



**American
Fuel & Petrochemical
Manufacturers**

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The Honorable Michael Regan, Administrator
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Via e-mail: Regan.Michael@epa.gov

RE: Partial Waiver of the 2024 Cellulosic Biofuel Volumetric Requirements

Dear Administrator Regan:

The American Fuel & Petrochemical Manufacturers (AFPM)¹ requests the Environmental Protection Agency (EPA or the Agency) exercise its non-discretionary duty to waive a portion of the Renewable Fuel Standards (RFS) for the 2024 compliance year based on a cellulosic biofuel production shortfall.² AFPM also petitions EPA to exercise its general waiver authority³ to address the cellulosic biofuel production shortfall as an additional and alternative basis to address the cellulosic biofuel production shortfall. Finally, consistent with its duties under the Clean Air Act (CAA) section 211(o)(5), EPA should calculate and make available cellulosic waiver credits. EPA's failure to exercise its waiver authorities and make credits available will harm U.S. refineries and consumers and create additional volatility in the cellulosic RIN market. AFPM also requests that EPA take concrete steps to address the wholly insufficient RIN bank for cellulosic biofuel, consistent with the information that AFPM has provided regarding the 2023 and 2024 cellulosic biofuel production shortfalls.

We request that EPA act as soon as possible to improve liquidity in the cellulosic RIN market and avoid a potential increase in fuel costs from the cellulosic biofuel shortfall, particularly as such actions will not affect actual cellulosic biofuel production.

BACKGROUND

This action is about the need for EPA to partially waive the 2024 cellulosic biofuel standard to address significant production shortfalls in 2023 and 2024. EPA's 2024 cellulosic biofuel mandate is adversely impacting AFPM's refining members, all of whom are facing high cellulosic RIN prices and some of whom may be unable to acquire enough cellulosic RINs to satisfy their 2024 cellulosic obligations under the RFS. As detailed below, EPA has an affirmative legal duty to address these issues.

¹ AFPM members produce most of the refined petroleum products and petrochemicals manufactured in the United States and are obligated parties under the RFS.

² EPA's March 2024 *Denial of AFPM Petition for Partial Waiver of 2023 Cellulosic Biofuel Standard* (hereinafter the "2023 Denial") asserted that AFPM is not authorized to file a petition under CAA Section 211(o)(D)(i). AFPM disagrees with EPA's interpretation. AFPM requests EPA immediately take steps to comply with its non-discretionary duties under CAA Section 211(o)(D)(i) and (ii).

³ See 42 U.S.C. §7545(o)(7)(D)(ii).



2023 Waiver Request

On December 22, 2023, AFPM petitioned EPA to waive a portion of the cellulosic biofuel mandate for 2023. AFPM updated that petition on March 4, 2024, with additional 2023 RIN generation data from EPA's Moderated Transaction System (EMTS). On March 26, 2024, EPA took no action on its nondiscretionary duty to partially waive the cellulosic biofuel standard and denied AFPM's general waiver petition.⁴ EPA determined that its "assessment of the volume of 2023 cellulosic RINs and 2022 cellulosic carryover RINs indicates that obligated parties will be able to readily comply with the existing 2023 cellulosic biofuel standard."⁵ EPA's 2023 Denial concluded that compliance could be achieved with an estimated 775 million cellulosic RINs generated in 2023, and an estimated 75 million 2022 carryover RINs to meet the 850 million RIN obligation.⁶ To the extent the number of cellulosic RINs ultimately falls short of the RINs needed to satisfy cellulosic fuel obligations for 2023, EPA claimed it did not foresee RFS non-compliance due to the ability to carry forward a deficit.

The 2024 Cellulosic Biofuel Shortfall

According to EMTS data, there is a significant cellulosic biofuel production shortfall this year. AFPM retained Turner, Mason & Company to analyze EMTS data. Following EPA's methodology set forth in the 2023 Denial, Turner, Mason calculated the 2024 cellulosic biofuel obligation to be 1,092 million cellulosic RINs.⁷ Turner, Mason further estimated 1,035 million Cellulosic RINs will be generated and available for compliance in 2024, reflecting a shortfall of 57 million RINs.

Moreover, EPA's public data indicates that in 2023, obligated parties incurred a cellulosic biofuel compliance *deficit* totaling 88 million cellulosic RINs. This deficit must be satisfied with 2024 RINs, thereby intensifying the shortfall.⁸ EPA's data also shows a 30 million RIN carryover from 2023 (RIN bank); however, these RINs may not be made available, as some obligated parties will choose to retain 2024 RINs for compliance with their 2025 obligations.⁹

Netting out the cellulosic biofuel obligation against the 2024 cellulosic RINs available for compliance, the 2023 carryover cellulosic RINs, and the 2023 carryover cellulosic compliance deficit, there is an estimated 2024 cellulosic RIN shortfall of approximately 115 million RINs.

⁴ See 2023 Denial, 89 Fed. Reg. 20961, 20962 (March 26, 2024). *Note* AFPM filed a complaint in the United States District Court for the District of Columbia on August 15, 2024, challenging EPA's failure to execute its nondiscretionary duty under the Clean Air Act to partially waive the 2023 cellulosic biofuel standard when the projected volume available exceeded the actual volumes produced. See *AFPM v. Regan*, D.D.C. No. 24-cv-2361. AFPM also filed a challenge in the U.S. Court of Appeals for the District of Columbia Circuit. See *AFPM v. EPA*, D.C. Cir. No. 24-1163. That case is based on EPA's arbitrary decision not to exercise its general waiver authority to address the inadequate domestic supply of cellulosic biofuel. The case has been placed in abeyance, pending the outcome in the District Court case referenced above.

⁵ 2023 Denial at 6.

⁶ *Id.*

⁷ Turner, Mason & Company, Cellulosic RINs Assessment Report, October 31, 2024 at Appendix A (hereinafter Turner, Mason Report).

⁸ EPA's Public Data for the Renewable Fuel Standard, Renewable Volume Obligations, Table 6: Total Compliance Deficits by Year, Data as of October 17, 2024. Retrieved at <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/annual-compliance-data-obligated-parties-and>.

⁹ See Turner Mason Report at Appendix B.



DISCUSSION

The Clean Air Act requires EPA to waive cellulosic biofuel volumes when production falls short of EPA's projections.¹⁰ EMTS data shows that the rate of cellulosic biofuel production in 2024 is below the Agency's projection. Moreover, the depleted supply of cellulosic carryover RINs and the 2023 carryover cellulosic deficit portends significant liquidity problems in the cellulosic RIN market. Therefore, EPA must use the cellulosic waiver and consider referencing other statutory waiver authorities to address this shortfall.

A. EPA's 2024 Cellulosic Biofuel Mandate Far Exceeds the Current Production of Cellulosic Biofuel and Carryover RINs Available for Compliance Under the RFS

In July 2023, EPA promulgated RFS requirements for 2023-2025 compliance years that included a 1.09 billion cellulosic biofuel mandate for 2024.¹¹ Turner, Mason applied EPA's methodology set forth in Appendices A and B of the 2023 Denial to calculate the potential shortfall in cellulosic biofuel and carryover RINs. Based on Turner, Mason's estimates derived from data in the Energy Information Administration's (EIA's) October 2024 Short-Term Energy Outlook (STEO) and Annual Energy Outlook (AEO) 2023, transportation fuel demand and the cellulosic obligation are expected to increase in 2024.¹² Applying the percentage standard of 0.63% for cellulosic biofuel, Turner, Mason calculated the renewable volume obligation for cellulosic biofuel to be 1,092 million gallons for 2024.

Turning to the supply side of the ledger, Turner, Mason calculated the 2024 cellulosic RINs available for compliance. Data from EPA's Moderated Transaction System (EMTS) was used to determine the total number of D3 and D7 cellulosic RINs generated and retired to determine the number of cellulosic RINs available as of September 30, 2024.¹³ To estimate the cellulosic RINs available for the full 2024 compliance year, Turner, Mason used the monthly Total Net Generation Report data for February through September to estimate a monthly generation growth rate for October through December 2024.¹⁴ Additionally, the estimated cellulosic RIN generation for December was doubled to reflect the typical end-of-year increase in reported RIN generation.¹⁵ With a monthly growth rate of 3.1 million RINs/month, Turner, Mason estimated total cellulosic RINs generated for October through December and added those estimates to the total cellulosic RINs available to date to determine that the total number of 2024 RINs available for compliance will be 1,035 million, representing a shortfall of 57 million cellulosic RINs.¹⁶

¹⁰ See 42 U.S.C. §7545(o)(7)(D).

¹¹ See 88 Fed. Reg. 44468 (July 12, 2023) (hereinafter the "Set Rule").

¹² EIA has discontinued breaking out diesel fuel consumption in STEO, although EIA's Annual Energy Outlook (AEO) continues to post both total distillate fuel oil (DFO) consumption and diesel consumption. We understand that EPA has more specific data in EMTS from obligated parties that is not publicly available. We expect these data will be applied in connection with EPA's final Agency action on this issue. As explained in Appendix A, Turner, Mason conducted an analysis of the historical relationship between diesel fuel and DFO consumption, which indicated diesel fuel consumption has been approximately 92% (Standard Deviation +/- 1%) of DFO consumption for a nine-year period between 2013 and 2021.

¹³ Turner, Mason Report at 9, Table C-1.

¹⁴ Turner, Mason excluded January 2024 RIN generation data from the growth rate calculation because its small monthly RIN generation was deemed to be an outlier.

¹⁵ Turner, Mason Report at 11.

¹⁶ *Id.* at 11, Table C-4.



Turner, Mason then calculated the 2023 carryover cellulosic RINs and carryover cellulosic RIN deficits to create a complete picture of obligated parties' ability to comply with the 2024 cellulosic renewable volume obligation. The number of carryover RINs was determined by calculating the total RINs retired for 2023 compliance (809 million), of which 736 million 2023 cellulosic RINs and 72 million 2022 cellulosic carryover RINs were used.¹⁷ Turner, Mason then calculated the number of Cellulosic RINs generated in 2023, taking the total number of cellulosic RINs generated in 2023 and then removing any RINs generated in error or retired for other reasons. The number of 2023 carryover RINs was determined by subtracting the number of 2023 cellulosic RINs used for 2023 compliance from the net number of 2023 cellulosic RINs generated, showing a shortfall of 27 million cellulosic RINs.¹⁸

In 2023, obligated parties were forced to carry forward cellulosic RIN deficits totaling 88 million RINs.¹⁹ These deficits must be satisfied with 2023 carryover RINs or 2024 RINs, and are additive to the overall cellulosic RIN shortfall of 27 million in 2024. In total, Turner, Mason anticipates that the cellulosic RIN market will be 115 million cellulosic RINs short of the 2024 requirement.

The following summarizes Turner, Mason's calculations for the cellulosic biofuel supply and demand for D3 and D7 RINs:

Estimates and Projections	Millions of Cellulosic RINs	Difference	Citation to Turner, Mason Report
2024 Cellulosic Biofuel Obligation	(1092)	-	Appendix A (calculation of cellulosic biofuel, required volume, gasoline projections, diesel projections, consumption of gasoline and diesel in Alaska, and factors used on percentage standards calculation)
2024 Cellulosic RINs available for compliance	1,035	$1,035 - (1,092) = (57)$	Appendix C (Available cellulosic RINs through September 30, 2024, monthly data to generate 2024 growth rate, and projected monthly cellulosic RINs for October through December 2024)
2023 carryover Cellulosic RINs available for compliance	30	$(57) + 30 = (27)$	Appendix B (Cellulosic RINs retired for compliance for 2023 obligations and net cellulosic RINs generated (RINs generated – RINs generated in error or retired for other reasons))
2023 Cellulosic deficit carryover	(88)	$(27) + (88) = (115)$	EMTS data

¹⁷ Turner, Mason Report at 6.

¹⁸ Id. at 6-8, Tables B-2-B-6.

¹⁹ EPA's Public Data for the Renewable Fuel Standard, Renewable Volume Obligations, Table 6: Total Compliance Deficits by Year, Data as of October 17, 2024. Retrieved at <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/annual-compliance-data-obligated-parties-and>.



Earlier this year, cellulosic RIN generation increased by approximately 10% after ASTM International issued a standard methodology for determining volumes of corn kernel fiber in May.²⁰ This increase is included in the 2024 RIN Generation data presented above and is not enough to cover the cellulosic biofuel production shortfalls. Based on EMTS data, and the short time remaining in 2024, it is not reasonable to expect that cellulosic biofuel production will increase to levels equal to or exceeding the 2024 mandate and deficit carryover.

B. The Clean Air Act Requires EPA to Partially Waive the Cellulosic Biofuel Production Shortfall

The calculations presented above are derived from EPA data. The difference between the applicable cellulosic biofuel mandate and the expected cellulosic biofuel production is approximately 57 million RINs, and it is clear today that net carryover RINs (RIN bank) are inadequate to cover this production shortfall. The 2023 carryover cellulosic deficit exacerbates the shortfall and potential for noncompliance. The Agency should move quickly to verify this analysis and exercise the cellulosic waiver under CAA Section 211(o)(7)(D). More immediately, EPA should publicly signal its intent to issue a waiver to address the known production shortfall and to extend compliance deadlines. Adjusting compliance deadlines alone will not ameliorate harm to obligated parties, but failing to do so could result in an unnecessary compliance demonstration that potentially nullifies any relief to obligated parties provided by the waiver. The remainder of this section details EPA's legal responsibilities and authority to address the cellulosic biofuel shortfall.

Congress established several waiver provisions to relieve obligated parties of the duty to comply with unachievable mandates. First, EPA has a non-discretionary duty under CAA Section 211(o)(7)(D) to reduce the applicable cellulosic biofuel obligation to the cellulosic biofuel produced (*i.e.*, "projected volume available"). Second, EPA has discretionary authority to reduce renewable fuel mandates under CAA Section 211(o)(7)(A) when there is an inadequate domestic supply of renewable fuel, as is the case with the 2024 cellulosic biofuel standard. EPA must reduce the 2024 cellulosic biofuel requirements using these authorities.

1. EPA Must Use its Cellulosic Waiver Authority

EPA has a non-discretionary duty to issue a cellulosic waiver under Section 211(o)(7)(D) and *must* use that authority in any calendar year where the volume of cellulosic biofuel produced is less than the volume EPA mandates under the RFS:

For any calendar year for which the projected volume of cellulosic biofuel production is less than the minimum applicable volume established under paragraph (2)(B), as determined by the Administrator based on the estimate provided under paragraph (3)(A), not later than November 30 of the preceding calendar year, the Administrator *shall* reduce the applicable volume of the cellulosic biofuel required under paragraph (2)(B) to the projected volume available during that calendar year.²¹

This is the situation in 2024, and thus EPA must take steps to reduce the obligation.

²⁰ ASTM E3417, *Standard Test Method Determination of Cellulose/Hemicellulose-Derived Glucan and Galactan Content in Solid Corn Biomass Samples*. ASTM International. May 21, 2024.

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



The D.C. Circuit looks unfavorably upon aspirational cellulosic biofuel targets and unrealistic volume obligations.²² The Court recognized that it is unfair to penalize refiners for failing to purchase fuel that is not available, stating: “Apart from their role as captive consumers, the refiners are in no position to ensure, or even contribute to, growth in the cellulosic biofuel industry. ‘Do a good job, cellulosic fuel producers. If you fail, we’ll fine your customers.’”²³

EPA must therefore invoke its waiver authority for the 2024 compliance year and align the unachievable cellulosic biofuel mandate to the projected volume of cellulosic biofuel that will be produced in 2024.

2. EPA Has Revised or Set Cellulosic Biofuel Standards Based on Actual Production Multiple Times in the Past 10 Years

In previous years when cellulosic biofuel production fell short of the volume required by a previously promulgated RFS standard, EPA revised the applicable percentage of cellulosic biofuel to the actual level of cellulosic biofuel produced. EPA must follow this past practice and do so here.

For example, in response to an AFPM petition for reconsideration and petition for review of the 2011 cellulosic biofuel standard, EPA announced it was “rescinding the 2011 cellulosic biofuel applicable standard and ... refund[ing] the money paid by obligated parties to purchase cellulosic waiver credits to comply with the standard.”²⁴ In taking this action, EPA acknowledged that in setting the 2011 standard it “failed to apply a ‘neutral methodology’ aimed at providing a prediction of ‘what will actually happen’ as required by statute.”²⁵

Second, responding to a challenge of EPA’s 2012 cellulosic biofuel mandate, the D.C. Circuit vacated a previously-promulgated standard noting that even though EPA originally waived most of the 500-million-gallon statutory cellulosic biofuel mandate, that mandate resulted in cellulosic biofuel shortfalls that unfairly penalized obligated parties.²⁶ In doing so, the court also noted that “[CAA section 211(o)(7)(D)(i) serves as a *non-discretionary* safety valve when the refiners and importers of transportation fuel . . . would be put in an impossible position, or at least a highly punitive one – that is, forced to purchase volumes of cellulosic biofuel greater than total production, or pay fines for failing to do so.”²⁷

Similarly, in 2013, when EPA promulgated a final RFS rule approximately eight months after the compliance year had begun,²⁸ AFPM filed a petition for reconsideration demonstrating to the Agency that there would be a significant production shortfall from the level of the cellulosic biofuel standard for that year. EPA granted AFPM’s petition and subsequently issued a direct final rule to revise the 2013

²² *American Petroleum Inst. v. EPA*, 706 F.3d 474, 480 (D.C. Cir. 2013) (“*API v. EPA*”).

²³ *Id.*

²⁴ 80 *Fed. Reg.* 77420, 77508-09 (Dec. 14, 2015).

²⁵ *Id.* at 77509.

²⁶ *API v. EPA*; see also 78 *Fed. Reg.* 49794, 49828 (Aug. 15, 2013) where, in the final RFS rule for 2013, EPA implemented the January 2013 court decision for 2012 cellulosic biofuels. EPA also used its cellulosic waiver authority to set the level of the cellulosic biofuel mandate based on “a reasonable projection of expected actual production.” *Id.* at 49809.

²⁷ *API v. EPA* at 479 (emphasis added).

²⁸ 78 *Fed. Reg.* 49794 (Aug. 15, 2013).



cellulosic biofuel standard.²⁹ In this rule, EPA stated that it was “directed to base the standard on the lower of ‘projected’ production of cellulosic fuel in 2013 or the cellulosic biofuel applicable volumes set forth in the statute.”³⁰ Given that the RFS compliance year of 2013 was already over, EPA’s “‘projection’ [was] based on actual cellulosic biofuel production in 2013.”³¹ Significantly, for purposes of this request, EPA used EMTS data to revise the cellulosic biofuel standard because it “believe[d] that the EMTS data best represent the number of cellulosic biofuel RINs actually produced in 2013 and are therefore an appropriate volume on which to base the required volume of cellulosic biofuel for 2013.”³²

In numerous subsequent years, EPA also utilized its cellulosic waiver authority to lower the statutory volumes to match actual production volumes.³³ In such years, a supplemental waiver of the cellulosic biofuel standard was not required because EPA finalized the standards after (or near) the conclusion of the compliance years and the actual production of cellulosic biofuel represented by the number of cellulosic RINs for each year was then known or could be projected for the remainder of a year.

3. EPA Must Utilize its Cellulosic Waiver Authority in Same Manner During RFS “Set” Years

Following 2022, the last year of the RFS statutory volumetric tables, the CAA directs EPA to set the cellulosic biofuel standard “based on the assumption that the Administrator will not need to issue a waiver for such years under paragraph (7)(D).”³⁴ The statute’s reference to the cellulosic waiver in the context of setting the post 2022 cellulosic biofuel standard shows this authority remains available in 2023 and subsequent years and that Congress intended EPA to use the cellulosic waiver in the event that actual cellulosic biofuel production is lower than EPA’s projections. EPA explicitly recognized the application of CAA section 211(o)(7)(D)(i) to years 2023 and later – in conjunction with its obligation to establish standards – in the preamble to the 2023-2025 Set Rule.³⁵

Having promulgated a cellulosic biofuel standard that exceeds the actual volume of cellulosic biofuel produced, the CAA now requires EPA to reduce the standard.³⁶ And, consistent with EPA’s prior considerations to reduce regulatory uncertainty and avoid unnecessary cost burdens,³⁷ EPA should act expeditiously on this request.

²⁹ See 79 Fed. Reg. 25025 (May 2, 2014).

³⁰ *Id.*

³¹ *Id.* at 25026.

³² *Id.* In the rule, EPA also noted that “[f]inalizing this adjusted 2013 cellulosic biofuel standard expeditiously will reduce regulatory uncertainty and avoid unnecessary cost or burden for obligated parties. Until this adjusted cellulosic biofuel standard is finalized, obligated parties will have to comply with the current and significantly higher 2013 cellulosic biofuel standard. This would likely involve a substantial purchase of cellulosic waiver credits, which EPA would subsequently need to reimburse.” *Id.*

³³ For 2020, 2021 and 2022, EPA used its cellulosic waiver authority in CAA section 211(o)(7)(D)(i) to reduce the applicable volume of cellulosic biofuel to the amount “projected to be produced or imported and available for use in transportation fuel in the U.S. in [each year].” 87 Fed. Reg. at 39606 (July 1, 2022). EPA also stated that “[c]onsistent with our past interpretation of the [“projected volume available”] . . . [this volume] does not include cellulosic carryover RINs.” *Id.*

³⁴ 42 U.S.C. § 7545(o)(2)(B)(iv).

³⁵ See 88 Fed. Reg. at 44477.

³⁶ See 42 U.S.C. § 7545(o)(7)(D)(i).

³⁷ See n. 33, *supra*.



The CAA also requires EPA to make cellulosic biofuel credits available whenever the Administrator reduces the cellulosic biofuel standard.³⁸ The statute contains a formula that establishes the price of the credit and functions as a consumer protection mechanism in situations such as 2024 when RIN prices have been inflated due to an EPA cellulosic biofuel mandate that exceeds the available supply of cellulosic RINs. Accordingly, AFPM also requests that EPA, in conjunction with exercising its cellulosic waiver authority to reduce the cellulosic biofuel mandate to the actual cellulosic biofuel production level for 2024, also make such credits available concurrently. As indicated in CAA section 211(o)(7)(D)(ii), cellulosic biofuel credits are to be made available for purchase “[w]henever” EPA reduces the minimum cellulosic biofuel volume using its waiver authority within CAA section 211(o)(7)(D)(i).

C. EPA Should Use its General Waiver Authority as an Alternative Rationale for Reducing the 2024 RFS Cellulosic Biofuel Mandate

As described above, the cellulosic biofuel production shortfall in 2024 triggers EPA’s non-discretionary duty to exercise the cellulosic waiver under CAA Section 211(o)(7)(D). This same shortfall, combined with the previous shortfall in 2023, also supports EPA’s exercise of its general waiver authority under Section 211(o)(7)(A) based on a finding of “an inadequate domestic supply.”³⁹

The cellulosic biofuel shortfall discussion in Section A, *supra*, provides ample evidence that there is an inadequate domestic supply of renewable fuel, as contemplated by Congress, and the D.C. Circuit.⁴⁰ Because the Section 211(o)(7)(A) waiver is discretionary and the cellulosic waiver is mandatory, we recommend EPA utilize a finding of inadequate domestic supply only as an additional and alternative basis for partially waiving the 2024 cellulosic biofuel standard.

In the 2023 Denial, EPA focused almost exclusively on the speculative harm that cellulosic producers might experience in future years:

[I]ssuing a waiver when market production falls short after a single compliance year could result in shortfalls in cellulosic biofuel in future years if obligated parties alter future behavior through delaying acquisition of cellulosic biofuel or cellulosic RINs based on the prospective expectation of subsequent waivers.

There is no evidence in the administrative record for the 2023 Denial, however, that supports the assertion that issuing a waiver in any year or years will depress cellulosic biofuel production in future years. Moreover, this rationale makes little sense, because most obligated parties purchase RINs ratably throughout the year and the EMTS cellulosic biofuel production statistics reflect cellulosic biofuel produced, regardless of who owns or controls the RIN.

As noted above, EPA must aim for accuracy in setting cellulosic biofuel standards and ensure that cellulosic biofuel mandates align with the projected volume of cellulosic biofuel production each year. Not only is this required under CAA section 211(o), but it also avoids market uncertainty and subsequent requirements to issue waivers. It also avoids additional harm to obligated parties – any delay in partially

³⁸ *Id.* at § 7545(o)(7)(D)(ii).

³⁹ 42 U.S.C. § 7545(o)(7)(A).

⁴⁰ See *Americans for Clean Energy v. EPA*, 864 F.3d. 691 (D.C. Cir. 2017) (“ACE”).



waiving current cellulosic biofuel standards interferes with ratable RIN purchase strategies and artificially inflates the price of cellulosic RINs.

Utilizing the “inadequate domestic supply” waiver in CAA section 211(o)(7)(A) is fully consistent with the D.C. Circuit’s interpretation that this statutory term refers to “the supply of renewable fuel available to refiners, blenders and importers to meet statutory volume requirements.”⁴¹ As the court noted, “*refiners, blenders, and importers . . . must have access to an adequate ‘supply’ of renewable fuel in order to meet the Renewable Fuel Programs statutory volume requirements.*”⁴² Where such supply is less than what is required by an annual standard for cellulosic biofuel, EPA has full authority to waive the “national quantity of renewable fuel required” by “reducing” the standards promulgated pursuant to CAA section 211(o)(2).⁴³

In the case of 2024, it is abundantly clear that the production of qualifying cellulosic biofuel will be less than the supply that is needed for obligated parties to meet their annual obligation to surrender RINs. And unlike other renewable fuel categories, an obligated party can meet their annual renewable fuel volume for cellulosic biofuel *only* by surrendering a cellulosic RIN or credit.⁴⁴ This fact, along with the production shortfalls experienced in both 2023 and 2024, justifies the use of the Administrator’s discretion to partially waive 2024 standards based on “inadequate domestic supply.”

D. The Cellulosic RIN Bank is Substantially Depleted and Jeopardizes RFS Compliance

The cellulosic RIN bank is below the levels necessary to ensure market liquidity and address inaccuracies in transportation fuel consumption estimates and cellulosic biofuel production projections. EMTS shows 30 million 2023 cellulosic RINs carried over into 2024, an amount insufficient to cover the 88 million cellulosic RIN deficit carried over from 2023, meaning that the net number of available RINs carried over from the prior year is –58 million.⁴⁵ This negative number represents a depleted RIN bank, and it is arbitrary and capricious for EPA to ignore the impact of deficit carryovers on the supply of RINs available for compliance.

Moreover, the existence of carryover RINs at the macro level does not mean those RINs are available to all obligated parties on an open market. Because RINs are valid for two compliance years, individual obligated parties may “bank” carryover RINs to mitigate the risks of supply fluctuations and ensure compliance in future years, rather than sell them to other obligated parties.⁴⁶ When deficit carryovers increase while RIN carryover numbers are low, as was the case for 2023 and 2024, it is reasonable to assume that carryover RINs are not always available to all obligated parties, even when a surplus exists. EPA acknowledges this dynamic in its Response to Comments (RTC) on the Set Rule stating:

⁴¹ ACE at 703.

⁴² *Id.* at 708 (emphasis in original).

⁴³ CAA section 211(o)(7)(A), (A)(ii).

⁴⁴ Cellulosic biofuel standards may only be satisfied using RINs with a D3 or D7 codes. See 75 Fed. Reg. at 14723 (March 26, 2010). D3 RINs are generated for cellulosic biofuel and D7 RINs are generated for cellulosic diesel. Limiting compliance to just D3 and D7 RINs therefore constrains an obligated party’s ability to meet percentage standards as opposed to other renewable fuels where several different types of RINs may be able to be used.

⁴⁵ Turner, Mason Report at 1.

⁴⁶ The RFS explicitly provides this compliance flexibility to “any person that is unable to generate or purchase sufficient credits.” CAA section 211(o)(5)(D).



Thus, even when carryover RINs exist, they may not be ‘available’ to parties that need to purchase them for compliance if the parties that own the carryover RINs are unwilling to sell them.⁴⁷

EPA addressed the treatment of carryover RINs in the preamble to the final Set Rule, indicating that the 2023, 2024, and 2025 volumes would not be set to intentionally draw down the bank of carryover RINs.⁴⁸ Yet, EPA relied on carryover RINs in the 2023 Denial, which resulted in carrying forward a net deficit from 2023 to 2024. And, as noted above, the RFS provides this compliance flexibility specifically to obligated parties, rather than to EPA.

AFPM therefore urges EPA to help restore the cellulosic biofuel RIN Bank to a level that will help to assure smooth implementation of the RFS program. In repeated RFS rulemakings, AFPM and EPA have highlighted the vital importance of carryover RINs and the RIN Bank to a functioning RFS program.⁴⁹ And EPA fully understands the risks presented by a depleted RIN bank, particularly in the event of a supply disruption. As noted in the 2023-2025 Set Rule RTC document:

If such currently unforeseen events occur without carryover RINs available to operate as a program buffer, we could see RIN shortages and price spikes, potentially causing a need for an emergency waiver for even relatively small reductions in renewable fuel supply or increases in petroleum fuel demand.⁵⁰

As EPA notes in the 2023 Denial, a RIN bank shortage is not unprecedented; it previously occurred in 2017 with a 20 million RIN gap between the 2017 cellulosic biofuel obligation and total generation plus the carryover RIN bank available. In the 2023 Denial, EPA asserted that obligated parties were able to mitigate the impact of a RIN shortage by carrying over deficits and purchasing cellulosic waiver credits, which prevented disruption to the RIN market and the supply of fuels.⁵¹ But these cost containment tools are not available to all obligated parties. And unlike the situation in 2017, cellulosic waiver credits have not been available since 2022. As EPA’s 2023 Denial acknowledges, 2023 deficit carryovers *must* be paid off with 2024 RINs, effectively increasing an obligated party’s compliance obligations in that year *without* the ability to carry a RIN deficit into 2025. Thus, for 2024, parallels to 2017 are simply not applicable.

In other words, EPA’s inaction to partially waive cellulosic biofuel standards in 2023 has effectively compounded the difficulties that obligated parties face in 2024. Available RINs are demonstrably insufficient to meet the 2024 standards. And rather than provide flexibility to obligated parties to “carry over” deficits as intended by the enactment of CAA section 211(o)(5)(D), EPA has seriously constrained

⁴⁷ Assessment and Standards Division, Office of Transportation and Air Quality, U.S. Environmental Protection Agency, Renewable Fuel Standard (RFS) Program: Standards for 2023–2025 and Other Changes, Response to Comments, p.13 (June 2023).

⁴⁸ See Set Rule at 44495.

⁴⁹ See e.g., 80 *Federal Register* 77482-87 (December 14, 2015), 81 *Federal Register* 89754-55 (December 12, 2016), 82 *Federal Register* 58493-95 (December 12, 2017), 83 *Federal Register* 63708-10 (December 11, 2018), 85 *Federal Register* 7016 (February 6, 2020), 87 *Federal Register* 39600 (July 1, 2022).

⁵⁰ RTC at 13.

⁵¹ 2023 Denial at 6.



this flexibility for all obligated parties and effectively eliminated this option for some obligated parties that were forced to carry over RINs from 2023 into 2024.

CONCLUSION

Given the estimated cellulosic renewable volume obligation (RVOs) for 2024 and the documented shortfall in cellulosic biofuel production in 2023 and 2024, EPA must exercise its cellulosic waiver within CAA section 211(o)(7)(D)(i) authority to reduce the 2024 cellulosic biofuel mandate and establish a standard equivalent to the projected actual volume produced. EPA must also make cellulosic credits available in 2024 as required by CAA section 211(o)(7)(D)(ii). These credits are an important consumer protection mechanism, and EPA should promptly announce its intention to make them available. Finally, EPA should also invoke its authority under CAA section 211(o)(7)(A) to partially waive cellulosic biofuel volumes in 2024 as an additional and alternative basis for the required waiver pursuant to CAA section 211(o)(7)(D)(i).

In taking such actions, EPA should also seek to increase the cellulosic RIN bank to a level sufficient to support cellulosic RIN market liquidity and to cover errors in EPA's forecasts of cellulosic biofuel production. As EPA has acknowledged in multiple RFS rulemakings, a sufficient RIN bank is integral to the smooth and economical operation of the RFS program.

We respectfully request EPA take action as soon as possible after receipt of this request to publicly acknowledge its intention to grant cellulosic biofuel waivers for 2024 and to undertake the ministerial act of amending Table 1 of 40 C.F.R. §80.1405(a) to lower the applicable percentage of cellulosic biofuel for 2024. EPA should concurrently make public its cellulosic waiver credit price calculation.⁵² Taken together, these steps will partially alleviate the ongoing harm incurred by obligated parties, and by extension the consumer, and avoid additional and unnecessary program costs that continue building each day.

If you have any questions concerning the issues raised in this petition, please contact the undersigned at (202) 457-0840.

Respectfully submitted,


Richard Moskowitz
General Counsel

cc: Joseph Goffman
Sarah Dunham
Paul Machiele

⁵² See <https://www.epa.gov/renewable-fuel-standard-program/cellulosic-waiver-credits-under-renewable-fuel-standard-program>.



ATTACHMENT A (Turner, Mason, *Cellulosic RINs Assessment Report*, October 31, 2024)



October 31, 2024

Rich Moskowitz, General Counsel
American Fuel and Petrochemical Manufacturers
1800 M Street, NW, Suite 900 North
Washington, DC 20036

Subject: Cellulosic RINs Assessment Report - October 2024 Updated

As requested, please find enclosed the revised Cellulosic RINs Assessment Report dated October 31, 2024. Turner, Mason & Company (TM&C) developed this updated report using the latest available data from both the Energy Information Administration (EIA) Short Term Energy Outlook (STEO) and the US Environmental Protection Agency (EPA) Public Data website and after incorporating feedback and comments.

Please let us know if you have any questions or would like to meet to discuss further.

Very best regards,

Philip Guillemette
Associate Consultant
Turner, Mason & Company

Cellulosic RINs Assessment Report

Prepared for the American Fuel and Petrochemical Manufacturers

By
Turner, Mason & Company

October 31, 2024

Report Summary

As requested, the following Turner, Mason & Company (TM&C) report provides the latest Cellulosic RINs (Type D3 and D7) Assessment updated with the most recent USEPA Renewable Fuel Standard (RFS) Public Data for the Renewable Fuel Standard (RFS) dated October 10, 2024 and posted on EPA's website on October 17, 2024, and using the Energy Information Administration (EIA) October 2024 Short Term Energy Outlook (STEO) data.

In summary, the Assessment concludes that an insufficient quantity of Cellulosic RINs is expected to be available by end-of-year 2024 to meet the estimated 2024 Cellulosic Biofuel Obligation by (115) million. This projected shortfall is supported by the following analysis:

- The projected shortfall is based in part on the Estimate of 2024 Cellulosic Biofuel Obligation of (1,092) million Cellulosic RINs. The details, including data sources, methods and calculations used to develop this estimate are provided in Appendix A.
- As shown in detail in Appendix C, the Estimate of 2024 Cellulosic Biofuel RINs Available for Compliance is projected to be 1,035 million, which is insufficient to meet the Estimate of 2024 Cellulosic Biofuel Obligation by (57) million RINs.
- Although 2023 Carryover Cellulosic RINs Available for Compliance of 30 million RINs (see Appendix B for further details) may close the shortfall to (27) million Cellulosic RINs, the shortfall is further exacerbated by a 2023 Carryover Cellulosic Biofuel Compliance Deficit of (88) million RINs, as presented in EPA's Public Data, for a total estimated shortfall of (115) million Cellulosic RINs.

The following table summarizes the estimates and projections provided above:

Estimates & Projections	Millions of Cellulosic RINs	Difference	Details
2024 Cellulosic Biofuel Obligation	(1,092)	-	Appendix A
2024 Cellulosic Biofuel RINs Available for Compliance	1,035	(57)	Appendix C
2023 Carryover Cellulosic RINs Available for Compliance	30	(27)	Appendix B
2023 Carryover Cellulosic Biofuel Compliance Deficit	(88)	(115)	EPA Public Data ^(a)

(a) EPA's Public Data for the Renewable Fuel Standard, Renewable Volume Obligations, Table 6: Total Compliance Deficits by Year, Data as of October 17, 2024 (see <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/annual-compliance-data-obligated-parties-and>)

To provide clarity to USEPA and other parties, we have included our calculations in Appendix A and B similar to how EPA had previously structured the data. We have also added Appendix C to provide the details related to the Estimate of 2024 Cellulosic RINs Available for Compliance.

Appendix A

Estimate of 2024 Cellulosic Biofuel Obligation

The renewable volume obligations (RVOs) under the RFS program are given in terms of percentage standards in 40 CFR 80.1405 and are used by each obligated party to determine the number of RINs they must acquire and retire each year. Each standard applies to the sum of all non-renewable gasoline and diesel produced or imported by the obligated party. The percentage standard for cellulosic biofuel in 2024 is 0.63%, based on a volume of 1,090 million gallons of cellulosic biofuel and non-renewable gasoline and diesel demand for 2024 projected in EIA's Annual Energy Outlook (AEO) 2023. The actual volume of cellulosic biofuel needed to meet the 0.63% applicable standard may differ from 1,090 million gallons if the actual volume of non-renewable gasoline and diesel used in 2024 differs from the volume that was projected in AEO 2023. The purpose of this appendix is to detail the calculations performed by Turner Mason and Company to estimate the actual 2024 cellulosic biofuel obligation based on the volume of non-renewable gasoline and diesel projected to be used in 2024.

To estimate the actual 2024 cellulosic biofuel obligation, we began with the equation used to calculate the annual cellulosic biofuel percentage standard in 40 CFR 80.1405(c):

$$Std_{CB,i} = 100 * \frac{RFV_{CB,i}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

Rather than using the volume of cellulosic biofuel to determine the applicable percentage standard as was done in the Set Rule (i.e., 0.63% calculated from a volume of 1,090 million gallons), we instead determined the volume of cellulosic biofuel needed to comply with the cellulosic biofuel percentage standard of 0.63% using updated projections of non-renewable gasoline and diesel volumes to be used in 2024. Thus, rather than calculating $Std_{CB,i}$ from a given value of $RFV_{CB,i}$, we instead calculated $RFV_{CB,i}$ from $Std_{CB,i}$:

$$RFV_{CB,i} = \frac{Std_{CB,i} * ((G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i)}{100}$$

The attached tables detail the values used to calculate $RFV_{CB,i}$. Based on these calculations, the volume of cellulosic biofuel needed in 2024 to comply with the cellulosic biofuel percentage standard of 0.63% is estimated to be 1,092 million gallons.

Table A-1: Calculation of Cellulosic Biofuel Required Volume

Variable		2024	
STD _{CB}	Cellulosic biofuel standard	0.63%	
G	Gasoline consumption in 48 contiguous states + Hawaii	141.09	bil gal
D	Diesel consumption in 48 contiguous states + Hawaii	52.82	bil gal
RG	Renewables contained in G	14.91	bil gal
RD	Renewables contained in D	5.70	bil gal
GS	Gasoline consumption in Alaska or territories, if they have opted in	0.00	bil gal
RGS	Renewables contained in GS	0.00	bil gal
DS	Diesel consumption in Alaska or territories, if they have opted in	0.00	bil gal
RDS	Renewables contained in DS	0.00	bil gal
GE	Gasoline produced by exempt small refineries and small refiners	0.00	bil gal
DE	Diesel produced by exempt small refineries and small refiners	0.00	bil gal
RFV _{CB}	Cellulosic biofuel required volume	1092	mil gal

Note: This table represents a summary of calculations using data from the following tables and includes the EIA adjustment factor of 3.5% for variables G, D, RG and RD.

Table A-2: Gasoline Projections

Data Source: EIA STEO Oct 2024
 Gasoline: Table 4a, Motor Gasoline Consumption
 Ethanol: Table 4a, Fuel Ethanol Consumption
 Other Biofuels: Table 4d, Other Biofuel Consumption

Year	2024		
50-State Gasoline Consumption	8.91	mil bbl/day	Includes ethanol blends
	136,590	total mil gal	
50-State Renewables Contained in Gasoline Consumption	0.92	mil bbl/day	Ethanol
	0.02	mil bbl/day	Other Biofuels
	14,410	total mil gal	
AK Gasoline Consumption	0.0177	mil bbl/day	*Calculated from ratio of AK gasoline/ethanol to nationwide gasoline/ethanol
	271	total mil gal	
AK Ethanol Consumption	0.0000	mil bbl/day	
	0	total mil gal	

Table A-3: Diesel Projections

Data Source: EIA STEO Oct 2024
 Diesel: Table 4a, Distillate Fuel Oil – Reduced 8% ^(a)
 Biodiesel: Table 4d, Biodiesel Consumption
 Renewable Diesel: Table 4d, Renewal Diesel Consumption

Data Source: EIA AEO 2023
 Ocean-Going Vessels: Table 49, “International Shipping” / “Distillate Fuel Oil (diesel)”

Year	2024		
50-State Diesel Consumption ^(a)	3.50	mil bbl/day	Includes Biodiesel + RD
	53,655	total mil gal	
50-State Renewables Contained in Diesel Consumption	0.12	mil bbl/day	Biodiesel
	0.24	mil bbl/day	Renewable Diesel
	5,519	total mil gal	
Ocean-Going Vessels	318.5	tril btu	
	2316	total mil gal	
AK Diesel Consumption	0.0197	mil bbl/day	*Calculated from ratio of AK diesel/biodiesel to nationwide diesel/biodiesel
	302	total mil gal	
AK Biodiesel Consumption	0.0005	mil bbl/day	
	8	total mil gal	

- (a) EIA discontinued the posting of Diesel Fuel Consumption within the Short Term Energy Outlook (STEO) during April 2024 but continued with posting Distillate Fuel Oil (DFO) Consumption. As a result, TM&C conducted an analysis of the historical relationship between Diesel Fuel and Distillate Fuel Oil Consumption using both STEO and EPA Public Data for the RFS. This analysis indicated that Diesel Fuel Consumption has been approximately 92% (Standard Deviation +/- 1%) of DFO Consumption for a nine-year period between 2013 and 2021.

Table A-4: Consumption of Gasoline and Diesel in Alaska

Data Source: State Energy Data System (SEDS): 2022

Release Date: 6/28/2024

Year data represents: 2022

	Alaska ("AK")	50 states ("US")	
Motor Gasoline Total Consumption	6,403	3,215,600	thousand bbl
	269	135,055	total mil gal
Fuel Ethanol Transportation Consumption	0	333,900	thousand bbl
	0	14,024	total mil gal
Distillate Fuel Oil Transportation Consumption	6,215	1,106,537	thousand bbl
	261	46,475	total mil gal
Biodiesel Transportation Consumption	161	39,500	thousand bbl
	7	1,659	total mil gal
Fraction of nationwide gasoline consumed in Alaska			0.0020
Fraction of nationwide denatured ethanol consumed in Alaska			0.0000
Fraction of nationwide diesel consumed in Alaska			0.0056
Fraction of nationwide biodiesel consumed in Alaska			0.0041

Table A-5: Factors Used in Percentage Standards Calculations

Data Source: EIA AEO 2023

Distillate Fuel: Table 68, "Distillate Fuel Oil" / "Transportation"

	2024	
Distillate Fuel used in ocean-going vessels	5.776	mill Btu per bbl
EIA adjustment factor ^(a)	3.5%	

(a) EIA adjustment factor based on AEO projection data, but value is consistent with EIA Actual Volume of G+D errors in RFS Set Rule RIA Table 1.11.1-1. See RFS Set Rule RIA Chapter 1.11 for further discussion.

Appendix B

Available 2023 Cellulosic Carryover RINs Calculation

The purpose of this appendix is to detail the calculations performed to estimate the number of 2023 cellulosic carryover RINs available to use for compliance in 2024. To calculate the number of available 2023 cellulosic carryover RINs, we began with the 2023 compliance year data for cellulosic biofuel in Table B-1. From this data, we calculated that approximately 809 million total cellulosic RINs were retired for compliance in the 2023 compliance year. Of this total, approximately 736 million 2023 cellulosic RINs and 72 million 2022 cellulosic carryover RINs were used.

Table B-1: Cellulosic RINs Retired for Compliance in the 2023 Compliance Year ^(a)

RIN Type	RIN Year		Total
	2022	2023	
D3	72,174,414	736,242,219	808,416,633
D7	236,352	208,643	444,995
Total	72,410,766	736,450,862	808,861,628

- (a) Compliance data from EPA's Public Data for Renewable Fuel Standard. Renewable Volume Obligations "Table 4", Compliance Year 2023, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/annual-compliance-data-obligated-parties-and>. More detailed data on the RINs used to demonstrate compliance can be found in Table B-4.

Next, we calculated the net number of cellulosic RINs that were generated in 2023. To do this, we took the total number of cellulosic RINs generated in 2023 and then removed any RINs that were reported to have been generated in error, as well as any RINs that were retired for purposes other than satisfying an obligated party RVO (e.g., spills, remedial actions, enforcement obligations, etc.). Using the data in Table B-2, we calculated that a net of approximately 767 million cellulosic RINs were generated in 2023.

Table B-2: 2022 Net Cellulosic RINs Generated ^(a)

RIN Type	Total 2023 RINs Generated	RIN Errors ^b	Other RIN Retirements ^c	Net 2023 RINs Generated ^d
D3	774,735,157	1,587,010	6,538,749	766,609,398
D7	208,643	-	-	208,643
Total	774,943,800	1,587,010	6,538,749	766,818,041

- (a) Compliance data from EPA's Public Data for Renewable Fuel Standard. RINs Generated, Total Net Generation Report "Generation Summary", Compliance Year 2023, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rins-generated-transactions>.
- (b) Reference Table B-5 for more detailed data.
- (c) Reference Table B-6 for more detailed data.
- (d) Net RINs generated = Total RINs Generated – (RIN Errors + Other RIN Retirements)

To determine the total number of available 2023 cellulosic carryover RINs, we then subtracted the number of 2023 cellulosic RINs used for compliance with the 2023 cellulosic biofuel standard (see Table B-4) from the net number of 2023 cellulosic RINs generated (see Table B-2). This calculation is provided in Table B-3 and shows that there are currently approximately 30 million available 2023 cellulosic carryover RINs.

Table B-3: Available 2023 Cellulosic Carryover RINs

RFS Standard	RIN Type	Net 2023 RINs Generated	2023 RINs Used for Compliance	Available 2023 Carryover RINs
Cellulosic Biofuel	D3+D7	766,818,041	736,450,862	30,367,179

Table B-4: Cellulosic RINs Retired by Importers, Refiners, and Exporters in the 2023 Compliance Year ^(a)

RIN Type	Year	Importers	Refiners	Exporters	Total
D3	2022	8,374,444	63,799,970	-	72,174,414
	2023	52,025,191	684,217,028	-	736,242,219
D7	2022	-	236,352	-	236,352
	2023	-	208,643	-	208,643
Total		60,399,635	748,461,993	-	808,861,628

(a) Compliance data from EPA’s Public Data for Renewable Fuel Standard. Renewable Volume Obligations “Table 4”, Compliance Year 2023, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/annual-compliance-data-obligated-parties-and>.

Table B-5: 2022 Cellulosic RIN Errors

RIN Type	Import Volume Correction	Invalid RIN	Volume error correction	Total
<i>Retirement Code</i>	<i>30</i>	<i>50</i>	<i>60</i>	
D3	-	1,587,010	-	1,587,010
D7	-	-	-	-
Total	-	1,587,010	-	1,587,010

(a) Compliance data from EPA’s Public Data for Renewable Fuel Standard. Historical Monthly Data, RIN Retirement Data, “RIN retirement data from September 2024 (csv)”, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/spreadsheet-rin-retirement-data-renewable-fuel>

Table B-6: Other 2023 Cellulosic RIN Retirements^(a)

RIN Type	Reported spill	Contaminated or spoiled fuel	Renewable fuel used in an ocean-going vessel	Enforcement Obligation
<i>Retirement Code</i>	<i>10</i>	<i>20</i>	<i>40</i>	<i>70</i>
D3	-	-	-	219,156
D7	-	-	-	-
Total	-	-	-	219,156

RIN Type	Renewable fuel used or designated to be used in any application that is not transportation fuel heating oil or jet fuel	Delayed RIN Retire per 80.1426(g)(3) only	Remedial action Retirement pursuant to 80.1431(c)	Remedial action - Retire for Compliance
<i>Retirement Code</i>	<i>90</i>	<i>100</i>	<i>110</i>	<i>120</i>
D3	-	-	118,471	1,100
D7	-	-	-	-
Total	-	-	118,471	1,100

RIN Type	Remediation of Invalid RIN Use for Compliance	220 Small Refinery Alternate Compliance	Voluntary RIN Retirement	Feedstock using Renewable Fuel with RINs	Total
<i>Retirement Code</i>	<i>130</i>	<i>150</i>	<i>160</i>	<i>170</i>	
D3	-	6,200,022	-	-	6,538,749
D7	-	-	-	-	-
Total	-	6,200,022	-	-	6,538,749

(a) Compliance data from EPA's Public Data for Renewable Fuel Standard. Historical Monthly Data, RIN Retirement Data, "RIN retirement data from September 2024 (csv)", data as of October 17, 2024.
<https://www.epa.gov/fuels-registration-reporting-and-compliance-help/spreadsheet-rin-retirement-data-renewable-fuel>

Appendix C

Estimate of 2024 Cellulosic Biofuel RINs Available for Compliance

This appendix provides additional detail for the source data and calculations performed to estimate the quantity of 2024 Cellulosic RINs Available for Compliance in 2024. To estimate the number of available 2024 cellulosic RINs, we begin first with the most recently available data posted on EPA's Public Data for the Renewable Fuel Standard for Total Available RINs to Date Report, as presented in Table C-1.

Table C-1: Available Cellulosic RINs to Date ^(a)

RIN Type	Total Generated	Total Retired	Total Available
D3	639,336,129	1,080,951	638,225,178
D7	227,964	23,875	204,089
Total	639,564,093	1,104,826	638,429,267

(a) Data from EPA's Public Data for Renewable Fuel Standard. Total Available RINs to Date Report, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/available-rins>

Next, we estimate the additional September RINs expected to be generated before the end of October and reported within EPA's November 2024 posting. As can be seen in Table C-2, we have compared the initially posted RINs one month following with the posted RINs two months following for each RIN Month. Based on a declining difference each month, we have estimated an additional 6,400,000 RINs to be generated for the month of September, which is approximately 0.2 million less than the August difference.

Table C-2: 2024 Reported D3 & D7 Available Cellulosic RINs Generated ^(a)

RIN Month	Posted One Month Following	Posted Two Months Following	Difference
June	74,725,256	82,315,012	7,589,756
July	78,122,303	85,084,819	6,962,516
August	82,703,229	89,335,160	6,632,931
September	87,640,249	<i>94,000,000</i>	<i>6,400,000</i>

(a) Data from EPA's Public Data for Renewable Fuel Standard. Total Net Generation Report, data posted July 17, 2024, August 17, 2024, September 17, 2024 and October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rins-generated-transactions> The projected total and additional September RINs to be posted during November, as described above, are provided in italicized font.

As the next step, we use the monthly Total Net Generation Report data for February through August (see Table C-3) to calculate a monthly generation growth rate for October and November 2024 by using a straight-line method, as shown graphically in Figure C-1. January

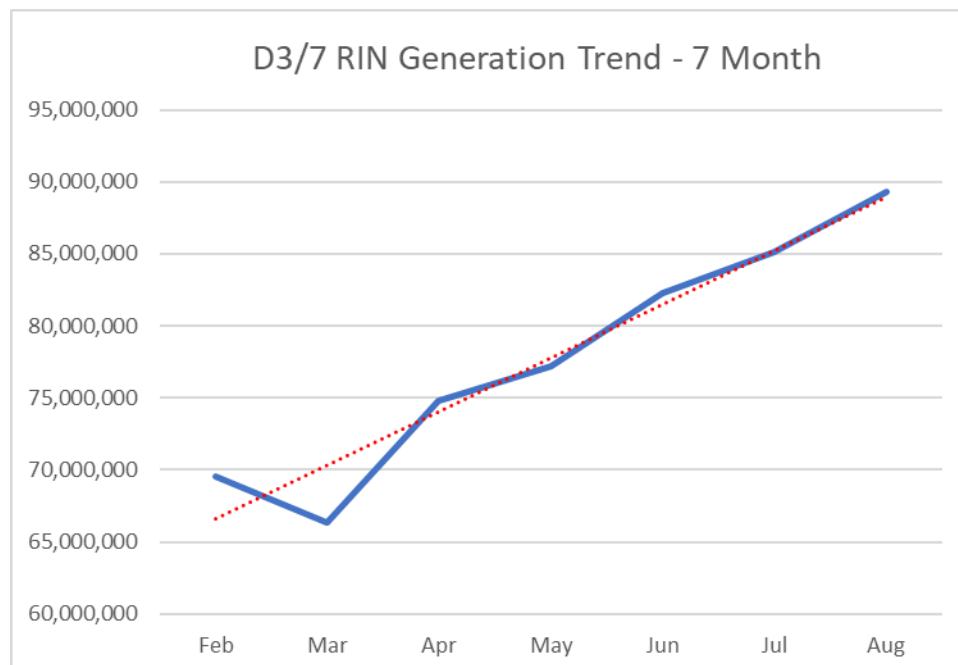
data is excluded from the growth rate calculation, as an outlier due to its small monthly RIN generation, and September is also excluded from the growth rate calculation, because we expect additional September RINs to be generated before the end of October (see discussion above).

Table C-3: 2024 Monthly Cellulosic RINs Generated to Date ^(a)

Month	Net D3 RINs Generated	Net D7 RINs Generated	Total Cellulosic RINs Generated
January	7,206,461	60,218	7,266,679
February	69,565,939	0	69,565,939
March	66,311,733	60,193	66,371,926
April	74,760,842	47,750	74,808,592
May	77,175,717	0	77,175,717
June	82,291,001	24,011	82,315,012
July	85,072,801	12,018	85,084,819
August	89,335,160	0	89,335,160
September	87,616,475	23,774	87,640,249

(a) Data from EPA's Public Data for Renewable Fuel Standard. Total Net Generation Report, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rins-generated-transactions>

Figure C-1



The monthly growth rate using the straight-line method is determined visually by observing the trend-line presented in Figure C-1, as follows:

$$\text{Monthly Growth Rate} = (89 \text{ million} - 67 \text{ million}) / 7 \text{ months} = 3.1 \text{ million RINs/month}$$

With the Monthly Growth Rate of 3.1 million RINs per month and the projected total RINs for September at 94,000,000 (see Table C-2), we can now project the monthly RIN Generation for October and November (see Table C-4). Please note that the projected RIN Generation for the month of December of 192,400,000 is based on the projected November generation multiplied by a factor of 1.92 to account for the typically experienced high year-end increase in reported Cellulosic RIN Generation (see discussion below and Table C-5).

Table C-4: 2024 Monthly and Total Year-End Cellulosic RINs Projection ^(a)

Month	Total Cellulosic RINs Generated
Total Available to Date	638,429,267
<i>Additional September</i>	<i>6,400,000</i>
<i>October</i>	<i>97,100,000</i>
<i>November</i>	<i>100,200,000</i>
<i>December</i>	<i>192,400,000</i>
<i>Total RINs Available for Compliance</i>	<i>1,034,500,000</i>

- (a) Data from EPA's Public Data for Renewable Fuel Standard. Total Available RINs to Date Report, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/available-rins> Projections for additional September RINs and monthly generation for October through December, as described above and below, are provided in italicized font. December's projected RIN Generation of million RINs is 1.92 times the projected November generation, as discussed above and below.

As stated above, the reported December RIN generation typically experiences a high year-end increase each year. To estimate the amount of this year-end increase for 2024, we have reviewed the year-end differences between November and December RIN generation for the past three years. As shown in Table C-5, we have estimated the RIN generation for December to be approximately 192 percent (factor of 1.92) of the estimated November RIN generation based on a three-year weighted average difference.

Table C-5: 2024 Monthly Cellulosic RINs Generated for November and December ^(a)

Year	November	December	% Difference
2021	52,429,941	101,021,430	193
2022	59,243,228	116,574,179	197
2023	69,841,791	131,056,853	188
Total	181,514,960	348,652,462	192

(a) Data from EPA's Public Data for Renewable Fuel Standard. Total Net Generation Report, data as of October 17, 2024. <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rins-generated-transactions>

Please note that a small number of additional Cellulosic RINs can realistically be expected to be retired before year-end, since a small number of retirements have occurred to date (see Table C-1 for Total Retirements to Date). However, an additional quantity has not been included within the year-end projection of RINs Available for Compliance.

Lastly, we have also not included a projection for RIN retirements related to Cellulosic Biofuels exports. Cellulosic Biofuel exports did not occur in 2023 and have not occurred during 2024 to date. However, we noted that approximately 3 million Cellulosic RINs have been separated for Cellulosic Biofuel export (see <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rin-use>). Although these RINs are expected to be retired, we have conservatively not included this potential reduction within the year-end projection, since Cellulosic Biofuels exports have not occurred within the past two years.