diesel applicable volume targets are only specified in the statute through 2012.¹¹⁰ Instead, the statute tasks the EPA with determining the biomass-based diesel applicable volumes after 2012.¹¹¹ The statute provides a set of factors that should be considered when making this determination.¹¹²

The biomass-based diesel waiver provision is very similar to the cellulosic waiver previously discussed.¹¹³ However, the EPA has never

108. *Alon Ref. Krotz Springs, Inc. v. EPA*, 936 F.3d 628, 665 (D.C. Cir. 2019); *Valero Energy Corp. v. EPA*, 140 S. Ct. 2792 (2020); *see also* 42 U.S.C. § 7545(o)(1)(B), (D); 42 U.S.C. § 13220(f).

109. Renewable Fuel Standard Program: Standards for 2014, 2015, and 2016 and Biomass-Based Diesel Volume for 2017, 80 Fed. Reg. 77420, 77489 (Dec. 14, 2015).

110. *See* 42 U.S.C. § 7545(o)(2)(B)(i)(IV) (listing no applicable volumes after 2012).

111. *Id.* § 7545(o)(2)(B)(ii)

[T]he applicable volumes of each fuel specified in the tables in clause (i) for calendar years after the calendar years specified in the tables shall be determined by the [EPA] Administrator, in coordination with the Secretary of Energy and the Secretary of Agriculture, based on a review of the implementation of the program during calendar years specified in the tables[.]

112. *See id.* § 7545(o)(2)(B)(ii)(I)–(VI); for an in depth examination of the factors and how the EPA can apply them, *see Alon Ref. Krotz Springs, Inc.*, 936 F.3d at 664–68, *Valero Energy Corp.*, 140 S. Ct. 2792 (upholding an EPA rule setting the 2018 biomass-based diesel applicable volumes at 2.1 billion gallons against a challenge by a biomass-based diesel industry trade association).

113. 42 U.S.C. § 7545(o)(7)(E)(ii):

If the Administrator determines that there is a significant renewable feedstock disruption or other market circumstances that would make the price of biomass-based diesel fuel increase significantly, the Administrator . . . shall issue an order to reduce, for up to a 60-day period, the quantity of biomass-based diesel required under subparagraph (A) by an appropriate quantity that does not exceed 15 percent of the applicable annual requirement for biomass-based diesel. For any calendar year in which the Administrator makes a reduction under this subparagraph, the Administrator may also reduce the applicable volume of renewable fuel and advanced biofuels requirement established under paragraph (2)(B) by the same or a lesser volume.

used this waiver.¹¹⁴ This is likely for two reasons. First, the circumstances required by the statute for this waiver provision to apply likely happens less frequently than those set forth in the cellulosic waiver. Every year since 2014, cellulosic biofuel statutory applicable volumes have outpaced the projected production of cellulosic biofuel.¹¹⁵ Thus, the authority under that waiver has been triggered each year. On the other hand, the requirements under the biomass-based diesel waiver require a “significant renewable feedstock disruption or other market circumstances that would make the price of biomass-based diesel fuel increase significantly,” which is likely harder to meet.¹¹⁶ Second, these volumes are not set forth by Congress. The EPA determines the applicable biomass-based diesel volumes. Since the EPA sets the applicable volumes, it makes sense that there would rarely be a time that the volumes need to be waived. The EPA is able to make more informed decisions in 2020 about what the applicable volume of biomass-based diesel requirements should be in 2021, than Congress when it enacted the original volumes in 2007.

3. *Small Refinery Exemptions*

Congress exempted all small refineries from the RFS program obligations “until [the] calendar year 2011.”¹¹⁷ A “small refinery” is defined under the statute as a refinery that processes less than 75,000 barrels of crude oil per day.¹¹⁸ For further exemptions, the RFS program permits small refineries to petition the EPA at any time to extend an earlier exemption “for the reason of disproportionate economic hardship.”¹¹⁹ This provision was recently examined by the United States Supreme Court.¹²⁰ The Court held that small refineries that previously received an economic hardship exemption from the renewable fuel program and allowed the

(emphasis added); *cf.* discussion of 42 U.S.C. § 7545(o)(7)(D)(i) at *supra* Part I.B.2.b.

114. KELSIE BRACMORT, CONG. RSCH. SERV., R4405, THE RENEWABLE FUEL STANDARD (RFS): WAIVER AUTHORITY AND MODIFICATION OF VOLUMES 5 (2020).

115. *See* Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7020 (Feb. 6, 2020).

116. 42 U.S.C. § 7545(o)(7)(E)(ii).

117. *Id.* § 7545(o)(9)(A)(i).

118. *Id.* § 7545(o)(1)(K).

119. *Id.* § 7545(o)(9)(B)(i).

120. *See* HollyFrontier Cheyenne Ref., LLC v. Renewable Fuels Ass'n, 141 S. Ct. 2172 (2021).

exemption to lapse may seek an extension of the exemption in a following year.¹²¹

Small refinery exemptions can impact annual RVOs. The extent of the impact depends on the amount of fuel exempted under small refinery exemptions and when those exemptions are granted.¹²² The EPA must publish applicable volumes by November 30th,¹²³ but small refineries may petition for an exemption “at any time.”¹²⁴ Previously, the EPA did not alter their percentage standards to account for exemptions granted after publication of the percentage standards.¹²⁵ The EPA adopted this interpretation in its 2011 final rule¹²⁶ and processed small refinery exemptions this way until 2019.¹²⁷ Then, in 2019, the EPA submitted a proposed rule change to alter its handling of small refinery exemptions.¹²⁸ Under the new rule, the EPA accounts for small refinery exemptions by “project[ing] the total exempted volume of gasoline and diesel produced at small refineries, including for those exemptions granted after the final annual rule.”¹²⁹ The EPA finalized the rule in its 2020 ruling and has used the new system ever since to calculate applicable percentage standards.¹³⁰

121. *Id.* at 2181.

122. KELSI BRACMORT, CONG. RSCH. SERV., R46244, THE RENEWABLE FUEL STANDARD (RFS): FREQUENTLY ASKED QUESTIONS ABOUT SMALL REFINERY EXEMPTIONS (SREs) 10 (2020).

123. 42 U.S.C. § 7545(o)(3)(B)(i).

124. *Id.* § 7545(o)(9)(B)(i).

125. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7049 (Feb. 6, 2020).

126. *See* Regulation of Fuels and Fuel Additives: 2011 Renewable Fuel Standards, 75 Fed. Reg. 76790-01, 76804 (Dec. 9, 2010).

127. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7049 (Feb. 6, 2020).

128. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021, and Response to the Remand of the 2016 Standards; Supplemental Notice of Proposed Rulemaking, 84 Fed. Reg. 57677 (Oct. 28, 2019).

129. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7049 (Feb. 6, 2020); *see also* 40 C.F.R. § 80.1405(c) (2021).

130. *See* Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7049 (Feb. 6, 2020).

C. Stakeholder Views

The RFS program is a point of contention amongst the various stakeholders it affects.¹³¹ To evaluate how best to revise the RFS program, it is necessary to assess the public policy rationale behind its enactment and the views of the various stakeholders. Doing so will provide a better understanding of the effects of the RFS program. This section evaluates the stakeholder viewpoints of: (1) proponents of the RFS program; (2) farm lobby/corn ethanol-related groups; (3) oil and gas groups; and (4) environmental groups. Later, this Comment addresses how the proposed legislative revision impacts each stakeholder.

1. Proponents of the RFS Program/Biofuel Groups

Proponents of the RFS program assert that it provides a host of public policy benefits. For example, RFS program supporters and biofuel groups argue that the program decreases the risk associated with the investment in renewable biofuels by guaranteeing a demand for biofuels.¹³² Without this guaranteed demand, investment capital being provided for biofuel development would be scarce.¹³³ Without the RFS program in place to guarantee a market for biofuel, few, if any, firms would invest the capital necessary to properly develop biofuels for sustainable, long term use.

These proponents also assert that the RFS program increases the energy security of the United States because it decreases the United States' reliance on imported fossil fuels.¹³⁴ The RFS program accomplishes this by introducing more renewable fuel sources into the transportation fuel supply. If the U.S. is more energy efficient, it can rely on less foreign fuel sources, thereby increasing energy independence and security.

Furthermore, proponents claim the RFS program is good public policy because it increases the demand for U.S. agricultural output.¹³⁵ This amplified output increases the income of farmers and rural communities and provides more rural employment opportunities.¹³⁶ Additionally, the

131. Timothy A. Slating & Jay P. Kesan, *The Renewable Fuel Standard 3.0?: Moving Forward with the Federal Biofuel Mandate*, 20 N.Y.U. ENVTL. L.J. 374, 440 (2014).

132. RANDY SCHNEPF & BRENT D. YACOBUCCI, CONG. RSCH. SERV., R40155, RENEWABLE FUEL STANDARD (RFS): OVERVIEW AND ISSUES 17 (2013).

133. *Id.*

134. *Id.*

135. *Id.*

136. John M. Urbanchuk, *Contribution of the Ethanol Industry to the Economy of the United States*, LECG (Feb. 12, 2010), <https://www.energy.gov/sites/prod/>

RFS program furthers public policy because it increases the use of renewable fuels over fossil fuels and promotes the use of cleaner renewable fuels such as biofuel, which provides various environmental benefits.¹³⁷

2. Farm Lobby/Corn Ethanol-Related Groups

The most prevalent liquid biofuel today is corn ethanol.¹³⁸ This is due in large part to it being a “first generation” biofuel.¹³⁹ As a “first generation” biofuel, ethanol-blended gasoline received tax exemptions.¹⁴⁰ Corn ethanol’s function as a required oxygenate also spurred its use.¹⁴¹

The RFS program is not an ethanol mandate, but the vast majority of its mandated volumes have been met with corn-based ethanol.¹⁴² Without these favorable subsidies, the United States corn ethanol industry would not produce near the amount of ethanol it produces today.¹⁴³ Moreover, the RFS program’s impact on the farm industry and rural economic development were two of the main policy justifications behind its enactment.¹⁴⁴ This is because feedstocks for biofuel production will likely be grown in rural areas, which spurs rural economic development.¹⁴⁵ Farm lobbies, such as the American Farm Bureau Federation, support the RFS program since the program’s incentivization of ethanol use supports the farm economy.¹⁴⁶

files/2014/05/f15/Contribution_of_the_Ethanol_Industry_to_the_Economy_of_the_United_States.pdf [https://perma.cc/G4FF-PQ86].

137. SCHNEPF & YACOBUCCI, *supra* note 132.

138. Perona, *supra* note 7, at 173.

139. *Id.*

140. *See supra* Part I.A. First generation biofuels are produced from biomass that is often used for food (i.e., corn, soy, and sugarcane). First generation biofuels are made through the chemical process of converting the food into liquid fuels.

141. *Id.*

142. KELSI BRACMORT, CONG. RSCH. SERV., R40445, INTERMEDIATE-LEVEL BLENDS OF ETHANOL IN GASOLINE, AND THE ETHANOL “BLEND WALL” 1 (2020).

143. Perona, *supra* note 7, at 173–74.

144. *See* 146 CONG. REC. at H1275 (2000) (statement of Rep. Greg Ganske) (stating that the RFS would create 13,000 new farm jobs by 2010).

145. Slating & Kesan, *supra* note 131, at 399.

146. *Comprehensive US Energy Policy*, FARM BUREAU, <https://www.fb.org/issues/energy/comprehensive-us-energy-policy/> [https://perma.cc/MH2R-4DV7] (last visited Oct. 5, 2022).

3. American Petroleum Institute & Other Oil and Gas Groups

Unsurprisingly, oil and gas groups are vocal critics of the RFS program. The RFS program inherently diminishes the market for fossil fuels and disrupts the interests of the oil and gas industry by incentivizing the development of renewable biofuels.¹⁴⁷ Introducing more renewable fuel into the fuel supply decreases the demand for conventional oil and gas. Thus, oil and gas groups generally suffer economic losses under the RFS program.

Oil and gas groups advance several critiques of the RFS program. These groups contend that the goals of the RFS program are impractical because of the E10 blendwall.¹⁴⁸ E10 refers to a fuel mixture of 10% ethanol and 90% gasoline. “Blendwall” refers to the maximum amount of ethanol that can be sold in E10 gasoline.¹⁴⁹ This critique will be explored further in a subsequent section.¹⁵⁰ Oil and gas groups further argue that using food inputs like corn as feedstocks for biofuel production is unwise.¹⁵¹ For example, using corn for biofuel production affects the price of corn, a key input for the food industry.¹⁵²

One leading oil and gas group is the American Petroleum Institute (API), a national trade association that “represents all aspects of America’s oil and gas industry.”¹⁵³ The API set forth various criticisms to the EPA’s proposed 2020 RFS rule, many of which criticized the EPA’s granting of small refinery exemptions.¹⁵⁴ According to the API, “obligated parties, including small refineries, generally are able to pass through RIN costs to consumers.”¹⁵⁵ Thus, the need for small refinery exemptions due to disproportionate economic hardship should be limited, and the EPA should grant fewer small refinery exemptions.¹⁵⁶ The API contends that

147. Slating & Kesan, *supra* note 131, at 443.

148. *Id.*

149. Bob Neufeld & Rebecca Lynne Fey, *Winners and Losers: The EPA's Unfair Implementation of Renewable Fuel Standards*, 60 S.D. L. REV. 258, 272 (2015).

150. *See infra* Part II.C.

151. Slating & Kesan, *supra* note 131, at 445.

152. *Id.* at 447.

153. Letter from Frank J. Macchiarola, Senior Vice President, Energy API, to Off. of Air & Radiation, EPA (Nov. 29, 2019) https://www.api.org/-/media/Files/News/Letters-Comments/2019/November_2019/API%20Comment%202020%20RFS%20Supplemental%20Notice%20EPA-HQ-OAR-2019-0136.pdf [<https://perma.cc/BRK5-YMLU>].

154. *See id.*

155. *Id.*

156. *Id.*

the EPA currently grants far too many small refinery exemptions.¹⁵⁷ Furthermore, the API opposes the EPA's new calculation for reallocating small refinery exemptions, describing it as arbitrary and capricious.¹⁵⁸ Outside of Congressional action, the API seeks regulatory actions for the RFS program that are "based on sound science; are achievable for regulated parties; are cost effective for the consumer; and, maintain a level playing field in the market."¹⁵⁹

4. Environmental Groups

Environmental groups have acted as both proponents and critics of the RFS program.¹⁶⁰ They generally support any use of renewable fuels over fossil fuels.¹⁶¹ However, these groups oppose the use of corn ethanol since corn production is generally not viewed as environmentally friendly.¹⁶² This is a concern because corn starch ethanol is currently being used to meet a majority of the RFS program requirements.¹⁶³

II. PROBLEMS WITH THE CURRENT STATUTORY SCHEME

A. Small Refinery Exemptions

Small refinery exemptions have caused significant problems for the RFS program. Previously, when the EPA calculated the yearly percentage standards, it only accounted for small refineries that already petitioned for and received a small refinery exemption.¹⁶⁴ The EPA offset these exemptions by requiring other obligated parties to produce proportionally more renewable fuel to counteract the exempted renewable fuel from small refineries.¹⁶⁵ This created problems because the EPA must publish the

157. *Id.*

158. *Id.*; see also *supra* Part I.B.3 (discussing EPA's new method of accounting for small refinery exemptions).

159. Letter from Frank J. Macchiarola, *supra* note 153.

160. Slating & Kesan, *supra* note 131, at 450.

161. *Id.*

162. *Id.*

163. BRACMORT, *supra* note 65, at 11.

164. See *Am. Fuel & Petrochemical Mfrs. v. EPA*, 937 F.3d 559, 571 (D.C. Cir. 2019); *Valero Energy Corp. v. EPA*, 140 S. Ct. 2792 (2020); see also *supra* Part I.B.3.

165. *Am. Fuel & Petrochemical Mfrs.*, 937 F.3d at 571; *Valero Energy Corp.*, 140 S. Ct. 2792 (citing Regulation of Fuels and Fuel Additives: 2011 Renewable Fuel Standards, 75 Fed. Reg. 76790, 76805 (Dec. 9, 2010)) ("explaining that

percentage obligations by November 30th of each year,¹⁶⁶ and small refineries may petition for an exemption “at any time,” which occurs frequently.¹⁶⁷ For example, in August 2019, the EPA granted 31 small refinery exemptions for the 2018 compliance year, months after the EPA published the 2018 percentage standards.¹⁶⁸ The EPA could not alter renewable fuel obligations to compensate for small refinery exemptions after the percentage standards were finalized for the year.¹⁶⁹ Because of this, exempted gallons of renewable fuel go unproduced.¹⁷⁰ The implications of these exemptions are not *de minimis*. The small refinery exemptions granted in August 2019, discussed above, reduced the RFS required volume by 13.42 billion gallons of gasoline and diesel, the equivalent of 1.43 billion RINs.¹⁷¹

The EPA has only partially addressed this issue.¹⁷² When it adopted a new rule concerning small refinery exemptions, the EPA chose to increase its percentage standards based on a projection of volumes to be exempted by small refinery exemptions.¹⁷³ These projections will be based on a three-year average of recommendations by the Department of Energy (DOE).¹⁷⁴

small-refinery exemptions ‘result in a proportionally higher percentage standard for remaining obligated parties.’”).

166. 42 U.S.C. § 7545(o)(3)(B)(i).

167. *Id.* § 7545(o)(9)(B)(i).

168. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7050 (Feb. 6, 2020).

169. *Am. Fuel & Petrochemical Mfrs.*, 937 F.3d at 571; *Valero Energy Corp.*, 140 S. Ct. 2792.

170. *Am. Fuel & Petrochemical Mfrs.*, 937 F.3d at 571; *Valero Energy Corp.*, 140 S. Ct. 2792.

171. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7050 (Feb. 6, 2020).

172. *See supra* Part I.B.3 (discussing the EPA’s new rule concerning small refinery exemptions).

173. *See* Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021, and Response to the Remand of the 2016 Standards; Supplemental Notice of Proposed Rulemaking, 84 Fed. Reg. 57677 (Oct. 28, 2019).

174. *See* Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021, and Response to the Remand of the 2016 Standards; Supplemental Notice of Proposed Rulemaking, 84 Fed. Reg. 57677 (Oct. 28, 2019); *see also* Erin Voegelé, *EPA Finalizes RVOs, SRE Rule; Disappoints Biofuel Industry*, BIOMASS (Dec. 19, 2019), <http://biomassmag>

However, this methodology remains flawed. The EPA itself has noted the inherent difficulty in projecting exempted small refinery volumes.¹⁷⁵ Moreover, the DOE recommendations have proved to be unreliable in the past. For example, for the compliance year 2016, the DOE recommended small refinery exemptions equaling 440 million RINs.¹⁷⁶ However, the EPA approved small refinery exemptions that resulted in the RFS program losing approximately 790 million RINs.¹⁷⁷ Similarly, the DOE recommended 1.02 billion RINs for 2017,¹⁷⁸ which was far less than the estimated 1.82 billion RINs finalized by the EPA's small refinery exemptions.¹⁷⁹ For compliance year 2018, the DOE recommended the EPA approve small refinery exemptions for 840 million RINs.¹⁸⁰ Again, this was far lower than the 1.43 billion RINs the EPA actually approved.¹⁸¹

Since 2021 is the first year the EPA will employ this methodology, it is unclear how effective it will be. However, based on past data, it is safe to assume that it will still lead to significant inaccuracies regarding applicable volume obligations.

B. Failure to Meet Statutory Deadlines/Continued Modification of Applicable Volumes

The EPA's repeated failure to meet the statutory deadlines regarding renewable fuel percentage standards raises additional concerns.¹⁸²

azine.com/articles/16682/epa-finalizes-2020-rvos-sre-rule-disappoints-biofuels-industry [https://perma.cc/NPH4-RQHW].

175. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7051 (Feb. 6, 2020).

176. *Id.* (Table VII.B.1); *see also* Voegele, *supra* note 174.

177. Voegele, *supra* note 174.

178. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7051 (Feb. 6, 2020) (Table VII.B.1).

179. Voegele, *supra* note 174.

180. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7051 (Feb. 6, 2020) (Table VII.B.1).

181. Voegele, *supra* note 174; *see also* Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7050 (Feb. 6, 2020).

182. *See, e.g.,* Nat'l Petrochemical & Refiners Ass'n v. EPA, 630 F.3d 145, 163 (D.C. Cir. 2010); Monroe Energy, LLC v. EPA, 750 F.3d 909, 919 (D.C. Cir. 2014); Ams. for Clean Energy v. EPA, 864 F.3d 691, 717 (D.C. Cir. 2017); *see*

Unsurprisingly, the EPA failed to meet the statutory deadline for the 2021 compliance year.¹⁸³ As noted above, the EPA must annually transform the volume requirement for each renewable fuel category into percentage standards by November 30th of each year. Assumedly, these repeated failures in meeting the statutory deadline are due in large part to the difficulty in calculating these numbers.¹⁸⁴ As a result, obligated parties have difficulty complying with the requirements of the RFS program because they do not receive timely notice of their obligations.¹⁸⁵ Therefore, obligated parties cannot effectively plan how to implement the RFS program obligations. Moreover, the effects of these rules are retroactive, which magnifies the prejudicial effect of these late pronouncements.¹⁸⁶

Furthermore, these late pronouncements may also discourage private investment.¹⁸⁷ From 2013-2015, the Biotechnology Industry Organization estimated that the EPA's delayed rulemaking resulted in a \$13.7 billion decrease in advanced and cellulosic biofuel investments.¹⁸⁸ Renewable fuel producers may be reluctant to invest significant capital to produce the required fuels due to this uncertainty. Because these are developing technologies, private investment is crucial to the program's success. Without the requisite investment, it is unlikely the applicable volumes under the RFS program will be met. Moreover, these effects do not solely extend to obligated parties and biofuel producers. They have negative effects on the public as well, since late rulemaking negatively impacts the creation of new jobs.¹⁸⁹

also Holman, *supra* note 14, at 834 (discussing EPA's failure to meet statutory deadlines).

183. Amina Dammann et al., *EPA Submitted Proposed Renewable Fuel Standards to OMB*, JD SUPRA (Sept. 1, 2021), <https://www.jdsupra.com/legalnews/epa-submitted-proposed-renewable-fuel-9424531/> [<https://perma.cc/WJ5V-G5VF>].

184. Holman, *supra* note 14, at 834; *see also* BRACMORT, *supra* note 65, at 9, footnote 50 ("EPA's late announcement of the annual requirements may be due to the depth of the analysis (e.g., difficulty in obtaining reliable and timely information from the industry) or to other factors.").

185. Holman, *supra* note 14, at 834.

186. *Id.*

187. BRACMORT, *supra* note 65, at 9.

188. *Estimating Chilled Investment for Advanced Biofuels Due to RFS Uncertainty*, BIOTECH. INNOVATION ORG., <https://www.bio.org/sites/default/files/legacy/bioorg/docs/Estimating%20Chilled%20Investment%20for%20Advanced%20Biofuels.pdf> [<https://perma.cc/PVH4-FXR4>] (last visited Oct. 27, 2022).

189. *Id.*

The EPA's continued modification of the RFS applicable volumes generates the issues discussed above. Since 2010, the EPA has repeatedly reduced the statutory volumes required by the RFS program.¹⁹⁰ This continued reduction of the statutory standards contributes to the reduced investments and uncertainty discussed above. For the RFS program to prosper and fulfill its intended objectives, it is imperative that there is certainty and prompt notification about the program's obligations.

C. Blendwall

Another potential problem with the current RFS program is its implications on the "E10 blendwall." "Blendwall" refers to the maximum amount of ethanol that can be blended into gasoline and "still maintain automobile performance and comply with the Clean Air Act."¹⁹¹ The mandates contained in the RFS program could potentially impact the blendwall.

In 1978, there was a Clean Air Act waiver that allowed gasoline to be 10% ethanol.¹⁹² In June 2011, the EPA sanctioned ethanol blends of 15% for use in vehicles made in 2001 or later.¹⁹³ However, ethanol content in gasoline is typically still limited to 10%.¹⁹⁴ To meet the required absolute volumes of total renewable fuel under the RFS, it is feasible that gasoline blends may surpass the blendwall. Currently, the largest volume met under the RFS program is for the implied conventional biofuel segment of the mandate.¹⁹⁵ This portion is met mainly with corn starch ethanol.¹⁹⁶ Based on current fuel consumption rates, the conventional biofuel portion of the RFS program requires enough ethanol to breach the blendwall.¹⁹⁷

This is problematic because higher ethanol gas requires substantial upgrades to retail gas station infrastructure.¹⁹⁸ Furthermore, higher ethanol

190. BRACMORT, *supra* note 114, at 6.; *see also* TABLE 1, *supra* Part I.B.2; for a list of all reductions from 2010-2020, *see* BRACMORT, *supra* note 65, at 7.

191. BRACMORT, *supra* note 65, at 11.

192. *Ethanol Waivers (E15 and E10)*, EPA, <https://www.epa.gov/gasoline-standards/ethanol-waivers-e15-and-e10> [<https://perma.cc/29M2-5X6L>] (last updated Nov. 16, 2021).

193. *Id.*

194. BRACMORT, *supra* note 65, at 11.

195. *Id.*

196. *Id.*

197. *Id.*

198. Neufeld & Fey, *supra* note 149.

blends are not approved for all motor vehicle engines.¹⁹⁹ High ethanol blends could also breach some automobile warranties.²⁰⁰

III. PROPOSED SOLUTION TO REVISE THE RFS PROGRAM: PERCENTAGE-BASED VOLUMES

One approach to revising the RFS program is to base minimum volume requirements on percentages of transportation fuel used instead of the current absolute volumes.²⁰¹ Doing so would align the RFS program with other renewable energy programs that typically use a percentage-based approach, instead of absolute amounts.²⁰² Moreover, basing the statutory schedules on minimum percentage values is more in line with the original legislative purpose of the RFS program. Under the current regime, if more fuel is used in the U.S., obligated parties are required to incorporate a lower percentage of renewable fuels in the fuel they sell.²⁰³ Thus, when increased fuel use introduces more carbon dioxide into the atmosphere, the burden on obligated parties to introduce renewable fuel decreases, thereby increasing the relative greenhouse gas load of the fuel.²⁰⁴ Conversely, if the U.S. uses less transportation fuel than projected, obligated parties are levied with a more significant renewable fuel obligation.²⁰⁵ This appears to incentivize overproduction and increase the use of fuel, which seems entirely counter to the RFS's idea of increasing "the production of clean renewable fuels." Instead, it creates the wrong incentive for oil refiners.²⁰⁶

This proposed amendment would require significant calculations to determine what percentage-based volumes to use. However, it is still less burdensome than the current regime. Now is an ideal time to implement this change, since the statutory volumes are set to expire in 2022.²⁰⁷

199. *Id.* at 273.

200. BRACMORT, *supra* note 65, at 11.

201. Holman, *supra* note 14, at 844 (2018).

202. *Id.*

203. *Id.*

204. *Id.*

205. *Id.*

206. *Id.*

207. 42 U.S.C. § 7545(o)(2)(B) (showing no applicable volumes listed after 2022). For 2023 and beyond, the statute designates that the applicable volumes are to be set by the EPA in coordination with the Department of Energy and Department of Agriculture. *See* 42 U.S.C. § 7545(o)(2)(B)(ii). Six statutory factors are to be taken into consideration to aid in establishing these new volumes, and these volumes are required by the statute to be established 14 months prior to the first year for which the volumes will apply. The 2023 final rule is set to be proposed in November

Moreover, once the percentage-based volumes are established, there will be no need for the burdensome modifications and waivers implemented in the current regime.

A. Reduce the Effect of Small Refinery Exemptions

A percentage-based volume would resolve the small refinery exemption issues created by the current absolute volume method.²⁰⁸ Percentage-based volumes would not entirely abolish small refinery exemptions. Small refineries may still need exemptions to avoid disproportionate economic impacts. However, a percentage-based system would remedy the negative effects of small refinery exemptions on non-exempted obligated parties. The EPA's new rule for small refinery exemptions is an improvement over its old method, but it is still riddled with uncertainty and may not adequately account for all small refinery exemptions. With percentage-based volumes, one obligated party's exemption would have no effect on another's obligation. There would be no need to adjust the required volumes due to other exemptions. Obligated parties would simply implement the required percentage of each category of renewable fuel into each gallon of gasoline or diesel it introduces into the fuel supply. While this is essentially what the EPA does with its current use of percentage standards, the EPA would no longer base its calculations on the absolute volume requirement. A flat percentage would apply to all obligated parties regardless of any sort of exemptions.

Furthermore, percentage-based volumes would remedy the issues surrounding the EPA's granting of waivers to reduce the volume of renewable fuel mandated under the RFS program. Waivers are only necessary under the current regime because of the absolute volume requirements. Under the proposed solution, the new requirements under the statute would be percentage-based. Thus, as long as the percentages are set at an attainable level, there will no longer be a need to reduce the statutory requirements.

2022. OFF. OF INFO. & REGUL. AFFS., OFF. OF MGMT. & Budget, *Volume Requirements for 2023 and Beyond Under the Renewable Fuel Standard Program*, 2060-AV14 (Spring 2021), REGINFO.GOV, <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202104&RIN=2060-AV14> [<https://perma.cc/PA66-GQJD>]. If Congress amends the program to be based off percentage-based standards, it could force the EPA to begin in 2023 setting percentage-based targets, instead of continuing with the traditional absolute volumes.

208. For a discussion of these issues, *see supra* Part II.A.

B. Remedy the Failure to Meet Statutory Deadlines and Reduce the Continued Modification of Required Volumes

Amending the statute's volume requirements to be percentage-based—instead of the current absolute volume requirements—would simplify the process of calculating the obligated parties' requirements. It would be easier for the EPA to determine obligations and thus easier to provide advance notice of what these obligations will be.²⁰⁹ As discussed, the current system involves a series of complicated calculations that results in a percentage of the gasoline or diesel an obligated party must blend with renewable fuel.²¹⁰ The proposed solution circumvents this burdensome process. When new percentage volumes are established, the requirements will be clear to obligated parties. Further calculations will not be needed, and obligated parties will receive prompt notification of their obligations, a rarity under the current regime.

C. Address Concerns With the Blendwall

Amending the RFS program to use percentage-based volumes instead of absolute volumes also addresses blendwall concerns. Accommodating a breach of the blendwall would require substantial upgrades to retail gas station infrastructure.²¹¹ Furthermore, higher ethanol blends are not approved for all cars,²¹² and high ethanol gasoline blends also could breach some automobile manufacturer warranties.²¹³ Currently, the largest renewable fuel volume under the statute (conventional biofuel) is met using corn starch ethanol.²¹⁴ For 2020, the percentage standard of total renewable fuel was 11.56%.²¹⁵ By subtracting the percentages of the advanced biofuel category, the conventional biofuel (i.e., ethanol) percentage is equivalent to 8.63%.²¹⁶ This is dangerously close to the E10 blendwall.

209. Holman, *The Renewable Fuel Standard Reimagined: Clearing A Path for Truly Advanced Biofuels*, 86 UMKC L. REV. 805, 844 (2018).

210. See 40 C.F.R. § 80.1407(a) (2021).

211. Neufeld & Fey, *supra* note 149.

212. *Id.* at 273.

213. BRACMORT, *supra* note 65, at 11.

214. *Id.*

215. Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes, 85 Fed. Reg. 7016, 7019 (Table I.F-1-Final 2020 Percentage Standards) (Feb. 6, 2020).

216. See *id.*

Under the proposed solution, the blendwall will not be breached until Congress determines that it should be. Using percentage standards completely avoids the blendwall—percentages simply need to be set below the blendwall. This is impossible under the current regime since the current standards are set to achieve absolute volumes. Thus, there is no real control over whether the blendwall is breached or not. Conversely, under a percentage-based approach, Congress could wait to breach the blendwall until proper infrastructure is in place.

D. Public Policy Implications of Proposed Solution

Basing the RFS program on minimum percentage values of yearly transportation fuel used instead of absolute volumes will not undermine the original policy goals of the RFS program, nor the public policy benefits claimed by its proponents.²¹⁷ The proposed change also addresses criticisms of groups opposed to the program.

1. Addresses Concerns of Proponents/Biofuel Groups

Implementing percentage-based standards will not diminish the demand for biofuels. On the contrary, firms may have more reason to invest in renewable biofuels under a percentage-based standard. Currently, uncertainty surrounding EPA waiver grants and small refinery exemptions deters private investment in renewable fuel technologies, which undermines the goal of the RFS to increase the sustainability of the transportation fuel system.²¹⁸ Percentage-based standards allow the EPA to provide obligated parties with advanced notice of their requirements, which would increase clarity on their obligations.²¹⁹ Thus, percentage-based standards would bring increased clarity and encourage firms to invest capital in renewable biofuels not currently under development.

2. Balances Public Policy with Concerns of Farm Lobby/Ethanol-Related Groups

Even if basing the required volumes of the RFS program on percentages of transportation fuel decreases the amount of ethanol produced, the farm economy would not be disrupted. A large portion of the RFS program requirements would still be fulfilled by the first

217. See *supra* Part I.C.

218. Zalman Stern-Sapad & Daniel Stratman, *The Waivering Renewable Fuel Standard and How to Fix It*, 21 VT. J. ENVTL. L. 200, 219 (2019).

219. See *supra* Part I.C.

category—total renewable fuel—which is predominantly corn starch ethanol. Moreover, even if ethanol production decreases, the public policy implications outweigh the negative consequences to the farm lobby. Given that corn ethanol production is generally not environmentally friendly, decreasing its production benefits the environment,²²⁰ which was an original policy goal of the RFS program.²²¹

3. Addresses Concerns of American Petroleum Institute & Oil and Gas Groups

Percentage-based standards address the API and other oil and gas groups' concerns about small refinery exemptions.²²² If the RFS program mandate was based on a percentage of transportation fuel used, small refinery exemptions would no longer impact other obligated parties. The controversy surrounding the small refinery exemptions granted by the EPA involves the corresponding adjustment of the absolute volumes. This is because other obligated parties must account for the volumes lost through the exemptions; otherwise, the statute's mandates will not be met.

This model eliminates the need to adjust other obligated parties' mandates under the statute. Obligated parties would simply implement the percentage of renewable fuel required by the statute. Thus, the adjustments for small refinery exemptions would no longer be needed. This proposed solution meets the API's plea that regulations are "based on sound science; are achievable for regulated parties; are cost effective for the consumer; and maintain a level playing field in the market."²²³

Additionally, other concerns of oil and gas groups would be remedied by basing the RFS program on percentage values instead of absolute volumes. As discussed, the problems associated with the E10 blendwall would be addressed.²²⁴ Also, while the use of corn as a feedstock for renewable biofuel will not be eliminated with the use of percentage values, its use may be diminished because obligated parties and biofuel producers will have increased clarity on their obligations. Thus, there will be more opportunity for investment in advanced biofuels, which would diminish the use of corn as a feedstock.

220. *See supra* Part I.C.4.

221. *See supra* Part I.C.

222. For an in-depth explanation of these concerns, *see supra* Part I.C.3.

223. Letter from Frank J. Macchiarola, *supra* note 153.

224. *See supra* Part III.D.

4. Addresses Concerns of Environmental Groups

The proposed legislative revision will remedy environmental groups' criticisms and will likely garner their approval. Basing volume requirements on percentage standards will not increase the amount of fossil fuels currently in the market. Rather, the amount of fossil fuels in the market will depend solely on the use of transportation fuel, not on legislative provisions or regulator discretion. Thus, environmental groups may take comfort knowing the new statutory volumes and corresponding introduction of ethanol will no longer be based solely on arbitrary regulations. The proposed solution will implement only what is required to meet transportation fuel use.

CONCLUSION

While Congress has many legislative options to revise the RFS program, replacing the absolute volume requirements with percentage-based standards is the most logical solution. Percentage-based standards adhere to the original policy goals of the RFS program. Implementing percentage-based standards will help maintain energy security. Additionally, percentage-based standards may actually increase renewable fuel production in the United States by incentivizing investment into under-utilized or undeveloped renewable fuel options. Furthermore, many of the RFS program's pervasive problems will be remedied through implementing percentage-based standards. This legislative revision produces an adequate balance of the public policy goals and views of the various stakeholders involved. Given the impending lapse of the RFS statutory volumes, the time is ripe to implement a workable solution, such as the percentage-based approach.²²⁵

225. 42 U.S.C. § 7545(o)(2)(B) (showing no applicable volumes listed after 2022).