Renewable Fuel Standard (RFS) Program: RFS Annual Rules

Response to Comments

United States Environmental Protection Agency

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Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

United States Environmental Protection Agency

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List of Acronyms and Abbreviations

Numerous acronyms and abbreviations are included in this document. While this may not be an exhaustive list, to ease the reading of this document and for reference purposes, the following acronyms and abbreviations are defined here:

ACE	*Americans for Clean Energy v. EPA*, 864 F.3d 691 (D.C. Cir. 2017)
API	*API v. EPA*, 706 F.3d 474 (D.C. Cir. 2013)
BBD	Biomass-Based Diesel
BIP	Biofuels Infrastructure Partnership
CAA	Clean Air Act
CBI	Confidential Business Information
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CWC	Cellulosic Waiver Credits
DOE	U.S. Department of Energy
EIA	U.S. Energy Information Administration
EISA	Energy Independence and Security Act of 2007
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
GREET	Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model
LCA	Lifecycle Analysis
LCFS	Low Carbon Fuel Standard
LNG	Liquified Natural Gas
Monroe	*Monroe Energy v. EPA*, 750 F.3d 909 (D.C. Cir. 2014)
NO_x	Nitrogen Oxides
OPEC	Organization of the Petroleum Exporting Countries
PM	Particulate Matter
REGS	Renewables Enhancement and Growth Support Rule
RFS	Renewable Fuel Standard
RIA	Regulatory Impact Analysis
RIN	Renewable Identification Number
RVO	Renewable Volume Obligation
SRE	Small Refinery Exemption
STEO	Short-Term Energy Outlook
USDA	U.S. Department of Agriculture
VOC	Volatile Organic Compounds

List of Organizations Submitting Comments on the 2020-2022 RVO Rule

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A. Haas	0543
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Affiliated Construction Trades Ohio Foundation (ACT Ohio)	0419
Agresti Energy	0350
Airlines for America (A4A)	0532
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Alternative Fuels and Chemicals Coalition (AFCC)	0468
American Airlines	0410
American Bakers Association	0433
American Biogas Council (ABC)	0499
American Coalition for Ethanol	0479
American Farm Bureau Federation (AFBF)	0525
American Frozen Food Institute (AFFI)	0445
American Fuel and Petrochemical Manufacturers (AFPM)	0462
American Petroleum Institute (API)	0454
American Soybean Association (ASA)	0471
Area Partnership for Economic Expansion	0545
Asher's Chocolate Company Co.	0424
Associated Builders and Contractors (ABC)- Eastern PA Chapter	0482
Association for Dressings & Sauces (ADS)	0497
Association of Equipment Manufacturers (AEM)	0447
B. Carlson	0533
Badger State Ethanol LLC	0371
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Bioeconomy Coalition of Minnesota	0498
Biomass Power Association (BPA)	0415
Biorenewable Deployment Consortium (BDC)	0377

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BP America Inc.	0495
BrandSafway Industries LLC	0362, 0366, 0361, 0467
Brazilian Sugarcane Industry Association (UNICA)	0491
Brightmark	0500
BTR Energy	0441
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Center for Biological Diversity (CBD)	0527, 0528
CF Technologies Inc.	0544
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Coalition for Renewable Natural Gas (RNG Coalition) et al.	0485
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Comstock Mining Inc.	0478
Countrymark Refining and Logistics LLC	0475
Crimson Renewable Energy LLC	0510
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DG Fuels LLC	0546
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Elements Markets Renewable Energy	0522

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Energy Marketers of America (EMA)	0517
Energy Vision Inc. (EV)	0435
Enerkem	0432
Ensyn Corporation	0398
Eversheds Sutherland	0401
Exxon Mobil Corporation	0411
Florida Clinicians for Climate Action (FCCA)	0561
Fulcrum BioEnergy et al.	0434
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General Aviation Manufactures Association (GAMA) et al.	0490
Gevo	0513
Greasezilla	0349
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Independent Fuel Terminal Operators Association (IFTOA)	0501
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Iowa Corn Growers Association et. al	0505
Iowa Renewable Energy et al.	0463
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J. Reichert	0555
J. Stovall	0539
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Kolmar Americas	0407
L. Falk	0537
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Minnesota Power (MP)	0563
Minnesota Soybean Processors (MnSP)	0442
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Montana Renewables LLC	0487
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National Corn-to-Ethanol Research Center (NCERC)	0365, 0565
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National Retail Federation (NRF)	0451
National Taxpayers Union et. al	0378
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Nebraska Farm Bureau Federation (NEFB)	0428

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Next Wave Energy Partners LP	0429
North American Renderers Association	0518
North America's Building Trades Unions (NABTU)	0406
North Dakota Farmers Union (NDFU)	0507
Oberon Fuels, Inc.	0375
OCI Fuels USA	0389
Ohio Chamber of Commerce	0400
Ohio Chemistry Technology Council (OCTC)	0452
Ohio Farm Bureau Federation	0566
Ohio State Building and Construction Trades Council	0420
Ohio State House of Representatives	0397
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PBF Energy Inc.	0443
Peaks Renewables	0509
Pennsylvania Chamber of Business and Industry	0380
Pennsylvania Governor's Office	0457
Pennsylvania Representative Kerry Benninghoff	0369
Pennsylvania Representative Joanna McClinton	0376
Pennsylvania Manufacturers' Association (PMA)	0384
Pennsylvania Senator Jake Corman	0387
Pennsylvania Senator Kim Ward	0412
Pennsylvania State Lodge Fraternal Order of Police	0404
Pet Food Institute (PFI)	0453
Phillips 66	0426
Plumbers and Pipefitters Local Union 74 of the United Association	0394
POET LLC	0488
Portland Bureau of Environmental Services (BES)	0530
Producers of Renewables United For Integrity Truth And Transparency	0520
Prometheus Fuels, Inc.	0571
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Renew Kansas Biofuels Association	0355
Renewable Energy Group, Inc. (REG)	0431

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S. Scharfenberg Jr.	0541
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United Association Local No. 50	0373
United Association of Journeymen et. al	0481
United Brotherhood of Carpenters and Joiners of America (UBC)	0356
United Steelworkers Union	0446
V. Baselice	0535
V. Vicidomina	0540
Valero Energy Corporation	0483
Vallen, a Sonepar Company	0405
Virent, Inc.	0569

Commenter or Organization Name	Docket Item Number[a]
Volunteer Medical Service Corps of Lower Merion- Narbeth Ambulance	0367
Waste Management (WM)	0444
Weaver and Tidwell LLP	0514
Western Plains Energy LLC	0354
World Energy	0459
Wynnewood Refining Company, LLC	0582*

[a] Individual comments from the public (and attachments submitted with comments) submitted to Docket No. EPAHQ-OAR-2021-0324 are assigned a unique 4-digit docket number that follows the base docket number (i.e., XXXX, where "XXXX" represents the unique 4-digit document docket number). For example, Docket Item No. EPA-HQ-OAR-2021-0324-0500 is presented as 0500 in this table and within the text of this document.
* Late comment.

1. Policy Objectives of the RFS Program

1.1 Broad Policy Issues Including Congressional Intent and Program Goals

Commenters that provided comment on this topic include but are not limited to: 0479, 0481, 0511, and 0521.

Comment:

A commenter suggested RFS is intended to reduce GHG emissions and provide diverse domestic energy resources to promote national security.

A commenter suggested that RFS is a key driver for GHG reduction policies, and that this rule should be used to address aviation fuel goals under the SAF Grand Challenge.

A commenter suggested Congress intended the conventional volume to be met entirely with ethanol as E10 – pointing to the projections at the time of enactment that demand for gasoline would rise "indefinitely" and thus the statute does not contemplate exceeding the E10 blendwall.

Response:

The RFS program is intended to lower lifecycle GHG emissions and enhance energy security through increased production and use of renewable fuels. There are also additional goals of EISA, the statute that enacted the RFS program. Indeed, the preamble to EISA lists numerous goals: "An Act To move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers …." In exercising the reset authority, EPA is required by Congress to consider a list of environmental, economic, and other factors contained in CAA section 211(o)(2)(B)(ii). We believe that our action properly balances these statutory factors in the context of the statute's purposes.

This rule does support the use of sustainable aviation fuels, which is a form of BBD. We address this topic further in RTC Section 6.3.3. However, issues related to aviation fuel goals under the SAF Grand Challenge are beyond the scope of this action.

As stated in previous annual standard-setting rules, we are aware that the gasoline demand projections available in 2007 projected considerably higher future total gasoline demand than has actually occurred. However, we disagree with the commenter that Congress intended the implied conventional volume to be met entirely with E10. The statutory text, read in its context, expresses Congressional intent. Nothing in CAA section 211(o) indicates that the implied conventional volume must be met only by E10 or even specifically refer to E10. To the contrary, Congress expressly defined renewable fuel and that definition is not limited to ethanol, or E10. See CAA section 211(o)(1)(J), (o)(2)(A)(i). Rather, Congress expressly allowed for the participation of other renewable fuels in the RFS program, so long as they meet the statutory requirements, including being produced from renewable biomass, being used as transportation fuel, and meeting the lifecycle GHG reduction thresholds. Because Congress spoke directly to this question, EPA gives effect to the unambiguously expressed intent of Congress. There is no

need to examine extratextual evidence. In any event, even were EPA to examine the legislative history, we are not aware of any authoritative legislative history indicating that the relevant legislative committees or Congress as a whole intended the implied conventional renewable fuel volume requirement to be met with no more than 10% ethanol. For instance, we are not aware of language from a House or Senate committee report specifically addressing this issue.

2. Waiver Authorities

2.1 General Waiver Authority

Commenters that provided comment on this topic include but are not limited to: 0413, 0438, 0477, 0485, 0489, 0496, and 0504.

Comment:

We received comments that supported our proposed action not to use the general waiver authority to waive volumes.

Response:

Consistent with the commenters who supported our decision not to use the general waiver authority, we are finalizing our decision to not waive volumes under this authority in this action. We further discuss our response to petitions to waive volumes under the general waiver authority in RTC Section 13.

2.1.1 Inadequate Domestic Supply

Commenters that provided comment on this topic include but are not limited to: 0469 and 0485.

Comment:

A commenter opined that EPA's decision to utilize the reset waiver authority to adjust 2020 and not the general waiver authority under a finding of inadequate supply was indicative of EPA's understanding that there was not an inadequate domestic supply in 2020.

Response:

We take no position on whether we could have instead reduced the 2020 volumes under a finding of inadequate domestic supply. We are only utilizing the reset waiver authority and the cellulosic waiver authority to reduce volumes for 2020.

Comment:

A commenter suggested that EPA's approach to modifying the 2020 volumes is inappropriate. They suggested that the modifications are as a result of "concerns with the lack of supply of RINs for 2020 compliance," and that the general waiver authority under inadequate domestic supply exists to address this issue. The commenter suggested that EPA was utilizing the reset authority because were EPA to use the general waiver authority retroactively, EPA would need to consider carryover RINs consistent with past precedent, and in this circumstance there are sufficient carryover RINs to justify not waiving the volumes under inadequate domestic supply.

Response:

The commenter failed to explain why the existence of the general waiver authority means that EPA lacks authority to waive volumes under the reset or cellulosic waiver authorities. Congress granted EPA multiple "textually distinct waiver authorities that operate in different scenarios pursuant to different limitations."[1] Nowhere does the statute indicate that EPA must utilize a particular waiver authority over other waiver authorities, which are meant to address "different scenarios pursuant to different limitations."[2] In this action, we are utilizing the cellulosic waiver authority and the reset authority to adjust the volumes for 2020. Doing so is appropriate for the reasons discussed in Preamble Section III.

We do not agree with the commenter that EPA is exercising the reset and cellulosic waiver authorities in order to circumvent the requirements of a waiver under the general waiver authority. As a procedural matter, many of the process steps required to exercise the general waiver authority are also applicable to the waiver of volumes utilizing the cellulosic waiver authority or the reset authority, such as the involvement of USDA and DOE in the decision

[1] *Americans for Clean Energy v. EPA*, 864 F.3d 691, 733 n.12.

[2] See also *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Intern., Inc.*, 534 U.S. 124 (2001) (When two statutes are capable of coexistence, it is duty of court, absent clearly expressed congressional intention to the contrary, to regard each as effective.).

making process and the notice and comment requirements. As a substantive matter, we have considered the availability of carryover RINs in this action, as explained in Preamble Section III.

To the extent that the commenter is suggesting that EPA previously interpreted the general waiver authority as requiring EPA to consider carryover RINs as part of available supply, the commenter is wrong. Rather, in the 2014-16 Rule, EPA interpreted the statute as not requiring it to consider carryover RINs in determining supply, a decision that was upheld by the Court in *ACE*.[3] EPA did also state that it may consider the availability of carryover RINs, among other factors, in determining whether to exercise its discretion to waive volumes in the 2014-16 Rule.

Later on, EPA, in evaluating a request to modify the cellulosic biofuel volume requirement after the compliance year was complete, pointed to the availability of carryover RINs as a reason not to exercise our discretion to waive the volume of cellulosic biofuel required.[4] However, EPA's consideration in that context does not require the outcome commenter suggests, nor is consideration of a waiver under a finding of inadequate domestic supply required or suggested by the commenter.

These prior statements, regarding our consideration of carryover RINs in exercising our discretion to waive volumes, are consistent with our action in this rulemaking, where we are also considering the availability of carryover RINs in determining the 2020-2022 volumes.

[3] *ACE*, 864 F.3d at 714.
[4] EPA, Office of Transp. & Air Quality, Denial of AFPM Petition for Waiver of 2016 Cellulosic Biofuel Standard (Jan. 17, 2017) at 3.

2.1.2 Severe Economic and Environmental Harm

Commenters that provided comment on this topic include but are not limited to: 0438.

Comment:

A commenter suggested that EPA should maintain its longstanding interpretation of the general waiver authority under a finding of "severe economic harm."

Response:

We agree with the commenter and are not changing the criteria for a waiver of the volumes under a finding of severe economic harm. Further discussion of our interpretation of this provision is in RTC Section 13.

2.2 Cellulosic Waiver Authority

Commenters that provided comment on this topic include but are not limited to: 0427, 0454, 0462, 0485, and 0521.

Comment:

Many commenters supported our use of the cellulosic waiver authority to reduce volumes for 2020-2022, including in conjunction with the reset waiver authority.

Response:

As proposed, we are finalizing reductions in the 2020-2022 cellulosic biofuel standards utilizing the cellulosic waiver authority as required by the statute. We are also finalizing reductions in the total renewable fuel and advanced biofuel categories for 2022 utilizing the cellulosic waiver authority. We are also finalizing reductions in total renewable fuel, cellulosic biofuel and advanced biofuel for 2020-2022 utilizing the reset authority.

Comment:

Some commenters suggested that EPA is not required to reduce advanced biofuel and total renewable fuel by the same amount (i.e., maintaining 15 billion gallon implied volume of conventional renewable fuel). Some suggested that it would be more appropriate, under the broad policy goals of the RFS program to allow conventional biofuel to backfill for missing cellulosic biofuel in 2022.

Response:

First, we note that we are utilizing the cellulosic waiver authority to reduce the total renewable fuel and advanced biofuel standards only for 2022. As such, this comment regarding how we exercise our discretion under the cellulosic waiver only applies to the 2022 total and advanced biofuel volumes.

We continue to maintain that the best reading of the cellulosic waiver authority is one that utilizes equal reductions for advanced biofuel and total renewable fuel under the cellulosic waiver authority.[5] This approach considers the Congressional objectives reflected in the volume tables in the statute, and the environmental objectives that generally favor the use of advanced biofuels over non-advanced biofuels.[6] Consistent with this approach, we are reducing the advanced biofuel volume by the amount of the reduction in cellulosic biofuel and providing an

[5] See 85 FR 7016, 7030 (February 6, 2020); 83 FR 63704 (December 11, 2018); 82 FR 58504 (December 12, 2017); 81 FR 89750 (December 12, 2016); 80 FR 77434 (December 14, 2015); 78 FR 49809–49810 (August 15, 2013).
[6] See 81 FR 89752–89753 (December 12, 2016). See also 78 FR 49809–49810 (August 15, 2013); 80 FR 77434 (December 14, 2015). Advanced biofuels are required to have lifecycle GHG emissions that are at least 50% less than the baseline defined in EISA. Non-advanced biofuels are required to have lifecycle GHG emissions that are at least 20% less than the baseline defined in EISA unless the fuel producer meets the grandfathering provisions in 40 CFR 80.1403. Beginning in 2015, all growth in the volumes established by Congress come from advanced biofuels.

equal reduction in the applicable volume of total renewable fuel in 2022. As we explain in the preamble and the RIA, we also believe this result is appropriate given our consideration of the statutory factors under the reset authority.

In addition, we reject the commenter's suggestion for a second independent reason. There is not expected to be additional conventional renewable fuel in 2022 that can backfill for missing cellulosic volumes. As discussed in Preamble Section III.E, RIA Chapters 2 and 5, and RTC Section 6.3, we do not expect the market to use even 15 billion gallons of conventional renewable fuel in 2022. Rather, we expect the market to use significant amounts of advanced biofuel in excess of the advanced biofuel standard to satisfy the implied conventional portion of the total renewable fuel standard. Since there is expected to be insufficient conventional renewable fuel to meet even the implied convention renewable fuel volume of 15 billion gallons in 2022, it follows that there is not expected to be excess conventional renewable fuel that can be used to backfill for missing cellulosic volumes.

2.3 Reset Authority

2.3.1 Statutory Language and Criteria

Commenters that provided comment on this topic include but are not limited to: 0385, 0402, 0428, 0433, 0438, 0442, 0454, 0458, 0462, 0464, 0476, 0479, 0485, 0516, 0521, 0525, and 0564.

Comment:

Several commenters suggested that the statute did require particular weighting of certain factors. A commenter suggested that the reset is "not an occasion . . . to reconsider or refashion the purposes behind the RFS program . . . . It is, rather the opportunity provided by Congress for EPA to conduct a midcourse correction and recalibrate the statutory volume requirements in order to pursue full implementation of the program's market-forcing function." The commenter suggested that "Congress did not intend [the reset] factors to be an excuse for EPA to write on a clean slate, to substitute its own judgment for Congress's purposes, or to engage in a free-form weighing and balancing of the factors to establish new volumes." The commenter suggested the reset was rather an opportunity for a multi-year waiver that should be limited to the waiver necessary to alleviate shortfalls in the various fuel types. The commenter also suggested a distinction between the reset authority and the set authority such that the reset authority should narrowly remedy the circumstances that triggered the reset, in comparison to the set provision which applies with simply the passage of time.

More specifically, the commenter suggested that the proper use of the reset factors anticipates cellulosic production, sets the cellulosic standard at that volume, and then makes corresponding decreases in advanced biofuel and total renewable fuel unless higher levels of advanced biofuel or renewable fuel use can be achieved. The commenter suggested that this approach best serves the purposes of the Act in "promoting increased renewable fuel use to reduce GHG emissions, enhance U.S. energy security, and support economic development," and is likely to result in higher volumes than we are finalizing in this action.

Commenters also pointed to the use of the term "modify" to indicate that reductions under the reset authority should not go beyond reductions that could be made under the other waiver authorities.

Relatedly, a commenter advocated that EPA should, when exercising its authority under CAA section 211(o)(7)(F), prioritize the climate and environmental impacts. This commenter asserts that the climate and environmental impact factors are listed first in the list of statutory factors, are foundational to the RFS program as evidenced by specific, regular reports required under the CAA (i.e., the triennial reports to Congress that review the environmental impacts of the RFS program and "a separate study of the impacts to air quality to be sure biofuels are not detrimental in that regard"). In contrast, Congress did not require periodic review and report on the RFS program's impacts on job creation or fuel cost. Accordingly, energy security and rural economic development are ancillary outcomes EPA must weigh against the environmental factors that are central to the RFS program.

Response:

We have not adopted the statutory interpretation advocated for by these commenters. As we explain in Preamble Section II.A, the statute does not indicate that EPA must weight any factors in CAA section 211(o)(2)(B)(ii)(I)-(VI) more than the others. Rather, the statute requires EPA to consider all of the factors but entrusted the proper weighting of the factors to the Administrator's judgment. As we explain in Preamble Sections II and III and the RIA, EPA has engaged in a holistic balancing of the factors in determining the final volumes.

We do not agree with the commenter's suggestion that the reset authority is meant merely to alleviate shortfalls in production or that EPA's discretion under the reset authority is merely to remedy the circumstances that triggered the waiver. CAA section 211(*o*)(7)(F) provides the triggers for the reset authority, but it does not indicate that in resetting the volumes, EPA's substantive authority to modify the volumes is limited to only addressing the triggering conditions. Nor did Congress indicate that EPA's authority under reset was limited to establishing volumes equal to the projected production of each renewable fuel type. To the contrary, Congress explicitly directed that "[i]n promulgating such a rule, the Administrator shall comply with the processes, criteria, and standards set forth in paragraph (2)(B)(ii)." CAA section 211(o)(2)(B)(ii) in turn contains all of the statutory factors we analyze in this rulemaking, indicating that Congress intended for EPA to determine the appropriate volumes based on a comprehensive, holistic consideration of all the factors, not merely the rate of production. More specifically, we see little reason for Congress to enumerate factors such as "the impact of the use of renewable fuel on the cost to consumers of transportation fuel and on the cost to transport goods," or "food prices" if EPA were only able to reduce volumes to the amount of renewable fuel that could be produced.

We do not agree that the statutory terms "modifies" or "modification" require the result suggested by these commenters. EPA interprets these words to mean that the agency is to change the volumes in the statutory tables based upon the considerations required by Congress. We acknowledge that some dictionaries do define these words as containing limits on the extent of the change (e.g., a "small" change).[7] However, this aspect of the common meaning of "modifies" or "modification" is of limited relevance because Congress provided specific guidance to the agency on the nature of the modification. Specifically, "[i]n promulgating such a rule, the Administrator shall comply with the processes, criteria, and standards set forth in paragraph (2)(B)(ii)." As explained above, EPA has complied with the requirements of CAA section 211(o)(2)(B)(ii) in promulgating this rulemaking.

Moreover, even were we to credit the common meanings of "modifies" or "modification," multiple common meanings support our final rule. Many dictionaries do not qualify the extent of the change in defining these terms. For example, the American Heritage Dictionary defines "modify" as "1. To change in form or character; alter. 2. To make less extreme, severe, or

[7] MODIFY, Black's Law Dictionary (11th ed. 2019) ("To make somewhat different; to make small changes to (something) by way of improvement, suitability, or effectiveness").

strong."[8] This rulemaking enacts a "change in … character" to the statutory volumes and makes them "less extreme, severe, or strong."

EPA does not agree that the reset authority limits us to making only "small" changes. To begin with, it is unclear what a "small" (or "slight" or "moderate") change means in this context, where Congress directed EPA to modify the volumes based on a comprehensive analysis of the program, and the environmental, energy, and environmental impacts of renewable fuels. As noted above, had Congress wanted to impose such a limitation on the extent of EPA's authority to modify volumes, it could have done so. Indeed, Congress did impose such limitations on other waiver authorities. See, e.g., CAA section 211(o)(7)(D)(i) (allowing EPA to reduce renewable fuel and advanced biofuel volumes "by the same or lesser volume" as the reduction in cellulosic biofuel), (E)(ii) (requiring EPA to reduce the BBD volume "by an appropriate quantity that does not exceed 15 percent of the applicable annual requirement"). Congress's refusal to impose such a limitation in this context indicates that no such limitation should be implied.

Moreover, such a limitation would also be inconsistent with the commenters' requests, which ask us (among other things) to reduce the cellulosic volume to the level of production. As we explain in RIA Chapters 1 and 5, the level of cellulosic biofuel production is over an order of magnitude less than the statutory volume. This is not a "small" (or "slight" or "moderate") adjustment.

We also note that the 2022 volumes we are finalizing are both market-forcing and consistent with the statutory volumes less reductions associated with shortfalls in cellulosic biofuel. As noted in other parts of this document, the 2022 volumes are also independently justified under the cellulosic waiver authority. That is, even had we not exercised the reset authority in this rulemaking, we would have established the same volumes for 2022. We recognize that because 2020 and 2021 are in the past, the standards we are promulgating both are not and cannot be market-forcing with respect to biofuel use in those years. The 2021 standards, however, do reflect large increases in renewable fuel use from 2020. In the aggregate, the 2020-2022 standards, along with the 250 million gallon supplemental volume, continue to make progress toward the goals of increasing renewable fuel use and production.

We also disagree with the commenter that suggested EPA must prioritize the environmental factors simply because they are listed first in the statute. Had Congress wanted EPA to prioritize the environmental factors, it could have simply stated that in the statute. But instead, Congress provided a list of factors in CAA section 211(o)(2)(B)(ii)(I)-(VI), without any indication that any one of those factors was more important the others. Therefore, EPA has holistically considered the environmental factors, together with the other factors, in determining the final volumes. In any event, even were EPA to give some additional weight to the environmental factors, this would not affect the final volumes. As with the factors generally, different environmental factors point in different directions: the potential positive climate benefits of renewable fuels generally favor higher volumes, while the potential negative environmental impacts, particularly of crop-based biofuels, favor lower volumes. Thus, even were EPA to prioritize the environmental

[8] https://www.ahdictionary.com/word/search.html?q=modify. See also MODIFY, Black's Law Dictionary (11th ed. 2019) ("To make more moderate or less sweeping; to reduce in degree or extent; to limit, qualify, or moderate.").

factors, that would not preclude the need for EPA to exercise its discretion in determining the final volumes or indicate that the final volumes are unreasonable.

For similar reasons, we disagree with the commenter suggesting that EPA must prioritize the environmental impacts because the statute elsewhere requires EPA to review and report on the environmental impacts of biofuels. See, e.g., EISA section 204; CAA section 211(q). In addition, we note that the statute also requires review or report of various other issues as well. See, e.g., CAA section 211(o)(11) (review of existing technologies, feasibility, and impacts of the requirements), (q)(3) (ethanol permeation effects), (o)(10) (ethanol market concentration). However, Congress did not indicate that EPA must consider or give special weight to any of these separate reviews or reports in exercising the reset authority. Had Congress wanted to, it could have. Cf., e.g., CAA section 211(o)(9)(B)(ii) (requiring EPA to consider the findings of the DOE study in adjudicating SREs). But it did not, and its silence suggested that it entrusted EPA with the discretion to weigh the statutory factors.

Comment:

A commenter suggested an "analytical hierarchy" of the statutory factors. They suggested that there are "key factors" that correspond to the "core congressional objectives of the RFS program" (i.e., climate change, energy security, and job creation and rural economic development), that these key factors must be prioritized. The commenter noted also that certain factors acknowledge the feasibility of RFS volumes. Finally, the commenter acknowledged other factors that consider effects of renewable fuel use, on things like other environmental factors, deliverability of products, and fuel, food, and good prices. The commenter suggested that the "guidepost" for these other factors is that impacts would be "severe," the standard articulated under the general waiver authority.

Response:

As explained above, we do not agree that the statute requires EPA to give greater weight to certain factors in CAA section 211(o)(2)(B)(ii)(I)-(VI). Nonetheless, we note that the final volumes result in many of the benefits the commenter suggested we needed to prioritize. RIA Chapters 3, 4, and 7 discuss the positive benefits to climate change, energy security, and job creation and rural economic development associated with the final volumes.

We do not agree that EPA's consideration of factors such as environmental impacts, fuel and food prices, and deliverability is limited to considering only "severe" impacts akin to the standard articulated under the general waiver authority. The reset authority does not contain the word "severe." Congress obviously knew how to limit EPA's consideration to only "severe" impacts as it did in the general waiver authority, but it did not do so in the reset authority.

Comment:

A commenter disagreed with our assertion that the statute does not provide guidance on how EPA should weigh the various factors. In particular, the commenter noted that GHG emissions

and job creation should be analyzed quantitatively, and that others like energy security should be analyzed "objectively" even if they cannot be analyzed quantitatively.

Response:

As explained above, the statute does not prescribe a particular weighting to the various statutory factors. The statute also does not generally require quantitative analysis. As we explain in Preamble Section III.H and the RIA, we were able to quantify certain factors but not others during the timeframe for this rulemaking.

We specifically do not agree that the statute requires quantitative analysis of climate change. To begin with, the statute does not explicitly require that. This reading is supported by the statutory context. Other parts of CAA section 211 specifically require quantification of lifecycle GHG emissions. See, e.g., CAA section 211(o)(1)(B)(i), (o)(1)(D), (o)(1)(E), (o)(2)(A)(i), (o)(4). The issue of quantification was thus clearly within Congress's consideration in enacting the statute, but Congress did not prescribe quantification for the reset authority, suggesting this issue was left to EPA's judgment. As we explain in detail in RIA Chapter 3.2, EPA has not quantified the GHG impacts of this rulemaking. However, we have provided a quantified, illustrative scenario for the purpose of providing useful information to the public regarding climate change and to comply with E.O. 12866.

We also do not agree that the statute requires a quantitative analysis of job creation. Again, the statute does not address quantification of that factor. Nonetheless, we have been able to provide a quantitative analysis of job creation in RIA Chapter 7.

We have analyzed energy security impacts in RIA Chapter 4. The commenter did not explain how EPA's analysis was not "objective;" our analysis is appropriately based on EPA's evaluation of the literature, qualitative and quantitative analysis, and considered technical judgment.

2.3.2 Other Comments

Commenters that provided comment on this topic include but are not limited to: 0355, 0428, 0443, 0505, 0510, and 0570.

Comment:

Some commenters suggested that the reset authority can only be used prospectively to reduce volumes. They pointed to the statutory requirement that EPA issue regulations "within 1 year after issuing such [triggering waiver or waivers]" and "for all years following." They also pointed language such as "expected" and "future" in the statutory factors. Similarly, a commenter stated that even if the reset authority could be read to be used after the statutory deadline, it can only be used for future years.

A commenter suggested that a retroactive rulemaking requires explicit statutory language allowing for such an action, which does not exist here. Another commenter suggested that the APA does not authorize retroactive rulemaking, and that is particularly true when EPA has already acted in the first instance and is now acting to revise standards already set to revise further.

A commenter also suggested that EPA is habitually missing deadlines in order to set the standards at actual levels, and that this practice means EPA cannot rely on lateness as a justification to set the standards at the actual levels.

Response:

We acknowledge that we are exercising the reset authority after the statutory deadline and retroactively for 2020-21 and part of 2022. However, as we explain in Preamble Sections II and III, we believe that doing so is appropriate, consistent with the statute, and consistent with D.C. Circuit precedent in *ACE* and other cases. We further explain our reasoning below.

We do not agree that the statute must explicitly provide EPA with the authority to issue retroactive standards. This view has been rejected by the D.C. Circuit. In *National Petrochemical,* the court directly addressed this argument, acknowledging that "although the relevant provisions of the Clean Air Act contain no language suggesting that Congress intended to give EPA the unusual ability to implement rules retroactively, there may be an exception for situations in which the statute prescribes a deadline by which particular rules must be in effect and the 'agency misses that deadline.'"[9] The Court went on to hold that "any primary retroactive effects were implicitly authorized under the EISA and EPA reasonably balanced any retroactive effects against the benefits" of its rulemaking.[10] Subsequently, the Court followed *National Petrochemical* in two later cases, *ACE* and *Monroe Energy*, also upholding EPA's late and

[9] Nat'l Petrochemical & Refiners Ass'n v. E.P.A., 630 F.3d 145, 162 (D.C. Cir. 2010).
[10] Id.

retroactive RFS standards because EPA reasonably balanced the burdens and benefits associated with lateness and retroactivity.[11]

In the rulemakings underlying these cases, EPA exercised several statutory authorities that EPA is also exercising in this action. These are CAA section 211(o)(3)(B) (determination of the renewable fuel standards), 211(o)(7)(D)(i) (cellulosic waiver authority), and 211(o)(2)(B)(ii) (authority to set volumes). None of these statutory authorities explicitly authorized EPA to promulgate retroactive standards. Nonetheless, the D.C. Circuit upheld EPA's retroactive rulemakings in all cases. In exercising these authorities in this rulemaking, we have carefully followed the D.C. Circuit's precedent on retroactive rulemaking, as explained in Preamble Sections II and III.

We are also exercising the reset authority, CAA section 211(o)(7)(F), for the first time in this rule. As with the statutory authorities cited above, we believe that primary retroactive effects, if any, are implicitly authorized by statute.[12] We have also carefully balanced the lateness of our action, the retroactive effects, and the benefits of the rulemaking, as explained in in Preamble Sections II and III.

We do not agree with the commenters suggesting that the text of the reset authority precludes retroactive rulemaking. The statute states that "the Administrator shall promulgate a rule (within 1 year after issuing such waiver) that modifies the applicable volumes set forth in the table concerned for all years following the final year to which the waiver applies." We acknowledge that this language indicates that the rulemaking should be promulgated by a particular deadline and be prospective. However, the statute does not indicate that EPA loses power to act due to the passage of time. Had Congress intended that result, it could have specified it, such as by providing limiting statutory language such as "for all future years after the promulgation of the rulemaking" (as opposed to "for all years following the final year to which the *waiver* applies") or "modifies the applicable volumes prospectively."

The mere presence of a statutory deadline is insufficient to preclude late or retroactive rulemaking in this context. The authorities underlying the prior late and retroactive rulemakings that the D.C. Circuit upheld also contained statutory deadlines. See CAA sections 211(o)(3)(B) ("November 30 of each of calendar years 2005 through 2021"), (o)(2)(B)(ii) ("no later than 14 months before the first year for which such applicable volume will apply"), (o)(7)(D)(i) ("not later than November 30 of the preceding calendar year").

For similar reasons, we also do not believe that the statutory factors language in CAA section 211(o)(2)(B)(ii), such as "expected" and "future," precludes retroactive rulemaking. As noted

[11] *Americans for Clean Energy v. Env't Prot. Agency*, 864 F.3d 691, 718 (D.C. Cir. 2017); *Monroe Energy, LLC v. EPA*, 750 F.3d 909 (D.C. Cir. 2014).

[12] As the Court has explained, it is not also clear that EPA's rulemaking actually has any primary retroactive effects to begin with. See, e.g., National Petrochemical, 630 F.3d at 158-62; Monroe Energy, 750 F.3d at 920. The final RFS standards do not impose any sanctions on past conduct, but merely affect the future value of past transactions.

above, EPA has previously relied on that provision to establish retroactive volumes, including the 2014-15 BBD applicable volumes, which the D.C. Circuit upheld.[13]

Of course, both the statutory deadlines and the statutory factors language cited above suggest that Congress intended for EPA to act prospectively. EPA recognizes that timely promulgation of the RFS standards is important, not only as a matter of compliance with the statute, but also because it facilitates the smooth functioning of the RFS program, provides signals to market actors to invest in renewable fuel production and use, and affects compliance planning for obligated parties. Prior to this rulemaking, EPA issued several years of RFS standards, from 2016-20, either on time or shortly after the statutory deadline. In those rulemakings, EPA did not rely on lateness as a justification for setting the volumes at actuals. We thus strongly disagree with the commenter's suggestion that we have been habitually missing deadlines with the intent of setting standards at actual volumes.

We were not able to meet the statutory deadlines at issue in this rule due to the complex nature of this rulemaking. This rule exercises the reset authority for the first time, which not only required EPA to address numerous issues of legal interpretation but also to perform the extensive technical analysis contained in the RIA. No other RFS annual rule has had to address similar challenges since the 2010 rulemaking which established the framework regulations for the RFS2 program. Moreover, the COVID-19 pandemic caused massive and unprecedented disruptions to the transportation fuel market, and those ensuing effects further complicated our analyses for this rule. There was also significant uncertainty regarding the methodology for assessing SREs, which underlies EPA's projection of SREs for this rule, following the Tenth Circuit's decision in *RFA* and the Supreme Court's decision in *HollyFrontier*. As we explain in Preamble Section III.C, these were also key reasons in persuading us to retroactively reconsider and revise the 2020 rule. These extenuating factors contributed to the lateness of this rule. Consistent with the Court's precedents, we believe that we retain the power to promulgate this rulemaking, despite its lateness and retroactive effects.

Comment:

Some commenters suggested that the reset authority should not be used to modify already established standards. Using it to adjust past years would not further the goal of market certainty.

A commenter suggested that the D.C. Circuit precent in *ACE* regarding retroactive rulemaking actions is inapplicable for 2020, and was wrongly decided. The commenter stated that the Court's decision was only applicable when, absent a retroactive action, there would be no standards in place. In contrast, 2020 standards have already been promulgated. The commenter suggested that the use of the reset authority is not necessary for continued implementation of the RFS program, and thus should not be used to adjust an already established standard. The commenter suggested the reset authority only allows for a "advance multi-year waiver."

[13] See *Americans for Clean Energy v. Env't Prot. Agency*, 864 F.3d 691, 720 (D.C. Cir. 2017).

Response:

As we explain above, our exercise of the reset authority is reasonable and consistent with the D.C. Circuit's precedents. We agree with the commenters that retroactively revising a past standard is different from retroactively promulgating a standard on a blank slate. We have carefully considered this difference in Preamble Sections II and III.

We do not, however, agree that we are not authorized to retroactively revise a past standard. As explained in the preamble, agencies generally have the authority to revisit past rulemaking actions. As noted in RTC Section 2.4.1, we have also in the past modified RFS standards as a result of new information.

While the D.C. Circuit did not specifically address this issue in *ACE* or its earlier cases, nothing about those cases suggests that EPA lacks authority to revise a past standard. Rather, those cases focused on (i) Congress's failure to specify the consequences of EPA's failure to meet a statutory deadline; (ii) the principle that where there are less drastic remedies available for an agency's failure to meet a statutory deadline, courts should not assume Congress intended for the agency to lose its power to act; (iii) EPA's mandate to implement the statutory directive to ensure the use of renewable fuel; and (iv) the notion that it would be drastic and incongruous to preclude EPA from fulfilling that statutory mandate based on its delay.[14] None of these elements turns on whether EPA is promulgating a new standard or revising a past standard.

Nor do these elements turn on whether the RFS program can be implemented in the absence of EPA exercising its reset authority. We acknowledge that EPA could in theory have continued to implement and enforce the original 2020 standards. However, as we explain in Preamble Sections III.B and C, doing so would have resulted in a substantial probability of noncompliance by some obligated parties, with ensuing adverse effects for the entire renewable fuels program. We do not believe that result to be appropriate.

We note that the D.C. Circuit addressed and rejected an analogous claim in *ACE*. There, some biofuel groups claimed that EPA erred by treating its lateness as license to reduce the 2014 and 2015 statutory volume requirements to reflect the actual volumes of renewable fuel that were introduced and available for compliance during those years.[15] In theory, EPA could have implemented the statutory volumes through percentage standards directly, without lowering the volumes. However, given the retroactive nature of the 2014 and 2015 standards, EPA considered the feasibility of compliance and the availability of RINs to reduce the volumes to those actually consumed, a decision which the D.C. Circuit upheld.

Finally, we note that Congress did specify elsewhere in the statute specific consequences for the timing of other EPA actions. In one case, Congress specified that if the agency failed to timely promulgate regulations to implement the RFS program, then a default, statutorily prescribed, standard would apply for calendar year 2006. See CAA section 211(o)(2)(A)(iv). In another case, Congress required that certain obligations be met even if the agency failed to timely promulgate regulations, suggesting that those obligations must be satisfied as a matter of law and could not

[14] *Id*. at 721.
[15] *Id*. at 718.

be balanced away in view of burdens on regulated entities occasioned by the passage of time. See CAA section 211(o)(2)(A)(iii). In yet another case, Congress stated that any regulations only apply prospectively to new facilities constructed after the effective date of such regulations. See CAA section 211(o)(4)(G) (requiring that GHG threshold adjustments "only apply to renewable fuel from new facilities that commence construction after the effective date of such adjustment…"). In the present case, however, Congress did not specify the consequences of EPA failing to exercise the reset authority in a timely fashion. Therefore, EPA may belatedly exercise the reset authority so long as we comply with the D.C. Circuit's precedent, which we have done.

Comment:

Several commenters suggested that the plain language of the statute refers to the statutory volumes in the tables, not already waived volumes. Some commenters, in providing comments about the 2020 cellulosic biofuel standard, also suggested the statutory structure contemplates EPA making modifications to the cellulosic volume through the reset authority before EPA uses the cellulosic waiver authority, and not after.

A commenter suggested that waiving volumes utilizing the reset authority is inappropriate when the same reductions could be made utilizing the general waiver authority, or the cellulosic waiver authority.

A commenter suggested that because of the differing considerations under the reset and cellulosic waiver authorities, EPA cannot use them together. They suggested that the reset authority modifies the statutory volumes, and the resulting volumes should be market forcing.

Response:

We disagree with all these comments. As we explain above, Congress granted EPA multiple textually distinct waiver authorities that operate in different scenarios pursuant to different limitations, such that our exercise of one authority (like the cellulosic waiver) does not displace our exercise of another authority (like reset). Had Congress wanted to limit EPA's ability to use one authority after it exercised another one, or to sequence the exercise of multiple authorities in a particular manner, it could have said so.

Throughout the statute, Congress did specify the impacts of certain agency actions on the agency's subsequent authority. For example, the reset authority is triggered by prior agency actions waiving volumes exceeding certain thresholds. In addition, the availability of cellulosic waiver credits is triggered by EPA exercising the cellulosic waiver. Furthermore, Congress specified that once EPA promulgates the regulations required by CAA section 211(o)(2)(A)(i), the agency's authority to subsequently adjust the GHG thresholds set forth in CAA section 211(o)(4) is limited. See CAA section 211(o)(4)(E).

But Congress did not indicate that exercising the cellulosic waiver would abrogate the agency's power to exercise the reset authority. Nor did Congress speak directly to the sequencing of the cellulosic waiver and reset authorities, indicating that it entrusted this matter to EPA's judgment.

None of the comments persuasively grapple with these features of the statute, and therefore EPA disagrees with all of them. We provide further responses to specific issues below.

We disagree with the comments asserting that EPA can only exercise the reset authority relative to the statutory volumes as opposed to the waived volumes and that EPA can only exercise the reset authority before EPA exercises the cellulosic waiver. Nothing in the statute requires either of these results. In the past, EPA has also interpreted the general and cellulosic waiver authorities as allowing EPA to first exercise one authority and then another, so long as the relevant statutory conditions are met.[16] We think the same is true for the cellulosic waiver and reset.

In any event, this comment is of limited relevance, because EPA is exercising the cellulosic waiver and the reset authority simultaneously in this rulemaking. While we did use the cellulosic waiver authority to reduce the cellulosic biofuel volume in the original 2020 standards to 590 million gallons, we are now reconsidering that determination and using the cellulosic waiver authority and the reset authority concurrently to adjust the cellulosic biofuel standard. Thus we are not utilizing the reset authority to waive volumes after the use of the cellulosic waiver authority as suggested by the commenter.

While it is true that we could require greater reductions in the cellulosic volume utilizing the reset authority than the cellulosic waiver authority (which provides that EPA must waive the volumes to the "projected volume available,") we are not doing so. This result is consistent with the commenter's general support for higher volumes of cellulosic biofuel. The volume we are finalizing for cellulosic biofuel for 2020 is both the appropriate volume after considering the reset factors and the projected volume available as required by the cellulosic waiver authority.

We also disagree with the comment that simply because the same reductions could be made under the general or cellulosic waiver, the reset authority is not available. As explained in Preamble Section 2 of both the proposal and final rule, nothing in the CAA would suggest that EPA's various waiver authorities are incompatible with each other, or that the use of one precludes the use of another. That EPA could have used other waiver authorities to achieve the same reductions in volumes does not mean that EPA cannot utilize the reset authority to modify volumes in the same fashion. This is particularly true given the mandatory nature of the reset provision, in contrast to the discretionary nature of the general waiver authority. We interpret the statute as providing waiver authorities that can be used when the specifically articulated criteria are met; this is true whether another waiver authority is utilized in the same action.

Comment:

The commenter noted that the use of "any" in the reset provision does not connote additional authority to EPA.

[16] See prior annual rules: 2014, 2015, and 2016 volumes 80 FR 77420 (December 14, 2015); 2017 volumes, 81 FR 89746 (December 12, 2016); 2018 volumes, 82 FR 58486 (December 12, 2017); and 2019 volumes, 83 FR 63704 (December 11, 2018); see also the 2012 waiver denial, 77 FR 70752 (November 27, 2012).

Response:

We read the statutory phrase "[f]or any of the tables in paragraph (2)(B)" as indicating that the reset authority applies to each of the four categories of renewable fuel. That is, when the triggering conditions are met for any of the biofuel categories, EPA is required to adjust the volumes for the following years for that category. Because reset has been triggered for renewable fuel, advanced biofuel, and cellulosic biofuel, as described in Preamble Section II, we are required to modify the volumes for those three renewable fuel types.

We note that we have not revised the 2020 and 2021 BBD volume requirements under reset. The BBD volumes in the statutory table end in 2012, and since the reset authority only applies after 2016, it does not apply to BBD. In any event, we also have never waived the BBD volume and thus have not met the triggering conditions for resetting BBD.

2.4 Considerations for Retroactive Rulemakings

Commenters that provided comment on this topic include but are not limited to: 0458, 0462, 0491, 0505, 0525.

Comment:

A commenter suggested that EPA's general authority to reconsider RFS standards, and power of reconsideration is not "unfettered" and must be within the bounds of its statutory authority. Because EPA lacks statutory authority to use the reset authority to adjust past standards, EPA cannot reconsider the 2020 standard as it has proposed.

Response:

We address this comment above and in Preamble Sections II and III.

Comment:

A commenter suggested that EPA's decision to reconsider the 2020 standards when the SRE projection was too high considers only the burdens on obligated parties, but not the benefits of requiring additional renewable fuel use that leaving the standards in place would provide, nor the burdens on renewable fuel producers. The commenter suggested that if EPA will retroactively decrease standards when small refinery exemption projections are too high, EPA should also retroactively increase standards when more SREs are granted than projected and accounted for in the standards. The commenter suggested that not making such a commitment to do so would be irrational and unlawful.

Response:

We disagree with the commenter. The first part of this comment, regarding benefits of requiring additional biofuel use and burdens on producers, is addressed in Preamble Sections II and III. The second part of this comment, regarding reallocation of previously granted SREs, is addressed in RTC Section 7.

Comment:

A commenter suggested that EPA setting the 2021 standards at actuals "unlawfully negates the RFS program." The commenter suggested that the D.C. Circuit's holdings in *ACE* were incorrect, and that the use of the reset authority to adjust the 2021 standards is also unlawful. The commenter also suggested that EPA must backfill any shortfalls in cellulosic with other renewable fuels.

The commenter suggested that EPA could "use relevant data as of November 30, 2020" and made reductions limited only by carryover RINs and deficits, implying that such a volume would be higher than the one proposed. The commenter did not, however, calculate such a volume. The commenter suggested this would be an appropriate response given EPA's lateness in issuing the

2021 standards, particularly as a means to increase renewable fuel use. The commenter suggests that compliance could be achieved with this approach by setting a higher 2021 volume standard, combining the 2021 and 2022 standards, or issuing a supplemental standard in 2022 associated with the 2021 standards. The commenter suggests these approaches would increase renewable fuel use.

The commenter pointed to the combined 2009 and 2010 BBD volumes, upheld by the D.C. Circuit in *NPRA v. EPA*, as an indication that EPA can promulgate combined standards. The commenter also suggested that the D.C. Circuit's decision in in *ACE* upholding reductions in the 2014 and 2015 standards was flawed and is not applicable to the 2021 standards. The commenter stated that EPA, and the court, failed to consider drawing down the carryover RIN bank, or adding the late standards to a future standard, in lieu of reducing the standards to actuals. They suggested that setting the volumes at actuals "nullifies the RFS program."

Response:

Our legal authority and rationale for setting the 2021 standards at actuals is set forth in Preamble Sections II and III and above. We do not agree that *ACE* was wrongly decided with respect to upholding EPA's authority to issue late and retroactive standards, and in any event, *ACE* is binding precedent.

The commenter's suggestion that we must backfill any shortfalls in cellulosic biofuels with other renewable fuels is irrelevant. Because we are setting the standards based upon actual use of biofuels in 2021, there are no excess biofuels that we could require to backfill missing cellulosic volumes. In any event, neither the reset nor cellulosic waiver authorities mandates such backfilling. Indeed, the cellulosic waiver authority specifically grants EPA the discretion to reduce the advanced and total volumes by up to the reduction in the cellulosic volume.

We do not believe it would be appropriate to use data from November 30, 2020 when we have updated information about actual renewable fuel use and consumption in 2021. It is EPA's longstanding practice in setting RFS standards to use the most up to date available at the time of our analysis.[17] We have done so in every RFS standards rule, including rules promulgated after the statutory deadline. It is wrong to intentionally use outdated information for analytical purposes, even if doing so could result in higher volumes of renewable fuel. We note that had Congress wanted EPA to consider only data available at a particular time, it could have said so, but it did not in this instance.

We note, moreover, that the commenter failed to demonstrate that using data from November 30, 2020 would actually result in higher standards. The commenter failed to conduct any quantitative analysis on this point. EPA has determined it is a wasteful use of government resources to conduct such an analysis, given that intentionally using outdated data is simply wrong. In any event, even were such an analysis to result in higher volumes, we do not think requiring such

[17] Because the analysis we perform for RFS rules is quite complex and time consuming, we typically use data from some months prior to the date of signature of the final rule. This is done so out of practical necessity and is different in kind from the commenter's suggestion that we intentionally use outdated information. We further discuss this in RIA Chapter 2.

higher volumes now, retroactively, would be appropriate. The D.C. Circuit has indicated that when promulgating late standards, EPA should consider the availability of RINs and the ability of obligated parties to achieve compliance. We have done so, and as we explain in Preamble Section III, because additional renewable fuel cannot be used in 2021, it is appropriate to require the retirement of RINs associated with the renewable fuel that was used in 2021 and require market forcing standards in 2022. Any higher volume in 2021 would result in a drawdown of the carryover RIN bank which would not be appropriate, particularly given the extremely low size of the advanced carryover RIN bank, and uneven holdings between obligated parties, as described in Preamble Section III.

The commenter suggested that should we choose not to use outdated data to increase the 2021 volume itself, we could instead use that outdated data as a basis for higher volumes through a combined 2021 and 2022 standard or a supplemental standard for 2022. As explained above, we reject the commenter's premise that we should use outdated data, and therefore we also reject the request to apply these creative mechanisms based on outdated data.

2.4.1 Justification for Revising 2020 Standards

Commenters that provided comment on this topic include but are not limited to: 0355, 0370, 0396, 0403, 0407, 0411, 0421, 0426, 0428, 0431, 0438, 0440, 0457, 0459, 0462, 0469, 0471, 0479, 0485, 0506, 0510, 0513, 0516, 0521, 0522, 0525, and 0570.

Comment:

Some commenters suggested that EPA lacked the authority to adjust the 2020 standards after promulgating them in December 2019. Particularly, the commenter suggested that the cellulosic waiver authority and the reset authority are intended to be used prospectively. They also suggested that EPA's was late in issuing modifications under the reset authority, and that EPA could have promulgated modifications to the standards utilizing the reset authority for 2020-2022 prior to the 2020 annual rule, or in the original 2020 rule. The commenters noted that nothing in the reset provision indicates Congress intended it be used to revise previously set standards. They point to the use of the language "applicable volumes set forth in the table [at CAA section 211(o)(2)(B)]."

A commenter suggested that EPA did not find that the 2020 standards were unlawful or invalid, and as such cannot modify them after the fact.

Response:

We discuss our ability to use the reset authority after the statutory deadline and to adjust previously established standards in Preamble Sections II and III, and RTC Section 2.3.

We agree that as a legal matter, we could have reset the 2020-2022 volumes prior to our promulgation of the original 2020 rule or in that rule. However, as we explained above, several factors led to delay in our promulgation of this reset rule. Nonetheless, as explained in the RTC for the original 2020 rule, we chose to promulgate the original 2020 standards prior to completing this reset rule in order to comply with the statutory mandate to promulgate standards by November 30 of the prior year and to provide regulatory certainty for regulated entities.[18]

We also agree that we could have exercised the reset authority for cellulosic and advanced biofuel for prior compliance years. As we explain in Preamble Section II, the trigger for resetting cellulosic biofuel was met by the 2010 rule, and the trigger for resetting advanced biofuel was met by the 2014-15 rules. The statute also provides that EPA shall take no action to modify volumes under CAA section 211(*o*)(7)(F) until 2016. Given this, we could have reset cellulosic biofuel and advanced biofuel beginning in that year. However, given the nested nature of the standards, we did not find it appropriate to reset the cellulosic biofuel category and the advanced biofuel category prior to modifying the total renewable fuel volume.

[18] See Renewable Fuel Standard Program - Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes: Response to Comments 24.

Doing so would have resulted in infeasible standards. For example, had we reset the 2016 cellulosic and advanced biofuel volumes without adjusting the total renewable fuel volume, the total renewable fuel volume would have remained at its statutory level of 22.25 billion gallons, which far exceeded renewable fuel use in that year and would have been infeasible. In that situation, moreover, we would have been without the ability to use the cellulosic waiver authority to further waive the total renewable fuel volume. While our ability to reduce volumes utilizing the general waiver authority would remain, we did not think it would be appropriate for us to use the reset authority only to establish infeasible volumes that we would immediately need to waive using the general waiver authority, which is also limited to specific circumstances (inadequate domestic supply, severe environmental or economic harm). We received no comments suggesting we should have done so, or should take some action to modify volumes prior to 2020 utilizing the reset authority in this or any other action.

We disagree with the comment suggesting that we cannot revise the 2020 standards because they were not unlawful or invalid. EPA's authority to reconsider its actions is not limited to circumstances in which the prior action is "unlawful" or "invalid." Rather, "the agency must consider varying interpretations and the wisdom of its policy on a continuing basis, for example, in response to changed factual circumstances, or a change in administrations."[19] With respect to the Clean Air Act specifically, the D.C. Circuit has stated that "[i]n the area of protection of public health and environmental quality, it is clear that new information will be developed and that such information may dictate a revision or modification of any promulgated standard or regulation established under the act."[20]

Comment:

A commenter suggested that "reconsideration [of the 2020 cellulosic standards] is arbitrary" even if EPA has inherent authority to reconsider standards. The commenter stated that shortfalls in renewable fuel use were anticipated by Congress, and Congress only provided specific waiver authorities to address such shortfalls; EPA action to modify the standards after setting them is arbitrary. The commenter also suggested that the standards are "self-adjusting," and that EPA properly adjusted the volume requirements based on small refinery exemptions. The commenter suggested that there could still be a "potential change" to small refinery exemptions for 2020, given EPA's proposed range of exempt volume. The commenter also suggested that EPA is only concerned with the size of the carryover RIN bank and is improperly adjusting the standards to preserve the carryover RIN bank.

Response:

As described in Preamble Section III, we have justified our reasoning for revisiting the 2020 standards, and thus reconsideration is not arbitrary.

Our modification of the 2020 standards is properly limited by our waiver authorities. Thus, we are not acting utilizing any authority that was not provided to us by Congress. Congress explicitly provided that EPA shall modify the applicable volume upon waiver of the volumes by

[19] *Nat'l Cable & Telecommunications Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005).
[20] *Oljato Chapter of Navajo Tribe v. Train*, 515 F.2d 654, 660 (D.C. Cir. 1975).

particular amounts, and that EPA shall reduce the cellulosic volume to the projected volume available if projected production is less than the applicable volume in the statute.[21] We are utilizing these waiver authorities to adjust the 2020 volume.

We address comments relating to the "self-adjusting" nature of the standards in Preamble Section III.C and RTC Section 6.1. We also address comments about our projection of SREs for 2020 in Preamble Section III.C. We note also that we have now denied all pending small refinery exemptions for 2020-2021. It is thus appropriate to account for no SREs in those years, as described in Preamble Section V and RTC Section 7. We respond to comments relating to the carryover RIN bank in RTC Section 2.6.

Comment:

Some commenters suggested that the plain language of the cellulosic waiver authority does not allow EPA to go back and waive volumes under the cellulosic waiver authority a second time. Commenters pointed to the "projected volume available" language as evidence that Congress intended the use of the cellulosic waiver authority to be prospective. They also pointed to legislative history as indicating that volumes would be reduced first under the reset authority, and then reduced utilizing the cellulosic waiver authority if necessary. They suggested that the statutory deadlines in the Act (i.e., November 30, for exercise of the cellulosic waiver authority) also limit EPA's ability to use the waiver authorities in the manner used in the final rule. The commenter indicated that the statutory text and legislative history together do not allow for EPA to modify the 2020 cellulosic standard utilizing both the reset and cellulosic waiver authorities in this action.

Response:

We address much of this comment above, especially in RTC Section 2.3.2. We provide a further response here.

While the cellulosic waiver authority does contemplate prospective use, including a deadline prior to the start of the year in which the volumes will apply and the use of terms like "projected," this does not deprive EPA of the power to reconsider our use of the cellulosic waiver authority after the fact. In doing so, however, we must comply with the D.C. Circuit's precedent on retroactive and late rulemaking. As discussed in Preamble Section III.C, revising the 2020 standards after they have been promulgated is appropriate for the reasons discussed there. We also discussed in the final rule our understanding of the relevant case law regarding retroactive promulgation of standards in the RFS program, and how the standards we are promulgating in this action are consistent with that caselaw.

We note that this is not the first time we have reconsidered our exercise of the cellulosic waiver authority. We have in the past, in response to petitions for reconsideration, sought comment on and modified the cellulosic biofuel standard utilizing the cellulosic waiver authority after it was used in the first instance to establish the cellulosic biofuel standard. The petition for reconsideration pointed to new information that indicated that the volume available of cellulosic

[21] CAA sections 211(*o*)(7)(F), (D)(1).

biofuel would be significantly less than the projected volume available utilized to set the 2013 cellulosic biofuel standard.[22] Subsequent to the promulgation of that rule, a biofuels facility announced that it would not be producing cellulosic biofuel, thus undermining the feasibility of EPA's originally promulgated cellulosic biofuel standard. Upon granting the petition for reconsideration, EPA modified the cellulosic biofuel standard for 2013 on May 2, 2014, utilizing the cellulosic waiver authority after the statutory deadline to adjust the cellulosic biofuel standard downward for a second time.[23] Thus, EPA has consistently interpreted the statute as authorizing EPA to utilize the cellulosic waiver authority both retrospectively and to adjust an already established standard.[24] With respect to the 2020 standards in this rule, new information also came to light that persuaded us revising the cellulosic volumes a second time was warranted.

As to the legislative history presented by the commenter, that history is unpersuasive. EPA interprets the statute based on its text, read in light of its context, structure, and purpose. While the legislative history can also inform our understanding of the statute where it is ambiguous, the statute unambiguously grants EPA multiple, independent waiver authorities, each with its own conditions for use. The legislative history cannot be used to add additional constraints to the statutory text (such as a prohibition on concurrent exercise of the reset and cellulosic waivers or on reconsidering a prior exercise of the cellulosic waiver). Moreover, the legislative history presented here is the view of a single Representative and thus particularly unpersuasive. As with any law, differing Members of Congress may have different views, and it is not appropriate to treat the statement of a single Member as being legally binding. In any event, we believe that it is permissible, and in this circumstance appropriate, to utilize the cellulosic waiver authority and the reset waiver authority together to revise the 2020 cellulosic biofuel standard and to promulgate cellulosic biofuel standards in the first instance for 2021 and 2022.

We recognize that our late exercise of the reset authority has implications for all stakeholders in the RFS program. However, we continue to believe that the use of the reset authority is appropriate and permissible under the statute. In particular, for cellulosic biofuel, we have not reduced volumes below what would be permissible under the cellulosic waiver authority. Thus, had we only exercised the cellulosic waiver authority to revise the 2020 standards, the cellulosic volume would be the same as the volume we are finalizing in this action.

Comment:

A commenter suggested that because EPA waited to exercise the reset waiver authority until 2020, when all categories of renewable fuel can be adjusted together utilizing the reset authority, "it is not obvious that EPA's reset authority actually applies to 2020."

A commenter stated "The time to challenge the 2020 standards has passed and current challenges did not raise this issue, and EPA is not acting on a petition for reconsideration. Instead, EPA is

[22] 78 FR 49794 (August 15, 2013).
[23] 79 FR 25025 (May 2, 2014).
[24] We also rescinded the 2011 cellulosic biofuel standard following a court decision invalidating our methodology for arriving at the original standard. See 80 FR 77420 (December 14, 2015).

unilaterally proposing to change the 2020 standards by claiming authority it had previously declined to assert. Nothing requires EPA to assert that authority for 2020 now."

Response:

We see no circumstance in which the reset authority would not apply to 2020. Consistent with the statute, given the waiver of the total renewable fuel standard by more than 20% for two consecutive years for 2018 and 2019, the trigger for the reset authority for total renewable fuel is the 2018 and 2019 standards. The statute then provides that the rule shall "modif[y] the applicable volumes . . . for all years following the final year to which the waiver applies." Noting that the reset authority was also triggered for cellulosic biofuel and advanced biofuel in years prior to 2019, the "all years following" would also apply to those categories of fuels in the year 2020 (and 2021 and 2022).

As discussed in Preamble Sections II and III, EPA has inherent authority to reconsider and revise previous rulemaking actions. Our power to reconsider and exercise the reset authority is not contingent on litigants filing judicial challenges relating to the reset authority or filing petitions for reconsideration. In addition, the mere fact that we did not exercise the reset authority in the 2020 rule does not preclude us from doing so now, as we explain above. We believe that the circumstances currently before us justify the use of the reset waiver authority and cellulosic waiver authority to adjust the 2020 standards. See further discussion in Preamble Section III and RTC Section 6.1.

Comment:

A commenter suggested that our action will harm renewable fuel producers for the benefit of obligated parties. As support for this assertion the commenter points to our statements in the proposal that adjusting the standards will "disrupt market expectations created by the prior final rule."

Response:

We address this comment in Preamble Section III.C. In addition, the commenter provided no concrete evidence or analysis demonstrating how biofuel producers would be harmed by adjustments to the 2020 standard and therefore failed to develop its arguments with reasonable specificity.

Comment:

A commenter stated that EPA could, at most, adjust the 2020 standards to account for the actual level of SREs and cellulosic production, but no further.

Response:

As described in Preamble Section V, we are projecting the exempt volume due to small refinery exemptions to 0 for all years, including 2020, consistent with our recent action denying small

refinery exemptions. We are also reducing the volume of cellulosic biofuel to the volume available in 2020. However, we are making additional reductions to the total renewable fuel and advanced biofuel standards under our reset authority, and we find those volumes to be appropriate as described in Preamble Section III. We further discuss our discretion under the reset authority in RTC Section 2.3.

Comment:

A commenter suggested that EPA is "nullify[ing] a duly enacted statute," by revising the 2020 standards, and setting the 2021 standards at actuals.

Response:

We disagree that our action in reducing the volume requirements for 2020 and 2021 is nullifying the RFS. Rather, as explained in the preamble and RIA, EPA is acting in accordance with the statutory authorities and mandates created by Congress.

Comment:

A commenter characterized the disproportionate decline in gasoline and diesel as "an inherent risk of the program," and suggested that this would justify a change in the standards in any year.

Response:

We address this issue in Preamble Section III.C.

Comment:

Some commenters pointed to EPA's statements in prior actions that "[p]eriodic revisions to the standards . . . would be inconsistent with the statutory text, and would introduce an undesirable level of uncertainty for obligated parties" indicates that EPA should not or cannot revise the 2020 standards.

Response:

We note initially that quoted language referred to periodic revisions of the standards to adjust for SREs granted after the standards were established. That is a different situation factually than the one before us for 2020. For the reasons described in Preamble Section III, the circumstances justifying revision to the 2020 standards are unique. While revising the standards does introduce some uncertainty, we have provided obligated parties notice of the revision and have ensured compliance with the adjusted standard is feasible.

2.5 Interaction Between Waiver Authorities

Commenters that provided comment on this topic include but are not limited to: 0485 and 0521.

Comment:

A commenter suggested that EPA must distinguish between its reset and cellulosic waiver authorities. The commenter suggested that under the reset waiver authority EPA is to modify the statutory volumes to remain ambitious, recognizing the ability of the cellulosic waiver authority to reduce the standards if necessary. The commenter suggested that the reset volumes should still be market forcing.

A commenter suggested that EPA replaced the statutory factors with only "projected production," rendering the reset provision "meaningless." The commenter suggests that an assessment of the statutory criteria would have led to higher cellulosic volumes in 2020. The commenter suggested that EPA cannot rely on "ease" as a means to avoid the reset analysis.

The commenter also stated that EPA must "ensure the minimum applicable volumes," and that it cannot further reduce the volumes to facilitate compliance, pointing to caselaw from *API v. EPA*, where the D.C. Circuit indicated that the nature of projections is such that unforeseen events may occur. The commenter suggested EPA should not modify the standards because a court would likely uphold even the unachievable standards.

A commenter suggested that EPA needed to comply with CAA section 211(o)(2)(B)(iv) when exercising the reset authority, and thus could not utilize both the cellulosic waiver authority and the reset authority in the same action.

Response:

We have established market forcing volumes in 2022, as suggested by these commenters. Although the statute does not expressly require market forcing volumes, we believe that market forcing volumes for 2022 are appropriate based upon our balancing of the statutory factors, as described in Preamble Section III and the RIA.

However, for 2020-21, we have established volumes at the actual use of biofuel in those years. For these years, we disagree with the commenters' assertions that the resulting volumes after utilizing the reset authority in these years must be market-forcing. There is no evidence in the statutory text to support that assertion. Rather, as we explain in Preamble Sections III.B through D, since these years are already past, requiring higher volumes would not actually increase the use and production of renewable fuels in those years. While they would increase pressure on biofuel use in 2022, we have accomplished the same thing by requiring higher volumes in 2022.

We recognize the differing statutory criteria under the cellulosic waiver authority and the reset authority. We have considered all the relevant criteria required under the statute for both authorities. More specifically, our consideration of the cellulosic volumes, including the projected volume available under the cellulosic waiver authority, is provided in RIA Chapter 5.1

and Preamble Section III. Our consideration of the statutory factors required by the reset and set authorities as well as factors that support the exercise of the discretionary portion of the cellulosic waiver are provided in the RIA and Preamble Sections II and III.

As discussed in the proposal, we have subsumed the analysis for the application of the cellulosic waiver authority into the analysis for the application of the reset authority. Doing so is appropriate for three reasons. First, with respect to the cellulosic biofuel volume for each year, the cellulosic waiver authority requires EPA to lower that volume to the projected volume available. This quantity is also a relevant consideration under the reset authority, and, accordingly, we have considered it in that context. See, e.g., CAA section 211(o)(2)(B)(ii)(III) ("the expected annual rate of future commercial production of renewable fuels"). Second, with respect to advanced biofuel and total renewable fuel, the cellulosic waiver authority does not specify any factors for EPA to consider (besides limiting the maximum quantity of reductions to the reduction in the cellulosic biofuel volume), and thus provides EPA broad discretion to consider relevant factors, including the factors we are considering in this proposal under the reset authority.[25] Third, given the significant overlap between the analyses used for the cellulosic waiver and reset authorities, we do not believe that two sets of analyses would provide significant additional value, but would be redundant for both EPA and the public.

We disagree with commenters who suggested that EPA failed to distinguish between the two authorities. Notably, as we explain in Preamble Section III, EPA is reducing the 2020 and 2021 advanced biofuel and total renewable fuel volumes only under the reset authority, not under the cellulosic authority. For the 2020 and 2021 cellulosic biofuel volumes and the 2022 cellulosic biofuel, advanced biofuel, and total renewable fuel volumes, EPA is exercising both authorities. We do so not because we failed to distinguish between the two authorities but because we believe that both authorities support the same volumes. Notably, the reset factors support modifying the cellulosic volumes to the projected volume available, and we believe a similar exercise of discretion under both authorities is warranted for the 2022 advanced biofuel and total renewable fuel volumes.

We disagree with commenters who suggested EPA only considered projected production under the reset authority. As we explain in Preamble Section III and the RIA, we have considered all of the statutory factors. In many cases, moreover, we have clearly not established the volumes

[25] In past annual rules, we considered many of the same factors as we do in this final rule, albeit under the guise of different terminology, such as "reasonably attainable" and "attainable" volumes. See Section IV of the 2020 final rule at 85 FR 7016. For instance, in that rule, just as in this rule, we considered feedstock availability, advanced biofuel production and distribution capacity, environmental impacts, and costs. We acknowledge that the analytical framework has shifted somewhat given the focus on the statutory reset factors. For instance, in the original 2020 final rule, unlike in this final rule, we did not explicitly consider the impacts of renewable fuels on job creation or rural economic development. Nonetheless, we believe those statutory factors (along with all the other factors we are considering under the reset authority) are ones that EPA may consider under the discretion we have under the cellulosic waiver authority. Congress's specification of those factors in the reset authority further suggests that they are permissible considerations for determining volumes generally, including in exercising the cellulosic waiver. This approach presents a shift in EPA's policy for the cellulosic waiver that we explicitly recognize and adopt as reasonable for the reasons described here. See *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). Ultimately, we also note that the 2020, 2021, and 2022 total renewable fuel, advanced biofuel, and cellulosic biofuel volumes are all independently justified by the reset authority. Thus, any defect in our exercise of the cellulosic waiver authority is harmless so long as we have properly exercised the reset authority.

based solely on production. The most obvious example of this is our treatment of ethanol. As we discuss in RIA Chapters 5.5 and 6, corn ethanol production exceeds ethanol consumption in the U.S. due to constraints on retail distribution and use. Thus, in developing the standards, we did not think it was appropriate to assume that the market would use the full level of corn ethanol production. Similarly, in assessing renewable diesel volumes, we projected that imported renewable diesel would be used to satisfy the 2022 advanced and total renewable fuel volumes, as explained in RIA Chapters 2 and 5.2.

As we explain in RTC Section 3.1, we do not agree that we should establish a cellulosic biofuel volume higher than the projected volume available under the reset authority.

As to comments suggesting that EPA is only revising volumes to facilitate compliance, and that doing so is not permitted, we disagree. We explain our reasons for revising the 2020 volumes in Preamble Sections III.B and C, which include the desire to avoid a substantial probability of noncompliance were EPA to maintain the original 2020 standards, but also include an assessment of the impacts of the COVID-19 pandemic, changes in EPA's SRE policy, and the carryover RIN bank, among other factors, as part of our analysis of the statutory factors. As we explain in the preamble, we did not revise the 2020 standards simply because there was some routine unforeseen event, but rather based on the unique circumstances of 2020. While our rulemaking is guided by judicial precedents, we are not revising the 2020 standards to actual consumption because we believe that any other course would be struck down by a reviewing court. Rather, the D.C. Circuit has held that it is EPA's duty to balance the burdens and benefits of late and retroactive rulemaking in the first instance, and we have done so in this rulemaking.

As to the comment regarding the use of the cellulosic waiver authority and the reset authority together, we do not believe that CAA section 211(o)(2)(B)(iv) applies when EPA is exercising the reset authority under CAA section 211(o)(7)(F). The Act provides that EPA "shall comply with the processes, criteria, and standards set forth in *paragraph 2(B)(ii)*," (emphasis added), not paragraph (2)(B)(iv). Had Congress intended CAA section 211(o)(2)(B)(iv) to apply, Congress could have written in that provision as well. The plain language of the Act suggests it does not apply.

Even if CAA section 211(*o*)(2)(B)(iv) did apply, we interpret that provision to mean that EPA cannot set volumes with the intention of triggering the mandatory aspect of the cellulosic waiver. However, we haven't set volumes with the intention of triggering mandatory reductions under the cellulosic waiver authority in this rule. Rather, we have set the cellulosic volumes at the projected volume available under both authorities.

2.6 Carryover RINs

2.6.1 General Consideration of Carryover RINs

Commenters that provided comment on this topic include but are not limited to: 0361, 0363, 0387, 0391, 0393, 0421, 0422, 0430, 0431, 0443, 0454, 0457, 0462, 0466, 0469, 0475, 0476, 0481, 0483, 0485, 0501, 0521, 0523, 0524, and 0570.

Comment:

Several commenters supported EPA's proposed decision to preserve the existing carryover RIN bank and not intentionally draw it down in setting the 2020-2022 volume requirements. These commenters were generally obligated parties and reiterated the importance of maintaining the carryover RIN bank in order to provide obligated parties with necessary compliance flexibilities, better market trading liquidity, and a cushion against future program uncertainty. Several of these commenters also stated that while it may have been EPA's intent not to draw down the carryover RIN bank, such a drawdown was possible given the high standards proposed for 2022, combined with EPA's proposed denial of pending SRE petitions.

Several commenters also stated that EPA should further rebuild the carryover RIN bank to allow for greater liquidity in the RIN market and/or reduce RIN prices, either by further reducing the 2020 and 2021 standards (e.g., by 1.5 billion gallons) or by reducing the 2022 standards (e.g., to levels the commenters believe are more achievable). Several of these commenters also stated that if EPA does not lower volumes, the carryover RIN bank (either in whole or certain categories) was likely to be depleted by 2023. Several commenters also stated that because carryover RINs are held unevenly, a small carryover RIN bank may increase the likelihood of insufficient RINs being available for compliance.

Conversely, several other commenters stated that the carryover RIN bank is larger than necessary and that EPA should not preserve the carryover RIN bank at such a high level. These commenters were generally renewable fuel producers and stated that lowering the volume requirements to preserve the carryover RIN bank goes against Congressional intent of the RFS program, rewards obligated parties that choose not to comply, and reduces demand, development, and consumption of renewable fuels, thereby suppressing RIN prices. These commenters argue that high RIN prices are how the RFS program achieves its goal of increasing use of renewable fuels.

Response:

EPA has carefully considered these comments and is finalizing an intermediate approach where we neither intentionally draw down nor intentionally inflate the carryover RIN bank. Rather, we are establishing the 2020-2022 standards at levels that are expected to preserve the existing carryover RIN bank. We believe this approach best balances the various roles of the carryover RIN bank and provides appropriate and significant incentives for renewable fuel use.

EPA appreciates the importance of carryover RINs to the RFS program. Under the statutory provision for credits with a 12-month credit life and the regulations establishing carryover RINs, obligated parties have the option of obtaining and carrying over excess RINs or carrying forward a compliance deficit to the next compliance year. This makes it clear that carryover RINs are a key mechanism for providing compliance flexibility in addition to that provided by the ability to carry forward a deficit. "Buffer" is another way of conceptualizing the compliance flexibility that carryover RINs afford to address uncertainties and unforeseen circumstances and otherwise manage compliance efforts, as well as to avoid unnecessary RIN shortages or price spikes and provide liquidity to the RIN trading market. As such, carryover RINs have played a crucial role in actions by obligated parties to plan for and achieve compliance with RFS requirements, in enabling the RIN market to function in a liquid manner, in providing the statutorily required credit program function, in avoiding excessive market price swings, in determining whether and to what extent statutory volume targets can be met, and in reducing the need for subsequent waivers. Because these issues are so fact-specific, different circumstances can and do lead to different decisions about whether (and how much) to rely on a drawdown in the bank of carryover RINs when balancing the various objectives of the RFS program.

In establishing the renewable fuel volume requirements for 2020, 2021, and 2022, we have weighed these various roles for carryover RINs and sought to appropriately balance them in the context of the overall statutory goals of reducing GHG emissions and enhancing energy security through increasing RFS volume requirements. In light of our consideration of these factors as well as the factors discussed in Preamble Section III.B, we have determined that it is appropriate for EPA to set the volume requirements for 2020, 2021, and 2022 without the express intention or expectation of a drawdown in the current bank of carryover RINs. Similarly, as discussed in Preamble Section III.C, RTC Section 6.1, and in subsequent responses in this section, we have also determined that it would not be appropriate for EPA to set the 2020, 2021, and 2022 volume requirements at levels that would intentionally inflate the carryover RIN bank, as suggested by some commenters.

As explained in Preamble Section III.B, we believe it is appropriate for EPA to not intentionally draw down the current bank of carryover RINs in setting the 2020, 2021, and 2022 annual volume requirements. EPA has discretion in determining whether and to what extent we decide to intentionally draw down the carryover RIN bank in setting the RFS standards. EPA's waiver authorities do not specifically dictate how EPA must consider carryover RINs, and thus Congress delegated this choice to the agency. This discretion has been upheld by the D.C. Circuit in multiple prior cases. In *Monroe*, the U.S. Court of Appeals for the D.C. Circuit upheld EPA's decision not to waive the 2013 statutory advanced and total renewable fuel volume requirements based in part on the availability of abundant carryover RINs to address a scenario where increasing physical volumes of renewable fuels may be inadequate to allow compliance. In *ACE*, the Court upheld EPA's decision to not consider carryover RINs as part of the "supply" of renewable fuel for purposes of determining whether an "inadequate domestic supply" exists that may warrant a waiver of the standards.[26]

[26] See also *Growth Energy v. Env't Prot. Agency*, 5 F.4th 1, 18 (D.C. Cir. 2021); *Am. Fuel & Petrochemical Manufacturers v. Env't Prot. Agency*, 937 F.3d 559, 583 (D.C. Cir. 2019).

We have consistently considered the availability of carryover RINs in making waiver determinations, and we do so on a case-by-case basis taking into account all of the relevant facts before us. We have done so in each annual rule the 2013 rule.[27] Where circumstances make it appropriate to rely on carryover RINs to avoid or minimize reductions in statutory volumes, we intend to do so, as we did in setting the 2013 standards. Though this number could be higher or lower as a result of various factors,[28] for 2020, 2021, and 2022, we project that as many as 1.83 billion total carryover RINs (including 40 million advanced carryover RINs and 40 million cellulosic carryover RINs) will be available for compliance.[29] This is ~9% of the final 2022 total renewable fuel volume standard, <1% of the final 2022 advanced biofuel volume standard, and ~6% of the final 2020 cellulosic biofuel volume standard, all of which are less than the 20% limit permitted by the regulations to be carried over for use in complying with the 2020 standards. Consistent with our past practice, we considered the availability of carryover RINs in making a determination about whether and how to reduce the statutory volume requirements, and that assessment was done in view of the specific circumstances present for 2020, 2021, and 2022. Considering all of the various relevant factors for these years, including the potential benefit to biofuel producers in drawing down the bank of carryover RINs and the role they play for obligated parties in a well-functioning, liquid market for managing compliance, we have concluded that we should not set the volume requirements for 2020, 2021, and 2022 in a manner that would be expected to require a drawdown in the collective bank of carryover RINs.

As discussed in the 2014-2016 final rule, the bank of carryover RINs is analogous to a typical bank account or inventory,[30] in which it is commonly understood that a reserve fund should be maintained to cover unforeseen circumstances.[31] Such unforeseen circumstances range from a drought that adversely affects production of renewable fuel feedstocks, to a cyberattack on biorefineries that directly affects the supply of renewable fuels, to disproportionate reduction in gasoline demand owing to another pandemic wave. If such currently unforeseen events occur without a bank of carryover RINs 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. This would only create further program uncertainty and impede the investment needed for the program to grow.

In addition, while the bank of carryover RINs is analogous to a typical bank account in some ways, it is not like a bank account in at least one important aspect—it is not one bank with equal access by all obligated parties. The carryover RIN bank consists of separate accounts of prior-year RINs of varying magnitude held by different individual parties. As discussed in Preamble Section III.B, some parties hold significant numbers of carryover RINs, while other parties hold none at all. Thus, even when carryover RINs exist, they may not be "available" to parties that

[27] See 78 FR 49820-23 (August 15, 2013).
[28] Sources of uncertainty that could potentially increase the carryover RIN bank include lower actual gasoline and diesel fuel use than the projection used to derive the standards. Sources of uncertainty that could potentially decrease the carryover RIN bank include enforcement actions and higher actual gasoline and diesel fuel use than the projection used to derive the standards.
[29] The calculations performed to estimate the size of the carryover RIN bank can be found in the memorandum, "Carryover RIN Bank Calculations for 2020-2022 Final Rule," available in the docket for this action.
[30] See 80 FR 77483-84 (December 14, 2015).
[31] For example, on average from year-to-year there is a carryover of roughly 15% of the previous year's corn crop that is carried into the next year.

need to purchase them for compliance if the parties that own the carryover RINs are unwilling to sell them. The benefit of market liquidity is only achieved if there are an adequate number of RINs available and expected to be available in the future to incent those holding the RINs to sell them to those who need them. This would not occur were the carryover RIN bank to be brought to or near zero. Based on our analysis of the specific circumstances in 2020-2022, we anticipate that the level of the carryover RIN bank that results from this rulemaking—particularly the revision of the original 2020 standards—will be sufficient to preserve its key functions. However, we disagree with commenters that stated that revising the 2020 standards to preserve the carryover RIN bank rewards obligated parties that choose not to comply, as discussed in Preamble Section III.C and RTC Section 6.1. Rather, as explained in Preamble Sections III.B and C, were we to maintain the original 2020 standards, these functions would be significantly compromised and there is a substantial probability that some obligated parties would not be able to comply.

As described in Preamble Section III, EPA is choosing to waive the 2020, 2021, and 2022 cellulosic biofuel, advanced biofuel, and total renewable fuel volumes under our waiver authorities. While we have set the 2020 and 2021 cellulosic biofuel, advanced biofuel, and total renewable fuel volume requirements equal to the volume of those renewable fuels consumed in those years, we have set the 2022 requirements at levels that place market-forcing pressure on the production and use of renewable fuels. As explained in RIA Chapter 5, we believe that the final 2022 volumes can be achieved by the market using actual biofuel use in that year. As such, setting standards in this manner should not result in a drawdown in the bank of carryover RINs. However, the projections on which the standards are based still involve unavoidable uncertainties. As a result, it is possible that our final standards are over-optimistic and that individual obligated parties will face challenges in complying with the standards solely with biofuel used in 2022. The bank of carryover RINs will be available for such eventualities. It is also possible that the final standards prove to underestimate the market and the obligated parties will be able to over-comply (by using renewable fuel beyond what is required) and increase the size of the carryover RIN bank.

Contrary to commenters' assertions, the carryover RIN bank we are preserving in this action is not suppressing RIN prices, nor is EPA intending that it do so. Current D6 RIN prices are well over $1 per RIN and are indeed incentivizing additional renewable fuel use, consistent with Congress' intent.[32] Furthermore, we do not believe that persistently drawing down the carryover RIN bank is needed to incentivize increased biofuel use. Indeed, many biofuel producers have made significant investments in production capacity to meet the demand that the RFS standards help create. The concerns that some raised about the potential for the proposed standards to damage their businesses appear to be premised, however, on an assumption that renewable fuel production volumes would decline significantly. This is not the case. The final rule will continue to place market-forcing pressure on the production and use of renewable fuels. In 2022, we expect significant increases in renewable fuel use, particularly from renewable diesel and biogas, much of which are enabled by newly constructed or converted biofuel production facilities.[33]

[32] For more information on the current size of the carryover RIN bank and RIN prices see RIA Chapter 1.9.
[33] For more detail on how the rule may impact the production and use of various renewable fuels, see Preamble Section III and RIA Chapters 2 and 5.

Indeed, during the first quarter of 2022, we have observed significant increases in renewable fuel use, as we describe further in RTC Section 6.3.4.

We appreciate that it would be helpful to obligated parties if we foreclosed the possibility of ever again counting on carryover RINs to avoid or minimize the reduction of statutory standards. Leaving open that possibility leaves obligated parties with some uncertainty about their compliance options. However, EPA continues to believe that the statutory purposes of reducing GHG emissions and enhancing energy security through renewable fuels is best served by continuing to consider carryover RINs in deciding whether and how to exercise the statute's waiver authorities on a case-by-case basis. As explained above, we believe the circumstances for 2020, 2021, and 2022 warrant setting the volume requirements without the express expectation or intention of drawing down the current bank of carryover RINs.

We also appreciate that it could be favorable to biofuel producers for us to always count on carryover RINs as a basis to maintain the statutory volume targets or minimize the reduction in the statutory volume targets, since higher standards generally create higher short-term demand for and/or higher prices for their products. If the standards cannot be achieved, then RIN prices may rise dramatically based on scarcity pricing, creating market turmoil that could operate to the short-term benefit of renewable fuel producers. Such disruption could have significant negative consequences for the renewable fuels market as a whole. Consumers could end up paying considerably more in higher fuel prices as a result for the potential incremental volume of renewable fuel. Certain obligated parties may also not be able to comply. As explained in Preamble Section III.B, such noncompliance could negatively impact the regulatory and market certainty critical to investments in renewable fuels more generally. EPA may also need to intervene by retroactively reducing the standards, which could further undermine regulatory and market certainty.

Comment:

Several commenters stated the carryover RIN bank (as a percentage of the total renewable fuel volume standard) is projected to be at historically low levels. These commenters generally suggested that EPA return the total carryover RIN bank to recent historical levels (e.g., 14% or 12-18% of the projected volume standard) by lowering some combination of the 2020, 2021, and 2022 standards. These commenters stated that a carryover RIN bank of this size is necessary to ensure stability and liquidity in the RIN market.

Conversely, other commenters objected to EPA's proposed rationale that the carryover RIN bank should be preserved by revising the 2020 standards and that allowing RINs to be rolled over from one year to the next violates the statutory limited life on RINs. These commenters argued that the carryover RIN bank was too high and had been artificially inflated by the large number of SREs that had been issued in previous years. They also stated that a lower carryover RIN bank would still provide sufficient RIN market liquidity and that EPA had not justified why a higher number was necessary (or why a lower number was insufficient).

Response:

Based on our evaluation of the circumstances in 2020-2022, EPA believes that the projected bank of carryover RINs is sufficient to serve its vital functions. We disagree with the commenters that suggest we must inflate the carryover RIN bank in order for it to serve these functions or that we should draw down the carryover RIN bank because it is too high.

We do not believe it is appropriate to intentionally inflate the size of the carryover RIN bank for 2020-2022.[34] While doing so would increase the size of the carryover RIN bank, and could provide greater market liquidity, it is not necessary to preserve the vital functions of the carryover RIN bank for 2020-2022. Based on our substantial experience implementing the program, including experience with varying carryover RIN bank sizes over the last decade, EPA is confident that the carryover RIN bank is functioning today and will continue to function for 2022. Specifically, we do not agree with commenters that a total carryover RIN bank size of 14% or 12-18% is necessary. While commenters made these claims, they failed to adduce concrete data, technical analysis, or other persuasive evidence demonstrating that these particular percentages are necessary for the carryover RIN bank to serve its functions, either in general or for 2020-2022. Moreover, while recent historical levels of the carryover RIN bank have generally been in the range cited by the commenters, it was as recently as the 2017 rule that EPA projected a carryover RIN bank of 8% of the projected total renewable fuel standard when establishing the standards for that year,[35] whereas in this action, the current carryover RIN bank is projected to be 9% of the 2022 total renewable fuel standard. Similarly, the actual carryover RIN bank in 2016 was also approximately 9% of the actual total renewable fuel standard for that year. For both 2016 and 2017, the carryover RIN bank was able to provide sufficient market liquidity such that the RIN market was able to function as intended. Therefore, we find the commenters' arguments that a larger carryover RIN bank is strictly necessary to be unpersuasive.

In rejecting the commenters' arguments, we are not saying that the current size of the carryover RIN bank is always the appropriate size or is always sufficient to preserve the carryover RIN bank's vital functions. We are not currently able to identify with specificity the optimal size of the carryover RIN bank. We also do not believe it is necessary to determine an optimal absolute or relative carryover RIN bank size, either minimum or maximum. As explained above and in Preamble Sections III.B and C, we consider the carryover RIN bank on a case-by-case basis in each annual rule, and the appropriate size of the carryover RIN bank depends on a complex agglomerate of regulatory and market factors that cannot be reduced to a single number. We note, however, that the size of the carryover RIN bank is essentially capped at 20% of the total

[34] We discuss this issue with respect to the 2020 standards in Preamble Section III.C and RTC Section 6.1. Similar reasons for not intentionally inflating the carryover RIN bank apply for the 2021 and 2022 standards.

[35] While the actual size of the carryover RIN bank for 2017 ended up being 13.8% of the total renewable fuel standard for that year, this figure is not representative of what the actual RIN market conditions were for 2017. The carryover RIN bank for that year was higher after the compliance year ended due in large part to EPA granting SREs starting a week before the 2017 compliance deadline; some of these SREs weren't granted until two weeks before the 2018 compliance deadline. Thus, throughout the 2017 compliance year and leading up to the 2017 compliance deadline, it is likely that the RIN market acted as if the carryover RIN bank was 8% of the total renewable fuel standard. RIA Chapter 1.9.1.

renewable fuel volume standard due to RFS regulations that do not permit more than 20% of prior-year RINs to be used by an obligated party to comply with the current year's standards.[36]

With respect to the commenters that opposed the preservation of the carryover RIN bank, we address these comments in Preamble Section III.B, above, and in RTC Section 6.1. We further acknowledge that SREs in recent years increased the size of the carryover RIN bank. However, we anticipate a significant drawdown in the carryover RIN bank after compliance with the 2019 standards, such that the carryover RIN bank will be at its lowest level since 2016. As further explained in Preamble Section III.B, we believe that preserving the carryover RIN bank is necessary to prevent a significant disruption in the RIN market and a substantial probability of noncompliance by some obligated parties. As such, commenters' arguments that a lower carryover RIN bank—specifically the carryover RIN bank that results from not revising the 2020 standards—could still ensure the same important programmatic functions are unpersuasive. Were we not to revise the 2020 standards, the carryover RIN bank would be at its lowest-ever size—less than 4% of the 2022 total renewable fuel standard. These commenters failed to adduce concrete data, technical analysis, or other persuasive evidence demonstrating that a carryover RIN bank this small would be sufficient to preserve its vital functions in the context of the 2020-2022 standards.

With regard to comments claiming that allowing RINs to be rolled over from one year to the next violates the statutory limited life on RINs, these comments are beyond the scope of this action. We established our regulations allowing RINs to be carried over in the RFS2 final rule.[37] We did not propose changes to, take comment on, or otherwise reexamine this regulation, and comments on this issue are therefore beyond the scope of this proceeding. Our response to comments is not meant to reopen these issues.

Comment:

Several commenters stated that because of the extremely low number of advanced carryover RINs, there is the distinct possibility that the carryover RIN bank will be depleted and there will be insufficient RINs to comply with the standards. In particular, the commenters highlighted the need to update the 2021 volume requirements to reflect the latest data, as well as EPA's reliance on the significant projected growth of renewable diesel in 2022 to meet the advanced biofuel standard in that year and what may happen if those volumes do not occur. One of these commenters also cites a sensitivity analysis performed to determine the impacts of what would happen if biodiesel production is reduced by 50% of the renewable diesel growth.

[36] See 40 CFR 80.1427(a)(5). We evaluated establishing higher or lower regulatory thresholds in the RFS2 rule, and our rationale for selecting a 20% regulatory threshold is provided in that action. See 75 FR 14734–35 (March 26, 2010). We are not reexamining this issue in this action.
[37] See 75 FR 14734-35 (March 26, 2010).

Response:

As discussed in RTC Section 6, we have adjusted the 2021 volume requirements to reflect the actual volumes of renewable fuels consumed in 2021. This is expected to preserve the carryover RIN bank at the level anticipated following compliance with the now revised 2020 standards.

As noted earlier, the number of advanced carryover RINs is expected to be less than 1% of the advanced biofuel volume requirement for 2020, 2021, and 2022. We acknowledge that the low size of the advanced carryover RIN bank and the uneven holding of RINs means that some parties will have limited access to such RINs. Nevertheless, we still believe that obligated parties will be able to comply with the advanced biofuel standards we have finalized in this action.

First, the advanced biofuel standards for 2020 and 2021 are equal to the volume of advanced biofuel that was actually consumed in those years. Thus, by definition, there should be sufficient advanced RINs for all obligated parties to comply.

Second, while the advanced biofuel standard for 2022 is market forcing, we believe that the standard can be met with actual biofuel use as described in RIA Chapter 5. Indeed, we are projecting a significant excess in advanced RIN generation in 2022 beyond what the advanced biofuel standard requires (by over 800 million RINs) and that many of those RINs will be used to comply with the implied conventional portion of the total renewable fuel standard.

Third, given the above fact, we think there is a realistic prospect that obligated parties will not only not draw down the advanced carryover RIN bank but actually increase the size of the advanced carryover RIN bank following 2022 compliance and going into 2023. That is, rather than using excess advanced RINs to meet their total renewable fuel obligation for 2022, obligated parties could choose to carryover excess advanced RINs from 2022 into 2023 and use conventional (D6) carryover RINs for compliance with their 2022 obligations. This would partially draw down the number of conventional carryover RINs available in 2023, but this decrease would be offset by a corresponding increase in the number of advanced carryover RINs available in 2023. It would increase the proportion of advanced carryover RINs (D4 and D5) relative to conventional carryover RINs. That is, the significant excess advanced RIN generation in 2022 indicates that compliance with the advanced biofuel obligation is feasible market-wide and that should increase the liquidity of the advanced RIN market.

Finally, even if obligated parties encounter difficulty in acquiring advanced RINs, they possess other compliance flexibilities. All obligated parties retain the ability to carryforward a deficit (either partial or in full) to the next compliance year consistent with EPA's regulations. Furthermore, while this is not essential to our judgment as to the final volumes in this action, EPA is evaluating additional compliance flexibilities for small refineries. In a separate action, EPA is proposing an alternative RIN retirement schedule for small refineries that would provide them with additional time and open a broader range of RIN vintages for small refineries to acquire and retire the RINs needed to demonstrate compliance with their 2020 RVOs. We believe this action would help alleviate some of the potential difficulties some obligated parties may encounter in acquiring advanced RINs.

EPA did consider further reducing the advanced biofuel volumes beyond what the market used in 2020 or 2021 or is projected to use in 2022 so as to allow the market to rebuild the advanced carryover RIN bank, but we ultimately chose not to do so for the reasons described in the previous response. Further, we specifically note that this decision is not inconsistent with our decision to reconsider and revise the 2020 volumes to those actually used in that year. In our view, there is a significant difference between revising volumes to those that the market actually used so as to make compliance feasible and revising volumes to below what the market used with the express intention of rebuilding the carryover RIN bank. Revising volumes to what the market used balances increasing renewable fuel production and use with the reality of the unique circumstances in 2020 and the retroactive nature of this rule. While this rule obviously cannot incentivize additional biofuel use in 2020 (or 2021), it is nonetheless capable of rewarding the full volumes that were actually used with equivalent demand for RINs in that year. By contrast, revising volumes below what was used artificially depresses demand for RINs beyond what the market achieved. Particularly where there are sufficient RINs for the market to comply as a whole, doing so would unduly undermine the market's confidence in the RFS program and the regulatory certainty that supports investments in renewable fuels in 2022 and the future.

Regarding the sensitivity analysis performed by one commenter in which there is a 50% reduction in biodiesel production as a result of renewable diesel growth ("Case 2"), we first note that this is a purely hypothetical scenario, not a likely one. As can be seen in the data presented in RIA Chapter 5.2.1, domestic renewable diesel has increased significantly in recent years without significant reductions in domestic biodiesel production. Our evaluation of recent data in RTC Section 6.3.4 from the first quarter of 2022 also indicates significant growth in renewable fuel use, consistent with and even greater than the growth in the volume requirements for total renewable fuel, advanced biofuel, and BBD.

Furthermore, the results of this analysis show that the advanced carryover RIN bank is likely to grow significantly in 2022 as a result of increased renewable diesel production, regardless of whether there is a 50% reduction in biodiesel production or not (410 million RINs vs. 940 million RINs, respectively). Either of these values represent a significant increase over the 50 million advanced carryover RINs modeled to be available for 2020 and 2021. While there is an approximately 540 million RIN decrease in the total carryover RIN bank modeled under Case 2 (from 1.8 billion to 1.3 billion RINs), it is not all that dissimilar from the 1.5 billion carryover RINs that were projected to be available for the 2017 standards. Again, however, we view Case 2 as an unlikely outcome and not one that the commenter has justified as likely to occur. As such, we are not persuaded by commenters' concerns over the number of available advanced carryover RINs.

Comment:

One commenter stated that EPA failed to consider the impacts of the proposed SRE denial decision on its carryover RIN bank projections and that EPA's failure to do so was arbitrary and capricious. The commenter stated that denying pending SRE petitions would lead to a further drawdown (and potential depletion) of the carryover RIN bank and that insufficient RINs would be available for compliance in 2022 and 2023.

Response:

The commenter is incorrect in asserting that EPA failed to consider the impacts of denying pending SRE petitions in our carryover RIN bank calculations. To the contrary, our projection of the carryover RIN bank following compliance with the 2019 standards assumes that all 2019 SRE petitions are denied and that all small refineries will comply with their RFS obligations. That is to say, if all small refineries comply with their 2019 obligations, the total carryover RIN bank is projected to be 1.83 billion RINs. Since we are establishing the 2020 and 2021 standards at the volume of renewable fuel consumed in those years and are projecting 0 gallons of exempt fuel in setting the corresponding percentage standards (i.e., we deny all SRE petitions for these years), this should preserve the 1.83 billion total carryover RINs for obligated parties to use in 2022. Thus, there should be no drawdown of the carryover RIN bank as a result of our denial of SRE petitions for these years. We took this approach in the proposed rule and are finalizing it in this final action.

With respect to EPA's reconsideration of SRE decisions from years prior to 2019, we do not expect those to affect the carryover RIN bank.[38]

To the extent the commenter opined on the number of carryover RINs needed to comply with the 2023 standards, this is beyond the scope of this action, as EPA did not propose standards for 2023 in this action. As noted in the preamble, while the standards we are establishing for 2022 are market-forcing, we believe that they are nonetheless achievable through growth in renewable fuel use. Should this not be the case and a drawdown of the carryover RIN bank occurs, we will take those facts into account when setting the volume requirements for 2023.

Comment:

One commenter stated that EPA should temporarily increase the 20% carryover limit to 40% for 2021 and 30% for 2022. Conversely, another commenter stated that EPA should not expand the carryover limit to account for the proposed revision of the 2020 standards, as this would flood the market with RINs.

Response:

EPA established the 20% carryover limit by regulation in the RFS2 rulemaking.[39] We did not propose nor solicit comment on the idea of revising this regulation in any way, including by temporarily changing the carryover RIN limit as a result of this revising the 2020 standards. Therefore, these comments are beyond the scope of this action and are not further addressed.

[38] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022. See also "June 2022 Alternative RFS Compliance Demonstration Approach for Certain Small Refineries," EPA-420-R-22-012, June 2022.
[39] See 75 FR 14734-35 (March 26, 2010); 40 CFR 80.1427(a)(5).

2.6.2 Consideration of Cellulosic Carryover RINs

Commenters that provided comment on this topic include but are not limited to: 0402, 0426, 0440, 0444, 0454, 0462, 0484, 0485, 0495, 0521, and 0564.

Comment:

Several commenters stated that available cellulosic carryover RINs should be included in the "projected volume available," and that EPA should therefore establish the cellulosic biofuel volume requirement at the volume of cellulosic biofuel projected to be produced and/or imported plus any available cellulosic carryover RINs. One commenter also suggested that any cellulosic RIN deficits should also be considered. Some commenters supporting this interpretation claimed that the statute requires EPA to include cellulosic carryover RINs in the projected volume available. These commenters claimed that interpreting projected volume available to mean projected production is inadequate, since it does not account for cellulosic RINs that are generated in a previous year, but not used for compliance. They generally stated that the inclusion of the word "available" compelled EPA to include consideration of carryover RINs. One commenter further stated that EPA's acknowledgement of whether a given volume of cellulosic biofuel is "available" is whether the cellulosic biofuel generated a RIN. This commenter argued that if what matters to EPA is not cellulosic biofuel production, but rather the volume of RINs that are available to obligated parties for compliance, then EPA logically must include carryover RINs and cannot equate projected volume available with RINs projected to be available for compliance but then refuse to include carryover RINs.

Similarly, one commenter stated that failure to include cellulosic carryover RINs in the cellulosic biofuel volume would result in a biased projection and would conflict with the court's direction to project cellulosic biofuel production with a "neutral aim at accuracy." The commenter stated that for 2020, not including carryover RINs in the volume is effectively reducing the standard by the amount of cellulosic carryover RINs, which is not "neutral" but negatively impacts cellulosic producers. This commenter stated that the cellulosic waiver authority is more prescriptive in instructing that EPA shall set the cellulosic biofuel volume at the projected volume available but may reduce the advanced and total volumes when reducing the cellulosic biofuel volume. Further, this commenter stated that EPA's proposal to maintain the available bank of cellulosic carryover RINs would effectively reduce the volume requirement in future years and would be in conflict with EPA's obligation to ensure that the volumes are met. The commenter claimed that maintaining the cellulosic carryover RIN bank would also violate the 12-month life span of a credit specified in the statute, since the existence of carryover RINs in 2022 would be the result of over-production of cellulosic biofuel in 2018 and 2019. They stated that these carryover RINs are "available," and "EPA is replacing that fuel with paper credits to allow that production to be used against the volumes for 2022."

Some commenters also stated that carryover RINs reflect the difference between EPA's previous projections and the actual volume of cellulosic biofuel available, and that this change in approach would account for this difference. If EPA did not adopt this interpretation, some commenters stated that the result would be surplus cellulosic carryover RINs that would continue to build up with no way of being cleared. Conversely, a commenter stated that EPA could ensure

that there was a consistent demand for all cellulosic biofuel that could be produced by adopting this new interpretation. These commenters argued that this buildup of cellulosic RINs would result in lower cellulosic RIN prices, which is contrary to Congress's intent that the RFS program be a market-forcing policy. Another commenter similarly stated that a consistent over-supply of cellulosic RINs would result in reduced investment in cellulosic biofuel production and could result in some cellulosic biofuel producers ceasing to produce cellulosic biofuel. This commenter claimed that in years where cellulosic carryover RINs were available the market experienced greater volatility in cellulosic RIN prices. Several commenters stated that including cellulosic carryover RINs in the projected volume available would stabilize cellulosic RIN prices. Another commenter suggested that this change would reduce risk for all market participants (including cellulosic biofuel producers and obligated parties) of inaccuracies in EPA's projections of cellulosic biofuel production. A commenter stated that EPA's approach to cellulosic carryover RINs has resulted in uncertainty in the cellulosic biofuels market, and as a result investment has been limited to cellulosic biofuels with extremely short payback time horizons.

Other commenters supporting this change stated that obligated parties did not need cellulosic carryover RINs to provide compliance flexibility since cellulosic waiver credits (CWCs) provide obligated parties with a flexible and liquid compliance option. These parties stated that CWCs enabled EPA to ambitiously project cellulosic biofuel production since CWCs would prevent shortages and price spikes for cellulosic RINs in the event that cellulosic biofuel production fell short of the projections.

Response:

We extensively address this comment in Preamble Section III.B.2. This RTC further supplements our response.

We begin by addressing comments regarding legal authority. As we explain in the preamble, the cellulosic waiver provision does not address the issue of carryover RINs. Thus, EPA disagrees with commenters who stated that the cellulosic waiver authority statutory language at CAA section 211(o)(7)(D) *requires* EPA to include both projected cellulosic biofuel production and available cellulosic carryover RINs when using the cellulosic waiver authority to establish the required volume of cellulosic biofuel. We recognize that the statute uses slightly different terms when stating the conditions triggering exercise of the cellulosic waiver authority ("any calendar year for which *the projected volume of cellulosic biofuel production* is less than the minimum applicable volume") and the volume to which the Administrator shall reduce the applicable volume ("*the projected volume available* during that calendar year)." Commenters suggest that this difference must mean that the "projected volume available" include cellulosic carryover RINs.

However, the provision does not specifically address this issue at all. It does not define the term "projected volume available." Neither does the provision offer guidance on how EPA should

project the volume available.[40] Nothing in this provision precludes EPA from setting the applicable volume at the amount of cellulosic biofuel available for use in the compliance year.

Moreover, the term carryover RINs is one created by EPA and does not appear in the statute at all. The cellulosic waiver provision does not even refer to the credit provisions in CAA section 211(o)(5), under which EPA created the RIN program. Nor does CAA section 211(o)(5) treat cellulosic biofuels differently from other types of biofuels or indicate that EPA must intentionally eliminate the bank of cellulosic carryover RINs by including them in projected volume available. By not addressing the interplay between the cellulosic waiver authority and the credit provisions, Congress left the gap for EPA to fill.[41]

EPA believes that there are multiple reasonable constructions of this ambiguous statutory provision. One reading is to construe "the projected volume available" to refer only to projected domestic production volume. Another reading is the commenters' reading, under which we construe "the projected volume available" to include carryover RINs. A third reading is to construe "the projected volume available" to mean all cellulosic biofuel produced in that year, which will be available for use in the United States.

EPA adheres to this third reading in this final rule, consistent with our interpretation in past annual rulemakings: "the projected volume available" is our projection of qualifying cellulosic biofuel produced in 2020-2022 that will be available for use under the RFS program. To calculate this number, we estimate the production of qualifying cellulosic biofuel in the United States and any imports of cellulosic biofuel. We then subtract any volumes not available for qualifying domestic use, namely exported volumes. For 2020-2022, we are not projecting any exports of qualifying cellulosic biofuel. We have also considered whether there are constraints on the use of cellulosic biofuels as in RIA Chapter 6, but have concluded that such constraints would not be a limiting factor through 2022. Thus, we ultimately projected the available volume as the sum of domestic production and imports.

We acknowledge that some past rulemakings did not consistently explain the relationship between the statutory terms the term "projected volume of . . . production" and the "projected volume available." *Compare, e.g.,* 85 FR 7023–24 n.28 (suggesting that EPA interpreted both terms consistently to include projected domestic production and imports available for use in the U.S.), *with* 2020 Rule RTC 49 ("projected volume of … production" only includes projected domestic production, while "projected volume available" also includes imports). But regardless of whether EPA interpreted the "projected volume of cellulosic biofuel production" as just domestic production or domestic production plus net imports, that volume fell short of the

[40] When Congress wanted to provide guidance to EPA, it did so. *See Jama v. ICE*, 543 U.S. 335, 341 (2005) ("We do not lightly assume that Congress has omitted from its adopted text requirements that it nonetheless intends to apply, our reluctance is even greater when Congress has shown elsewhere in the same statute that it knows how to make such a requirement manifest."). For example, the same statutory provision specifies that the "projected volume of cellulosic biofuel production" must be "based on the estimate provided under paragraph (3)(A)." CAA section 211(o)(7)(D)(i). Relatedly, Congress knew how to direct the agency to consider prior year use of renewable fuels, see CAA section 211(o)(3)(C)(ii), as well as prior year volumes, see CAA section 211(o)(7)(F), but Congress did not do so in the cellulosic waiver provision.

[41] In construing a related provision, the D.C. Circuit also upheld EPA's decision to not consider carryover RINs in determining "inadequate domestic supply." See *ACE*, 864 F.3d at 716.

statutory volumes, meaning the mandatory cellulosic waiver was triggered and EPA was required to set the cellulosic volume at the "projected volume available." This has been the case in every annual rule since EPA first exercised the cellulosic waiver and continues to be the case today. We therefore see no need to resolve the interpretive question of whether the "projected volume of … production" includes imports or not.[42]

We do not agree that our approach is inconsistent with *API v. EPA*, where the court directed EPA to project cellulosic biofuel production with a neutral aim at accuracy.[43] This direction specifically related to EPA's projection of cellulosic biofuel production and did not address carryover RINs. Historically EPA has not included cellulosic carryover RINs in the projected volume available. We believe that calculating the projected volume available as only the amount of cellulosic biofuel expected to be produced and imported in that year does take a neutral aim at accuracy, while also taking into consideration the various statutory provisions relating to the required credit program (CAA section 211(o)(5)), and the programmatic implications of including carryover RINs. As described in Preamble Section III.C, carryover RINs are unevenly held between obligated parties, and their existence does not mean that obligated parties will choose to use them in lieu of utilizing renewable fuel – often obligated parties will "over comply" through acquiring renewable fuel in order to retain a bank of RINs for future market uncertainties.

Whether we include cellulosic carryover RINs in our projection of the "volume available" does not impact the lifespan of carryover RINs, which continue to be valid to demonstrate compliance for the year in which they are generated and the following year. As such, EPA's approach does not violate the 12-month life span of a credit under the RFS program, and EPA did not modify the regulations requiring that all RINs (including cellulosic RINs) can only be used to meet compliance obligations for the year in which they are generated or the following year.[44]

Finally, as we note in Preamble Section III.B.2, commenters generally failed to address EPA's legal authority under the reset authority. As explained in Preamble Section II, the reset authority confers significant discretion on EPA to establish the volumes based on our consideration of the statutory factors. There is no requirement under the reset authority that EPA establish the cellulosic biofuel volume at the "projected volume available." Even were a reviewing court to find that EPA's interpretation of the cellulosic waiver authority is erroneous, EPA would nonetheless establish the same cellulosic biofuel volumes under the reset authority.

We now turn to comments asserting that EPA's approach was unreasonable or otherwise

[42] We are aware that some commenters suggested it would be inappropriate to construe "projected volume of … production" and "projected volume available" to mean the same thing. We disagree. The canon that different words mean different things is not an absolute rule, but merely a guide to construction meant to elucidate Congressional intent. *Chickasaw Nation v. U.S.*, 534 U.S. 84, 94 (2001). In this case, the statutory text is consistent with the possibility that "projected volume available" is simply a shorthand reference to "projected volume of cellulosic biofuel production," a wordier term that appears earlier in the statute.

[43] 706 F.3d 476 (D.C. Cir. 2013); cf. also *Am. Fuel & Petrochemical Manufacturers v. Env't Prot. Agency*, 937 F.3d 559, 576 (D.C. Cir. 2019) (upholding EPA's liquid cellulosic biofuel projection as having taken "neutral aim at accuracy," with no mention of carryover RINs).

[44] See 40 CFR 80.1427. To the extent the commenters are asking EPA to revise the regulations allowing carryover of RINs at 40 CFR 80.1427, those comments are beyond the scope of this rulemaking.

arbitrary and capricious. As we explain in Preamble Section III.B.2, we believe that EPA's longstanding approach continues to strike an appropriate balance between the interests of various stakeholders and best ensures the ongoing smooth implementation of the program. We further respond to the commenters' concerns here.

We do not agree that EPA's consideration of a cellulosic biofuel's ability to generate RINs (as an indicator of whether or not a potential cellulosic biofuel qualifies under the RFS program) requires that EPA include cellulosic carryover RINs in the projected volume available. These are two distinct issues: the former whether a volume of fuel can contribute to meeting the RFS standards, and the latter whether EPA should require the cellulosic carryover RIN bank to be drawn down. We believe it is reasonable, and for reasons explained below prudent, to distinguish between RINs generated for cellulosic biofuel produced in the year for which we are establishing the cellulosic biofuel volume and available carryover RINs from a previous year.

Contrary to claims made by some commenters, the approach we are taking in this rule will not necessarily result in surplus carryover RINs building up with no way of being cleared. As stated previously, the approach taken in the final rule is consistent with previous RFS annual rules. In previous years the number of cellulosic carryover RINs used for compliance has varied, increasing in some years and decreasing in other years (see table below). This demonstrates that this approach has not and will not lead to an ever-increasing quantity of cellulosic carryover RINs.

Million RINs	2015	2016	2017	2018	2019	2020	2021
Cellulosic Biofuel Standard	123	230	331	288	418	590	620
Cellulosic Biofuel Production	140	190	251	315	415	503	561
Available Cellulosic Carryover RINs	12	39	34	8	49	38	TBD
Carryover RINs as a % of the Standard	10%	17%	11%	3%	12%	6%	TBD
Average D3 RIN Price	$0.90	$1.89	$2.78	$2.29	$1.15	$1.49	$3.03

All data from EMTS

Further, there is no apparent correlation between the number of cellulosic carryover RINs, either in absolute terms or as a percentage of the cellulosic biofuel volume requirement, and the cellulosic RIN price. While there was significant volatility in the cellulosic RIN price in 2019 and 2020 when the available number of cellulosic RINs was fairly high, there was relatively low volatility in the cellulosic RIN price in other years with high levels of cellulosic carryover RINs such as 2016 and 2017 (see RIA Chapter 1.9 for a further discussion of RIN prices). The availability of cellulosic carryover RINs therefore does not appear to be correlated with volatility in the cellulosic RIN price.

In addition, as we detail in RIA Chapter 5.1, cellulosic biofuel production has increased significantly in recent years. And as demonstrated by comments on our proposed rule significant investments have been and continue to be made in the cellulosic biofuel industry.[45] This strongly suggests that EPA's current approach to cellulosic carryover RINs has not significantly hindered investment in cellulosic biofuel production.

[45] See comments from the Coalition for Renewable Natural Gas (EPA-HQ-OAR-2021-0324- 0485).

There is also no persuasive evidence that the existence of carryover RINs has caused cellulosic RINs to go unpurchased or unused. Rather, carryover RINs have simply provided an alternative compliance option to purchasing waiver credits in years when EPA over-projects cellulosic biofuel production.

Moreover, the absence of cellulosic carryover RINs would increase the likelihood of retroactive waivers of established standards when unforeseen circumstances result in less supply than EPA anticipated. Such retrospective waivers would undermine the regulatory certainty essential to the RFS program and biofuel market investments.[46]

As we explain in Preamble Section III.B.2, we believe the benefits of carryover RINs generally apply to the cellulosic category, despite the existence of cellulosic waiver credits (CWCs). In addition to these general benefits, factors specific to the 2020-2022 timeframe weigh heavily against changing our interpretation at this time. As noted above, we already expect there to be a significant drawdown in the carryover RIN bank following 2019 compliance.[47] This drawdown affects not only the total number of carryover RINs, but also the number of cellulosic and advanced carryover RINs. Specifically, we expect the number of cellulosic carryover RINs to decrease from 49 to 38 million. We also expect the number of all advanced carryover RINs to decrease sharply from 660 million to 38 million. This is the lowest number of advanced carryover RINs since EPA began calculating the size of the carryover RIN bank and represents less than one percent of the 2020 advanced biofuel volume. Were we to set the cellulosic biofuel volume at a level that includes cellulosic carryover RINs, that would effectively deplete the advanced carryover RIN bank. We do not believe this result would be appropriate.

Comment:

Some commenters stated that EPA should not include available cellulosic carryover RINs in the "projected volume available." One party noted that EPA's projections of cellulosic biofuel production often exceeded the volume produced or imported, and that cellulosic carryover RINs provided necessary compliance flexibility for obligated parties in 2022, and especially in 2023. Another commenter opposing this interpretation stated that adopting it would inappropriately limit the lifespan of cellulosic RINs and conflict with congressional direction. This commenter also cited the 2013 D.C. Circuit ruling that "the 'projected volume of cellulosic biofuel' seems plainly to call for a prediction of what will actually happen" in support excluding cellulosic carryover RINs from the required cellulosic biofuel volume. Another commenter stated that EPA provides no rationale for treating cellulosic carryover RINs differently than other categories of biofuel (e.g. by intentionally drawing down the cellulosic carryover RIN bank), and that drawing down the cellulosic carryover RIN bank to zero would serve no purpose and would increase programmatic costs. This commenter further stated that the statute directs EPA to reduce the cellulosic biofuel volume when the projected volume of cellulosic biofuel production, based in an estimate received form EIA, is lower than the statutory target. This commenter claimed that carryover RINs are from a previous year and therefore should not be considered in EPA's

[46] See RTC Section 2.6.1 and EPA, Office of Transp. & Air Quality, Denial of AFPM Petition for Waiver of 2016 Cellulosic Biofuel Standard (Jan. 17, 2017) at 3 (relying on the availability of carryover RINs to deny a petition for a retrospective waiver of the cellulosic biofuel standard).
[47] See "Carryover RIN Bank Calculations for 2020-2022 Final Rule" tb. II-4 (Net 2019 Carryover RINs).

projection of what will be produced the following year, nor should they in included in EIA's estimate of cellulosic biofuel production in the following year.

Response:

As discussed in further detail the previous response, EPA believes that there are multiple reasonable constructions to construe this ambiguous statutory provision. Neither the statute nor the 2013 D.C. Circuit ruling in *API* prohibits EPA from including carryover RINs in establishing cellulosic biofuel volumes under the cellulosic waiver provision or the reset provision. In any case, consistent with the result advocated for by these commenters, EPA is retaining our longstanding interpretation and not including carryover RINs in establishing the cellulosic biofuel volume. As stated above, cellulosic carryover RINs provide important compliance flexibility to obligated parties. This compliance flexibility is important in all categories, including the cellulosic biofuel category where there is inherent uncertainty in our projections of cellulosic biofuel production. We continue to believe that our reading is a reasonable interpretation of the statutory text, and we believe that under the present circumstances this approach strikes an appropriate balance between the interests of various stakeholders and best ensures the ongoing smooth implementation of the program.

EPA did not solicit comment on or propose to limit the life of cellulosic carryover RINs, which is currently defined by regulation in 40 CFR 80.1427. Such comments are beyond the scope of the rulemaking.

EPA did consider EIA's estimate in establishing the cellulosic biofuel volume. The statute requires EPA to consider other information as well, and we have also done so, as described throughout Preamble Section III and throughout the RIA.

Comment:

One commenter claimed that EPA's statement that the interpretation of "projected volume available" was less relevant in this rule due to our authority to reset the volumes was not valid. This commenter stated that the reset authority was not intended to establish volumes lower than the "projected volume available", and that the statutory factors do not support such reductions. This party stated EPA's consideration of the potential benefits of maintaining a carryover RIN bank cannot be used to ignore the other statutory factors Congress expressly listed to be considered. Another commenter similarly stated that because the reset authority functions, in effect, as a multi-year waiver, and is triggered by the repeated use of the cellulosic waiver authority, that it was subject to the same constraints as the cellulosic waiver authority.

Response:

The reset authority provides that, once certain triggers are met, EPA shall modify the statutorily prescribed RFS volumes based on a review of the statutory factors. While the statute directs EPA to establish the cellulosic biofuel volume at the projected volume available when using the cellulosic waiver authority, it contains no such mandate for establishing the cellulosic biofuel volume using the reset authority. We note that the reset provision contains other limitations on

how we can exercise the authority (e.g., EPA "shall comply with the processes, criteria, and standards set forth in [CAA section 211(o)](2)(B)(ii)"), but not the one preferred by the commenter. Specifically, the statute does not prohibit EPA from resetting the cellulosic volume lower than projected volume available if such a volume is supported by a review of the statutory factors. In any event, the commenter's claims on this point are moot because we are establishing the cellulosic biofuel volume requirements for 2020-2022 at the projected volume available of cellulosic biofuel in each year. As discussed in the preamble and RIA, these volumes are appropriate under both the cellulosic waiver authority and the reset authority.

In exercising the reset authority, we have considered the potential benefits of maintaining a carryover RIN bank along with a consideration of the other statutory factors. The statute explicitly directs EPA to modify the volumes based on a "review of the implementation of the program." Carryover RINs are an important part of program implementation, and therefore EPA has explicit statutory authority to consider the RIN bank. As discussed further in this section and Preamble Section III, we have considered the potential benefits of maintaining a carryover RIN bank along with the other statutory factors – not in place of a consideration of the statutory factors.

We further discuss the relationship between the reset and cellulosic waiver authorities in RTC Sections 2.2 and 2.3.

Comment:

A commenter stated that EPA should, with high priority, pursue driving robust growth and investment in cellulosic biofuel technology. This commenter stated that including cellulosic carryover RINs would support this pursuit. The commenter further stated that allowing a persistent surplus of cellulosic biofuel supply above the required cellulosic biofuel volume would be destructive to promoting the growth of cellulosic biofuels.

Response:

While EPA continues to support the development of cellulosic biofuels, it would not be appropriate to pursue this end with no consideration of other important factors. As discussed in greater detail in previous responses, the approach to cellulosic carryover RINs taken in this final rule continues to provide support for the development of the cellulosic biofuel industry, while recognizing the importance of cellulosic carryover RINs, especially heading into 2023 where CWCs are unlikely to be available. Specifically, despite the existence of cellulosic carryover RINs since 2015 cellulosic biofuel production has continued to increase significantly each year.

Comment:

A commenter stated that EPA's actions in previous years lead to a buildup in cellulosic carryover RINs and a collapse in the cellulosic RIN price. The commenter suggested that including cellulosic carryover RINs in the required volume of cellulosic biofuel would prevent similar RIN price crashes from happening in the future.

Response:

As explained above, the data examined by EPA suggests that our longstanding policy on cellulosic carryover RINs does not necessarily lead to a buildup in cellulosic carryover RINs, nor does a relatively high level of cellulosic carryover RINs necessarily result in low cellulosic RIN prices. This commenter noted that changes to the SRE program and "a renewed confidence in the marketplace that EPA would ultimately balance cellulosic biofuel supply and demand led to a substantial price recovery."[48] As we explain in Preamble Section III.B.2, our recent SRE actions as well as this rulemaking are intended to signal EPA's support for a robust cellulosic biofuel market.

Comment:

A commenter stated that there was a direct correlation between investment in cellulosic biofuel production and the cellulosic RIN price.

Response:

The commenter supports this claim by correlating data on the cellulosic RIN price and production data 24 months later. The commenter implicitly assumes that any increase in cellulosic biofuel production is the result of investment 24 months earlier. There are several problems with this approach. First, the commenter fails to substantiate the connection between cellulosic biofuel production and investment. As can be seen throughout the history of the RFS program investment in cellulosic biofuel production does not reliably result in cellulosic biofuel production. For instance, as described in RIA Chapter 5.1, many of the facilities developed to produce liquid cellulosic biofuels have historically generated only no or small amounts of cellulosic biofuel before shutting down.

Second, cellulosic RIN prices generally trended downward during the time period covered by this assessment, which could not include RIN price data in 2020 or 2021 due to the 24-month lag between RIN price and production. The commenter correlated this data with decreasing growth in cellulosic biofuel production. However, there are many reasons that percent growth could decline over time that are not caused by a decrease in the cellulosic RIN price. For instance, as we discuss in detail in RTC Section 3.2.2, we think that the slow-down in biogas growth is largely due to the maturing of the biogas industry.

Third, data submitted by commenters indicates that investment in cellulosic biofuel production has been strong in recent years.[49] Additionally, as we explain in RIA Chapter 5.1, cellulosic biofuel production has increased greatly in recent years.

Finally, and most importantly, available data does not demonstrate that the approach to cellulosic carryover RINs in this rule results in low cellulosic RIN prices. Indeed, EPA has applied this approach since we began to exercise the cellulosic waiver authority. During this time, cellulosic waiver credit prices, which establish an effective ceiling for cellulosic RIN prices, have

[48] Iogen comments (EPA-HQ-OAR-2021-0324-0559), p. 15.
[49] See comments from the Coalition for Renewable Natural Gas (EPA-HQ-OAR-2021-0324-0485).

fluctuated greatly with gas prices following the statutory provisions. Moreover, in recent months, cellulosic RIN prices have been at or near all-time highs. While we do not believe that high cellulosic RIN prices are necessarily a requirement for investment in cellulosic biofuel production, this does demonstrate that EPA's longstanding approach to cellulosic carryover RINs can and does provide significant support for cellulosic biofuel production.

Comment:

A commenter stated that it was necessary for EPA to include cellulosic carryover RINs in the required volume of cellulosic biofuel because EPA had not historically adjusted its methodology for projecting cellulosic biofuel production to account for excess surpluses or shortfalls in the availability of cellulosic RINs.

Response:

EPA has regularly adjusted our cellulosic biofuel production methodology when available data suggests the current methodology is not producing an accurate projection. As we explain in RIA Chapter 5.1, the current projection methodology explicitly incorporates the most recent data on cellulosic biofuel production. Moreover, in past years, we have changed the methodology itself when we determined that the methodology was not producing reasonably accurate results. We will continue to monitor the accuracy of our projection methodology and will make any adjustments necessary in future years.

Comment:

A commenter stated that in addition to including cellulosic carryover RINs in the required volume of cellulosic biofuel EPA should modify the deficit carryover regulations to permit obligated parties to carryover a deficit in their cellulosic biofuel obligation without penalty in the event of a shortfall in the availability of cellulosic RINs. That is, obligated parties should be allowed to carry a cellulosic deficit for multiple years if EPA over-projects cellulosic biofuel production. The commenter argued that this modification to the deficit carryover regulations would eliminate the need for cellulosic carryover RINs by protecting obligated parties from non-compliance if EPA's projection of cellulosic biofuel production was too high for multiple years in a row.

Response:

EPA did not propose or solicit comment on modifications to the deficit carryover regulations at 40 CFR 80.1427, and thus these comments are beyond the scope. In addition, the commenter's suggestion appears inconsistent with the statute, which allows for deficit carryforward "on condition that … in the calendar year following the year in which the renewable fuel deficit is created," the prior year deficit is offset and the current year RVO is complied with. See CAA section 211(o)(5)(D).

3. Cellulosic Biofuel

3.1 General Comments on Cellulosic Biofuels

Commenters that provided comment on this topic include but are not limited to: 0348, 0415, 0437, 0440, 0443, 0462, 0469, 0483, 0484, 0485, 0488, 0512, 0515, 0530, and 0564.

Comment:

EPA should set the cellulosic biofuel volumes at or above the projected level of cellulosic biofuel production. This will ensure that cellulosic waiver credits (CWCs) are purchased and would give some clarity as to likely future cellulosic RIN prices. It would also provide incentives for growth and investment in the cellulosic biofuel industry.

Response:

The EISA directs EPA to establish the cellulosic biofuel volume at the projected volume available in years where the projected volume of cellulosic biofuel production is less than the statutory target (as is the case in 2020-2022). Our projection of the volume available in this final rule is an attempt to neutrally project the volume of cellulosic biofuel that will be produced or imported in 2020-2022 and available for use in the U.S. This neutral projection is required by the statute and consistent with the direction EPA received from the Court. Establishing cellulosic volumes at levels greater than the neutral projection would be contrary to EPA's statutory authority. More generally, as we explain in Preamble Section III, we believe the cellulosic biofuel volumes established in this rule for 2020-2022 provide the appropriate market signals for the continued development of cellulosic biofuels. We also further discuss our interpretation of the term "projected volume available" in Preamble Section III.B.2 and RTC Section 2.6.2.

Comment:

Multiple commenters stated that EPA should include a projection of electricity used as transportation fuel (eRINs) in our projections of cellulosic biofuel production, [50] and that the cellulosic biofuel volumes should be based on this projection of cellulosic biofuel production (including eRINs). Similarly, multiple commenters stated that EPA should approve pending registration requests for facilities intending to generate eRINs, and that the projected production from these facilities should be included in EPA's projection of cellulosic biofuel production. One commenter stated that EPA had not adequately explained their reason for not including eRINs in these projections despite the existence of a pathway for this fuel. This commenter stated that EPA must consider available data from EIA and other sources on electricity used as transportation fuel when projecting cellulosic biofuel production. Another commenter stated that

[50] In this section, we often use "cellulosic biofuel production," "projection of cellulosic biofuel," and similar terms as shorthand to refer to the "projected volume available" at which we are establishing the cellulosic biofuel volume. Many commenters also adopt this shorthand. Despite our use of this shorthand, however, these are two distinct statutory terms. We further explain our interpretation of the term "projected volume available" in Preamble Section III.B.2 and RTC Section 2.6.2.

EPA has the means and sophistication necessary to approve eRIN registrations under a regulatory framework that prevents double counting in 2022.

Conversely, a commenter stated that EPA should not include eRINs in our projections of cellulosic biofuel production without further study and until concerns have been addressed.

Response:

Our projection of the projected volume available in 2020-2022 includes production volumes from all facilities that are reasonably likely to produce qualifying cellulosic biofuel in 2020-2022. As explained in RIA Chapter 5, these projections include volumes from facilities that have not yet completed facility registration as cellulosic biofuel producers but are expected to complete facility registration and produce cellulosic biofuel by 2022. Under our long-standing approach to projecting the available cellulosic volume,[51] we have not included in our projections production from facilities or under pathways for which significant technical and regulatory issues must be addressed prior to EPA registering facilities for participation in the RFS program (such as facilities seeking to generate eRINs) or from pathways that have not yet been approved. EPA's registration requirements are designed, among other things, to ensure that purported cellulosic biofuels actually meet the statutory requirements to qualify as such. When technical or regulatory issues preclude a facility from registering to generate RINs, the corollary is that it cannot be assumed that the fuel being produced is qualifying cellulosic biofuel.[52]

EPA is not currently registering facilities to generate RINs for electricity under the existing pathways. We have explained that, upon consideration of facility registration requests, we discovered that the current regulatory structure "has created an untenable environment for the approval of any single registration request by the EPA to date."[53] That is, under the existing regulatory scheme, we cannot ensure that electricity claimed to be cellulosic biofuel actually qualifies. Thus, in 2016 EPA sought comment on, among other issues associated with electricity RINs, "potential RIN generation structures for renewable electricity in order to help resolve the many issues associated with choosing an appropriate structure and its design…. Feedback received in response to this request for comment will be essential to ensuring that an equitable, open, and comprehensive program structure is adopted and implemented."[54] We continue to believe that revising the existing regulatory structure through notice-and-comment rulemaking is the best path forward. To this end, we intend to propose revisions to the eRINs regulations in another upcoming rulemaking. As explained above, we believe it is necessary to complete these revisions before registering facilities to generate RINs for the production of renewable electricity; we do not anticipate finalizing a rulemaking revising the eRINs structure in the timeframe relevant to this rule.

[51] See, e.g., the 2020 Annual Rule (85 FR 7016, February 6, 2020), the Response to Comment documents for the 2014-16 Rule at 550, 559; for the 2017 Rule at 431-32; for the 2018 Rule at 47, 69; and for the 2019 Rule at 36-37, 56.
[52] See RIA Chapter 5.1.3 for further discussion of the relationship between the RFS regulatory requirements and qualifying cellulosic biofuel.
[53] 81 FR 80891(November 16, 2016).
[54] *Id.*

We recognize that EIA provides data on the quantity of electricity used as transportation fuel, as well as information on the fuel used to produced electricity (biogas, natural gas, coal, etc.). However, this information is insufficient to determine the quantity of electricity generated from qualifying feedstocks that will be used as transportation fuel in 2022. For example, to generate qualifying RINs a party would need to be able to demonstrate that electricity was generated from a qualifying feedstock using an approved pathway, that this electricity was used as transportation fuel, and that no other party can generate RINs for the same electricity or transportation use. Specifically for electricity, production of the biofuel alone is insufficient information to demonstrate that qualifying cellulosic biofuel has been produced.

Simply assuming, contrary to the evidence, that the technical and regulatory issues associated with eRINs can be resolved in a timeframe that would allow for significant production of cellulosic biofuel would not result in a neutral projection of cellulosic biofuel production for 2020-2022. Thus, under our longstanding approach to projecting cellulosic volumes, we are projecting zero RINs will be generated for renewable electricity during the timeframe of this rule.

Comment:

A commenter stated that EPA should resolve the outstanding technical issues related to the production of ethanol from corn kernel fiber (CKF). EPA should then include projected production of cellulosic ethanol from CKF in their projection of cellulosic biofuel production. Another commenter stated that EPA should consider cellulosic ethanol produced from CKF if there was a greater than 50% likelihood that cellulosic RINs would be generated using this pathway in 2022. Other commenters similarly stated that cellulosic ethanol produced from CKF should be included in EPA's projection of cellulosic biofuel production.

A commenter stated that EPA should act on pending registration requests to produce cellulosic ethanol from CKF and should consider developing an industry standard. This commenter stated that EPA should register parties to generate RINs for cellulosic ethanol from CKF before including volume from these facilities in the required cellulosic biofuel volume.

Response:

We are working as expeditiously as possible, in light of resource constraints and competing priorities to address the outstanding issues related to the production of cellulosic ethanol from CKF. In May 2019, EPA released a guidance document containing our interpretation of the regulatory requirements pertaining to cellulosic measurement for ethanol produced from CKF co-processed with corn starch, which is a prerequisite for RIN generation.[55] Since that time, EPA and facilities have continued to engage in technical and other work towards implementing analytical methods for measuring cellulosic content. In January 2021, the Department of Energy's National Renewable Energy Laboratory (NREL) published a public analytical method to quantify cellulose that addressed the major technical concerns EPA expressed in the 2019

[55] Guidance on Qualifying an Analytical Method for Determining the Cellulosic Converted Fraction of Corn Kernel Fiber, May 2019, https://www.epa.gov/renewable-fuel-standard-program/guidance-qualifying-analytical-method-determining-cellulosic.

guidance. The Agency is currently engaging with stakeholders and determining how best to leverage NREL's work. We are doing so in a separate administrative process from this rulemaking.

Under our long-standing approach to projecting the available cellulosic volume,[56] we have not included in our projections production from facilities or under pathways for which significant technical or other issues must be addressed prior to EPA registering facilities for participation in the RFS program. This includes corn ethanol producers that intend to produce cellulosic RINs for the production of ethanol from corn kernel fiber but do not yet have an approved methodology for determining the portion of the ethanol they produce that is derived from cellulosic biomass.[57] As noted above, EPA and stakeholders are currently assessing NREL's new analytical method to determine whether and how it can be used to measure cellulosic content consistent with EPA's regulatory requirements. While it is possible that the technical and implementation issues associated with cellulosic measurement and facility registration requests could be resolved in a timeframe that would allow additional facilities to produce cellulosic biofuel in 2022, such approvals and subsequent commercial-scale cellulosic biofuel production are highly uncertain at this time.

Simply assuming that parties seeking to generate cellulosic ethanol from CKF will submit registration requests containing the necessary information for approval in a timeframe that would allow for significant production of cellulosic biofuel would not result in a neutral projection of cellulosic biofuel production for 2020-2022. Under our longstanding approach to projecting cellulosic volumes, we are therefore projecting zero RINs will be generated for cellulosic ethanol produced from CKF during the timeframe of this rule. See RIA Chapter 5.1.3 for a further discussion of this topic.

Comment:

Multiple commenters stated that eRINs produced from biogas should have their own sub-category within the cellulosic biofuel category, much like CNG/LNG derived from biogas has its own sub-category.

Response:

While EPA does project the likely production volume of CNG/LNG derived from biogas using a different methodology than the methodology used to project liquid cellulosic biofuel production, CNG/LNG derived from biogas does not have a separate category within the broader cellulosic biofuel category.

[56] See, e.g., the 2020 Annual Rule (85 FR 7016, February 6, 2020), the Response to Comment documents for the 2014-16 Rule at 550, 559; for the 2017 Rule at 431-32; for the 2018 Rule at 47, 69; and for the 2019 Rule at 36-37, 56.

[57] Several potential produces of cellulosic ethanol from corn kernel fiber registered to generate cellulosic RINs for this fuel in 2016-2017 (prior to issuance of the 2019 guidance). Our cellulosic biofuel projection considers production from these facilities. While we do expect some production of this fuel in 2022, the quantity we project is less than 0.5 million gallons and rounds to 0 million gallons.

EPA established the categories of renewable fuel in the RFS program based on the volume targets specified by Congress in EISA. Specifically, the statute specified four biofuel categories (total renewable fuel, advanced biofuel, biomass-based diesel, and cellulosic biofuel). See CAA section 211(o)(2)(B)(i), (o)(1), (o)(2)(A)(i). The statute does not require EPA to establish new biofuel categories in exercising the reset authority or the cellulosic waiver authority or in promulgating the standards. Indeed, none of the relevant statutory provisions we are relying on to establish the volumes and standards in this action say anything about EPA inventing new renewable fuel categories.[58] Thus, we do not believe it would be either in keeping with the statutory framework or appropriate to create such a sub-category for eRINs produced from biogas. In any event, as we note above, we are projecting zero RINs will be generated for cellulosic biofuel from renewable electricity during the timeframe of this rulemaking.

To the extent the commenter is asking EPA to exercise our discretion to revise the implementing regulations to create a new biofuel category, that request is beyond the scope of the rulemaking. Moreover, creating a new biofuel category appears inconsistent with the statute. The statute does not expressly authorize EPA to create any new renewable fuel categories. Congress also chose to specify the four renewable fuel categories in great detail, including by clearly defining which renewable fuels qualify for which categories, how to adjust the qualifying conditions, the required amount of each renewable fuel in each calendar year, and how to adjust these amounts. See, e.g., CAA section 211(o)(1), (2)(A)(i), (2)(B), (4), (7). In doing so, Congress also directly addressed the question of whether certain biofuels should receive preferential treatment. Congress chose to give such preferential treatment to advanced biofuel, BBD, and cellulosic biofuel, by creating a separate standard for each of them.

Within each standard, however, the statute suggests that qualifying biofuels should compete with each other. For instance, as we explain in RIA Chapter 10, within the portion of the advanced biofuel standard that need not be met with BBD or cellulosic biofuel, we think that Congress intended all advanced biofuels (including cellulosic biofuel, BBD, and other advanced biofuels such as advanced ethanol) to be able to compete. Within the cellulosic biofuel standard, Congress did not enact any separate subcategories, indicating that Congress intended for all forms of cellulosic biofuel, including eRINs, to be able to compete in satisfying the cellulosic standard.

Creating a new subcategory, moreover, would appear to run afoul of the statutory mandate that the RFS standards for each year "shall" "consist of a single applicable percentage that applies to all categories of persons specified in subclause (I)," where subclause (I) directs EPA to determine the obligated parties. CAA section 211(o)(3)(B)(ii)(III). This further indicates that EPA cannot divide the percentage standard for a renewable fuel category into standards for multiple subcategories of renewable fuel, including eRINs.[59]

[58] See, e.g., CAA section 211(o)(3)(B), (7)(D), (F).

[59] We recognize that EPA has at times combined standards for multiple years (as for 2009 and 2010 BBD) or required a supplemental standard (as for the ACE remand in this rulemaking). However, in those cases, EPA addressed specific compliance issues to "ensure" that the volumes would be met as required by the statute. See CAA section 211(o)(2)(A)(i), (3)(B)(ii). This is distinct from creating a new subcategory of biofuel so as to give preferential treatment to certain biofuels or biofuel producers.

Comment:

EPA should ensure that any cellulosic biofuel projected to be produced from newly approved pathways are properly accounted for in the projection of cellulosic biofuel production.

Response:

As discussed in greater detail in RIA Chapter 5.1, our projection of the projected volume available considers all potential sources of cellulosic biofuel we believe will be produced or imported and available for use in the U.S. as transportation fuel through 2022. This includes volume from newly approved pathways and from facilities that have not yet completed the registration process but are expected to do so on a timeline that would allow them to generate an appreciable number of cellulosic RINs in 2022.

Comment:

A commenter stated that EPA should set the cellulosic biofuel volume at least 20 percent below the projected volume of CNG/LNG derived from biogas used in the transportation sector. CNG/LNG derived from biogas is already required to be captured and is cost-competitive without RFS incentives. This would encourage over-compliance with the cellulosic obligation allowing obligated parties to build up a carryover RIN bank of cellulosic RINs and enabling obligated parties to use excess cellulosic RINs to meet their advanced biofuel obligations.

Similarly, another commenter stated that EPA should set the required volume of cellulosic biofuel just below its projection of cellulosic biofuel production. This would ensure that producers must compete for market share and would reduce the cost to consumers of transportation fuel.

Response:

We acknowledge that establishing lower volumes, even slightly below the market's capability, could have the results noted by these commenters, including greater competition among cellulosic biofuel producers which could lead to lower cellulosic biofuel and cellulosic RIN prices and ultimately lower costs to consumers of transportation fuel. It could also lead to a greater quantity of cellulosic carryover RINs. However, such an approach would also reduce the incentives for cellulosic biofuel production in 2022 and could reduce investment in cellulosic biofuel technology and production facilities. For the reasons discussed in Preamble Section III and the RIA, EPA has determined that it is appropriate to establish the cellulosic volumes for 2020-2022 at the volume of qualifying cellulosic biofuel produced or imported and available for use in the U.S. as transportation fuel.

We note, moreover, that while CNG/LNG derived from biogas may be cost-competitive with fossil fuels in some instances, we expect that the most cost-effective production of such fuels has likely already occurred. New facilities are likely to incur higher costs. We discuss this further in RTC Section 3.2.1. In addition, we present our estimates of the costs of biogas used as transportation fuel relative to natural gas in RIA Chapter 9. We estimate that, based on the

assumptions we used, biogas is somewhat more costly than natural gas. As such, we believe that the RFS continues to incentivize the increased use of CNG/LNG derived from biogas as transportation fuel.

Moreover, while CNG/LNG derived from biogas is expected to be the predominant cellulosic biofuel through 2022, other sources of cellulosic biofuels have the potential to be commercialized and gain market share in future years. As the research and commercialization of novel cellulosic biofuels is a process that can take multiple years or even longer, the cellulosic biofuel standards set in this rulemaking support the development of these other kinds of cellulosic biofuels going forward, even if they are unlikely to be used in 2022. Congress anticipated cellulosic biofuels to be generated from a variety of feedstocks and intended for the RFS program to support cellulosic biofuels generally, not merely to incentivize CNG/LNG derived from biogas. See CAA section 211(o)(1)(E). Consistent with this statutory intent, the cellulosic standards set in this rulemaking are expected to provide a strong market signal of EPA's intention to support a robust cellulosic biofuel market more generally.

We also do not agree with parties who suggest that we should intentionally reduce the cellulosic biofuel standards so as to inflate the size of the RIN bank. As we explain in Preamble Section III.C, EPA has never before set any standards with the explicit intention of inflating the RIN bank, and we do not believe that is appropriate to do so in this action.

Comment:

A consideration of the reset factors would result in a cellulosic biofuel volume that is higher than the volume proposed by EPA based on projected production. EPA cannot assert that a proper consideration of the reset factors would support volumes below projected production. Focusing only on projected production renders the reset factors meaningless.

Response:

As discussed in further detail in Preamble Section III and the RIA the impacts of cellulosic biofuel production are positive for some of the statutory factors and negative for other factors. Importantly, the majority of these impacts are dependent on the actual production of cellulosic biofuel. Increasing the required volume of cellulosic biofuel beyond the volume that we project can be produced and imported into the U.S. and used as transportation fuel in 2022 does not increase the GHG benefits of this rule, for example, if no additional cellulosic biofuel is used. It could, however, increase the cost of transportation fuel to consumers. If the cellulosic biofuel volume requirement is higher than the available supply of cellulosic biofuel, obligated parties are forced to buy cellulosic waiver credits or use cellulosic carryover RINs. In either case the obligated parties would be expected to pass these cost to consumers through higher fuel prices for petroleum fuels, and these higher prices would not be off-set by any reductions in the price of renewable fuel blended into transportation fuel as neither cellulosic waiver credits or carryover RINs represent renewable fuel used in 2022. Focusing on projected production does not render the reset factors meaningless, rather it acknowledges that many of the expected impacts of cellulosic biofuel are only realized if and when cellulosic biofuel is actually produced and used.

In addition, while requiring higher volumes than what the market can make available is unlikely to result in more cellulosic biofuel production or use, it would likely result in a drawdown of the RIN bank. This is certainly true for 2020-21, as those volumes are entirely retroactive and cannot incent additional cellulosic biofuel use. Relatedly, higher cellulosic biofuel volume requirements cannot have an impact on any of the statutory factors in 2020 or 2021 insofar as they are based on cellulosic biofuel use or production in those years. We also do not expect that setting higher volumes for 2022 would result in more cellulosic biofuel use as our methodology is already intended to project the total volume available. As we explain in Preamble Section III.B, we do not believe such an intentional drawdown of the RIN bank would be appropriate in this rulemaking.

For these reasons we disagree with the commenter's claims that a consideration of the reset factors would result in a cellulosic biofuel volume that is higher than the volume proposed by EPA. Instead an evaluation of the expected impacts of establishing a cellulosic volume higher than the volume that can be supplied would result in many of the costs associated with cellulosic biofuels with few if any of the benefits.

In addition, the cellulosic waiver authority establishes a ceiling on the cellulosic biofuel volume at the projected volume available. Even were we to conclude that the reset authority supports higher volumes (which as explained above, we do not), the cellulosic waiver authority would mandate that we reduce that volume to the projected volume available.

While we have discretion under the reset authority to establish lower volumes, we do not believe such a volume would be appropriate based on a review of the statutory factors.

Finally, we note that the commenter's statement that a proper consideration of the reset factors cannot support volumes below projected production is not relevant to this rule. In this rule we are establishing the cellulosic biofuel volumes for 2020-2022 at the actual volume of cellulosic biofuel produced and imported (or projected to be produced and imported) and available for use as transportation fuel in the U.S.

3.2 Methodology for Projecting Volumes

Commenters that provided comment on this topic include but are not limited to: 0443 and 0485.

Comment:

EPA's cellulosic biofuel volume for 2022 fails to take a neutral aim at accuracy. EPA acknowledges that biogas must be captured anyway, and that an excessive cellulosic biofuel requirement will not result in the generation of any new biogas. Additionally, EPA notes that it is economical to use biogas as transportation fuel without any RIN value support.

Response:

We disagree that our projection of the available volume of cellulosic biofuel in 2022 fails to take neutral aim at accuracy. Our projection is described in detail in RIA Chapter 5.1. Responses to comments on the methodology used to project liquid cellulosic biofuel and CNG/LNG derived from biogas can be found in RTC Sections 3.2.1 and 3.2.2. The fact that some biogas will be captured anyways or may be economical to use as transportation fuel are also not relevant to projecting the volume available with neutral aim at accuracy.

While these considerations may be relevant under the reset authority, we think the commenters' premises are only partially correct. While we acknowledge that many of the potential sources of CNG/LNG derived from biogas, such as large landfills, are required to capture methane by other regulatory programs, this is not the case for all sources, especially smaller landfills or for agricultural digesters.[60] Further, many of the landfills that currently capture biogas flare the gas, rather than cleaning the gas and injecting it into a pipeline.[61] Thus, even if the RFS program does not result in the generation of new biogas (since the decomposition of MSW at landfills will occur with or without the RFS program) we do expect that the RFS volume requirements will result in the increased use of biogas in the transportation sector that would otherwise have been flared or not collected. Finally, while the use of biogas in the transportation sector may be economical without any RIN value support in a limited number of cases, the use of CNG/LNG derived from biogas is generally not cost competitive with natural gas. This is particularly true for facilities with the potential to capture biogas for use in the transportation sector that are not currently doing so. In many cases the incentives provided by the RFS program are needed for these new projects to be economically viable. We also present our own cost estimates of biogas relative to natural gas in RIA Chapter 9, and find that based on the assumptions we used biogas is somewhat more expensive. In any event, we have carefully considered the commenters' statements and the economics of biogas use in weighing the reset factors and believe that the final volumes are appropriate.

Comment:

EPA over-estimates the potential for the 2022 cellulosic biofuel standard to incentivize biogas. EPA's projection does not take neutral aim at accuracy. EPA explicitly states that it is proposing

[60] 81 FR 59332 (August 29, 2016).
[61] See "Candidate Landfills (March 2022)" from EPA's Landfill Methanol Outreach Program.

to set the 2022 cellulosic volume higher than would be suggested by other statutory factors because it thinks the potential of GHG benefits outweighs other statutory factors. Because biogas capture has long been required under other regulatory authorities, any potential additional GHG benefits that will flow from an artificially inflated cellulosic volume mandate are specious.

Response:

In the final rule we have updated our projection of the available volume of cellulosic biofuel based on the most recent data available. The use of this more recent data has resulted in a lower cellulosic biofuel volume for 2022 in this final rule relative to the proposed volume. The methodology used to project cellulosic biofuel in 2022 is described in RIA Chapter 5.1. EPA has used this methodology to project cellulosic biofuel since 2018, and we believe it has resulted in reasonably accurate projections that reflect the ability for the RFS program to incentivize increasing production and use of cellulosic biofuels.

The projected GHG benefits of CNG/LNG derived from biogas are a factor in the cellulosic biofuel volumes we are establishing in this rule. As discussed above, while the capture of biogas is required in some cases, in other cases (such as smaller landfills, wastewater treatment facilities, and agricultural digesters) biogas capture is not required. Even when biogas capture is already required it is often flared rather than used as transportation fuel. See Section IV.B.3.b (Flaring Baseline Justification) of the July 2014 Pathways II rule (79 FR 42141). EPA's existing estimate of the lifecycle GHG benefits emissions from of CNG/LNG derived from biogas assumes that if not used for transportation fuel the biogas would be captured and flared. Projects that capture additional quantities of biogas that are not currently being captured are expected to have even greater GHG benefits. Thus, we believe the cellulosic biofuel requirement will yield additional GHG reductions.

In addition, while we project that CNG/LNG derived from biogas will be the predominant cellulosic biofuel in 2022, the cellulosic biofuel standard provides support for the development and use of all cellulosic biofuels, all of which must meet the statutory requirements for lifecycle GHG reductions.

Comment:

EPA has improperly equated "projected volume available" to the quantity of likely cellulosic RINs generated in 2021 and 2022 (i.e., from cellulosic biofuel production that meets statutory and regulatory requirements) that are available for obligated parties to use for compliance. In doing so it has declined to include projections of available volumes of other cellulosic biofuels, even if they have approved pathways, because EPA has not approved RIN generation and, therefore, the fuels are not eligible for obligated parties to show compliance. These fuels include ethanol produced from CKF and eRINs.

Response:

Our projection of the available volume of cellulosic biofuel in this rule considers all potential sources of qualifying cellulosic biofuel for 2020-2022. Part of our consideration is whether

potential sources of cellulosic biofuel will be able to meet the regulatory requirements for cellulosic biofuel. For further discussion of our consideration of cellulosic ethanol produced from corn kernel fiber and electricity used as transportation fuel see RTC Section 3.1 and RIA Chapter 5.1.3.

3.2.1 Methodology for Projecting Cellulosic Biogas Volumes

Commenters that provided comment on this topic include but are not limited to: 0435, 0437, 0462, 0485, 0515, and 0530.

Comment:

Multiple commenters stated that EPA had under-estimated the potential for growth in the cellulosic biofuel production in 2022. The commenters stated that EPA should use a growth rate higher than was used in the proposed rule (24%) to project volumes of CNG/LNG derived from biogas in the final rule. These commenters generally cited the growth in the number of RNG facilities that came online in 2021 (73 new facilities representing 46% growth) and the number of RNG facilities under construction (108 facilities representing 42% growth) as support for a higher growth rate.

Response:

We do not believe it is appropriate to base the rate of growth used to project production of CNG/LNG derived from biogas in future years on the increase in the number of facilities producing this fuel. Doing so would ignore the potential size differences between these facilities. This is particularly important since based on EMTS data the facility that produced the most RINs for CNG/LNG derived from biogas produced over 20,000 times more RINs than the smallest producer. Average RIN generation from the largest 10% of these facilities was nearly 200 times greater than the average RIN generation from the smallest 10%.

Further, we expect that in general new facilities will be smaller than existing facilities, since facilities with a large capacity are generally more cost competitive due to the economy of scale than smaller facilities and are therefore likely to have been developed earlier in time.[62] Unlike biodiesel or ethanol production facilities where feedstock can cost-effectively be transported to a processing facility, feedstock sources for the production of CNG/LNG derived from biogas are relatively fixed (in the case of landfills) or cost-prohibitive to transport long distances (in the case of agricultural digesters). Therefore, while the average size of biodiesel and ethanol facilities have generally increased over time as the market has matured, the average size of facilities producing CNG/LNG derived from biogas is likely to continue to decrease as smaller landfills and agricultural digesters (which generally have much smaller production volumes than landfills) are developed.

Focusing only on the number of RNG facilities also ignores the other requirements necessary to generate cellulosic biofuel. Notably, to qualify for cellulosic biofuel, registered facilities must produce CNG/LNG derived from biogas from qualifying cellulosic feedstocks. In addition, the CNG/LNG must be used as transportation fuel. Going forward, we note that the ability to

[62] From 2016 to 2021 the number of facilities generating cellulosic RINs for CNG/LNG derived from biogas increased from 35 to 134, while the average number of cellulosic RINs generated per facility decreased from 5.4 million RINs in 2016 to 4.2 million RINs in 2021 (data from EMTS).

demonstrate use as transportation fuel may become more of a constraint on market growth than the number of biogas facilities.[63]

Comment:

EPA overestimates the potential for its 2022 standards to incentivize biogas. EPA's cellulosic volume exceeds its CAA authority because it fails to take a neutral aim at accuracy. EPA should set the cellulosic volume to the level that will be achieved by actual production in 2022, or a lower volume using the reset authority.

Response:

The commenter provides no basis or supporting information for their claim that EPA overestimated potential production of CNG/LNG derived from biogas. EPA has revised our projection of CNG/LNG derived from biogas based on more recent data, as described in RIA Chapter 5.1. The cellulosic biofuel volumes we are establishing in this rule are based on the actual production and import of cellulosic biofuel (2020 and 2021) and the projected production and import of cellulosic biofuel (2022), which are available for use as transportation fuel in the U.S. Our projected volume for 2022 reflects our obligation to project cellulosic biofuel volumes with a neutral aim at accuracy.

Comment:

EPA should finalize a volume of at least 770 million gallons for 2022 based on the proposed volume, even if more recent data shows reduced growth rates relative to the data used to project the production of CNG/LNG derived from biogas in the proposed rule. Obligated parties were on notice that EPA could finalize such a volume. The commenter identified 993 million ethanol-equivalent gallons of RNG capacity at 235 operational projects in the United States that is available today. This does not include the over 100 projects currently under construction. This capacity has been underutilized because of the uncertainty associated with the RFS program but remains available. While this volume is still below capacity, it would allow parties to ramp up production where that capacity is currently underutilized for transportation fuel. It also better represents where the RFS program should have been if EPA had acted on time. Using a growth rate that is too low would result in operational capacity being underutilized and investments being stranded and would not represent the volumes that would be available in 2022.

Response:

While obligated parties had notice through our proposed rule that EPA could establish a cellulosic biofuel volume of 770 million gallons for 2022 we also indicated our intent to update the cellulosic biofuel volume for the final rule using the most recent data available at the time of the final rule. RIN generation data from 2021 demonstrates that production of CNG/LNG derived from biogas used as transportation fuel was significantly lower than projected in our proposed rule. This same RIN generation data also suggest a lower growth rate than was used in the proposed rule is appropriate for projecting production of CNG/LNG derived from biogas in

[63] See the discussion of the use of CNG/LNG as transportation fuel in RIA Chapter 5.1.2.2.

2022. Given the availability of updated data, it is not appropriate to ignore that data and cherry pick older data that favors higher volumes. Such an approach would not be consistent with the methodology we proposed or with our recent annual rules, where we have consistently used updated data at the time of the final rule.

We recognize that RNG[64] production capacity is greater than the volume of CNG/LNG derived from biogas we are projecting in this rule. We expect that much of this RNG does not qualify as cellulosic biofuel under the RFS program, either because it is not produced from qualifying cellulosic feedstocks or is not used as transportation fuel. Moreover, the cellulosic RIN prices averaged $2.75 per RIN in 2021. This incentive is nearly 10 times higher than the value of the gas itself based on the average Henry Hub price for natural gas reported by EIA in 2021 ($3.91 per MMBTU or $0.30 per ethanol-equivalent gallon).[65] Despite the uncertainty related to the RFS program it appears highly unlikely that any qualifying CNG/LNG derived from biogas that was or could have been used as transportation fuel in 2021 was used for other purposes or did not generate cellulosic RINs in light of the magnitude of this incentive. Instead, we believe that the number of cellulosic RINs generated for CNG/LNG derived from biogas in 2021 is an accurate representation of the quantity of this fuel produced from qualifying feedstocks that was used as transportation fuel in this year, and that this data is a reliable basis for projecting the production of this fuel in 2022. By establishing the 2022 cellulosic biofuel volume based on a neutral projection of cellulosic biofuel availability in 2022 we are requiring the use of all the cellulosic biofuel we project will be produced or imported in 2022. Such an approach should minimize the underutilization of available production capacity or the stranding of investments in cellulosic biofuel production.

In establishing the cellulosic biofuel volume at the projected volume available, EPA is assessing the market's overall ability to produce and use cellulosic biofuel. We are not assessing whether any particular facility will operate at full capacity or maximize return on their investments. Such outcomes are a function of market dynamics and individual business decisions. Regardless, we believe the magnitude of the RFS RIN incentive is also such that facilities generally would not need to operate at full capacity in order to remain profitable through 2022.

We disagree with commenters that EPA requiring a higher cellulosic biofuel volume would likely result in greater cellulosic biofuel being made available in 2022. As we discuss in RIA Chapter 5.1, we have carefully assessed our projection methodology in light of recent data on its historical accuracy, and we continue to believe it achieves neutral aim at accuracy.

Comment:

The EMTS data shows a declining growth rate for CNG/LNG derived from biogas in 2021. This data does not reflect the actual growth and potential of the industry, rather it reflects increasing

[64] RNG refers to all sources of renewable natural gas, regardless of whether the renewable natural gas was produced from qualifying cellulosic feedstocks and whether it was used as transportation fuel. CNG/LNG derived form biogas specifically refers to CNG/LNG that was produced form qualifying feedstocks and used as transportation fuel, and thus is eligible to generate cellulosic RINs under the RFS program, assuming all other regulatory and statutory requirements are met.

[65] Natural Gas price from EIA January 2022 STEO. One RIN can be generated for each ethanol-equivalent gallon (77,000 BTU) of CNG/LNG derived from biogas.

uncertainty in the market in 2021 as a result of EPA's delays and indications it will not enforce the volumes it finalizes. EPA should finalize a cellulosic volume based on volumes of CNG/LNG derived from biogas of 800-900 million ethanol-equivalent gallons based on growth rates from previous years (2015-2020 or 2015-2021), rather than data from 2020 and 2021 which were impacted by the COVID pandemic.

EPA should not use a growth rate based on recent data. Using more recent data would result in a projection of CNG/LNG derived from biogas that is over 100 million ethanol-equivalent gallons lower than what EPA proposed for 2022. This would not represent a neutral aim at accuracy but would instead reflect EPA's policy decisions to restrain growth of RNG use in the transportation fuel sector in favor of easing compliance for obligated parties.

Response:

As discussed above, we do not agree with the commenter that the lower growth rate for CNG/LNG derived from biogas is the result of uncertainty in the market created by delays in establishing RFS standards or indications that EPA would not enforce the volumes it finalizes. The high cellulosic RIN prices in 2021 strongly suggest that the RFS program continued to provide substantial incentives for all producers of cellulosic biofuel.

Using an average growth rate from 2015-2020 or 2015-2021 to project the production of CNG/LNG derived from biogas would not be appropriate when more recent data suggests a lower growth rate in more recent years. This is especially true when there is reason to expect that the annual growth rate for CNG/LNG derived from biogas will decrease over time. EPA approved CNG/LNG derived from biogas to generate cellulosic RINs in 2014. After several years where the annual growth rate averaged 25%-35%, the annual growth rates in 2020 and 2021 were significantly lower. We note that decreasing rates of growth are common as industries mature, and we have observed similar trends in ethanol and biodiesel production, which we discuss further in RIA Chapter 1. We also note that according to EIA data, the use of CNG/LNG as vehicle fuel was 53.2 billion cubic feet in 2019 dropped to 49.1 billion cubic feet in 2020 and increased to 53.2 billion cubic feet in 2021.[66] These volumes are higher than the quantity of CNG/LNG derived from biogas in these years, thus the observed decrease in the growth rate of CNG/LNG derived from biogas does not appear to have been caused by the COVID pandemic's negative impact on CNG/LNG use, but rather other factors discussed below.

Year	2016	2017	2018	2019	2020	2021
Annual Growth Rate[a]	34.8%	27.6%	26.4%	32.9%	24.6%	12.3%

[a]Growth rates based on EMTS RIN generation data for CNG/LNG derived from biogas

The rapid growth in this fuel in the years following this approval was largely the result of RIN generation from facilities that were already injecting biogas into a pipeline, and therefore only had to demonstrate the use of this biogas as transportation fuel to generate RINs. In most cases this could occur by simply establishing contractual relationships with relatively large fleets using

[66] See EIA Natural Gas Consumption by End Use. Assuming 1035 BTU per cubic foot of natural gas and 1 RIN per 77,000 BTU of natural gas the total quantity of natural gas used as vehicle fuel was 715 million RIN-equivalents in 2019 and 2021 and 660 million RIN-equivalents in 2020.

CNG/LNG vehicles. As the market for CNG/LNG has developed, the investment required to produce CNG/LNG derived from biogas has increased as the market has begun to develop smaller projects (which do not benefit from the same economy of scale as larger projects) and also projects that require more treatment of the gas before injection into a pipeline. Furthermore, the level of effort and cost associated with establishing contractual relationships with increasingly smaller fleets of CNG/LNG vehicles has increased.

As discussed above, there are limitations on both the availability of qualifying feedstock and on the ability of the market to use CNG/LNG derived from biogas as transportation fuel. Overall, as incremental production of CNG/LNG derived from biogas increases, we expect the cost of production to increase and the rate of growth in investment and production to decrease over time.

Comment:

EPA should not use production of CNG/LNG derived from biogas in 2021 as the baseline for projecting production in 2022. EPA has previously used the most recent full year of data for projecting CNG/LNG derived from biogas, which would have been 2020 if this rule were on time. Using 2021 to project volume in 2022 would not accurately reflect the industry's available volumes. Using updated data (from 2021) would intentionally underestimate available RNG volumes in 2022 due to the delay in issuing the standards, which would not be a neutral aim at accuracy.

Response:

The commenter recognizes EPA's past practice and stated intent to use more recent data (including the quantity of CNG/LNG derived from biogas in 2021) in projecting volumes for this final rule. As discussed above, we do not believe that the data from 2020 is more representative of the market's capacity of likely production of CNG/LNG derived from biogas in 2022 than the data from 2021. Ignoring more recent data that produces a result that would conflict with a neutral aim at accuracy, while updating our projections using the most recent data is consistent with this aim.

Comment:

There are no limitations on feedstock for producing CNG/LNG derived from biogas.

Response:

We do not expect available feedstocks to limit the production of CNG/LNG derived from biogas in 2022. Instead, as discussed in RIA Chapter 5.1 and the other responses in this section, other factors, such as the production of CNG/LNG derived from biogas from qualifying sources and the use of CNG/LNG derived from biogas as transportation fuel are likely to limit RIN generation in 2022. We also note that not all biogas is produced from feedstocks that qualify as cellulosic under the RFS program. For example, some waste digesters produce biogas from food waste or other fats, oils, and greases and these feedstocks do not qualify as cellulosic biomass.

Therefore, not all CNG/LNG produced from biogas will necessarily be able to generate cellulosic RINs.

4. Biodiesel and Renewable Diesel

4.1 Biodiesel and Renewable Diesel Production Capacity

Commenters that provided comment on this topic include but are not limited to: 0431, 0458, 0459, 0470, 0472, 0476, 0494, 0510, and 0518.

Comment:

Several commenters stated that there was sufficient biodiesel and renewable diesel production capacity to achieve the proposed BBD and advanced biofuel volumes, or even higher volumes. A commenter stated that there is sufficient biodiesel and renewable diesel production capacity to support a BBD volume of at least 4 billion gallons and an advanced biofuel volume of at least 7 billion ethanol-equivalent gallons in 2022. Another commenter stated that there was sufficient biodiesel and renewable diesel production capacity to support an advanced biofuel volume of 6.77 billion gallons. Another commenter similarly stated that there was 3.4 billion gallons of biodiesel and renewable diesel production capacity, and that an additional 1 billion gallons of renewable diesel production capacity was expected to come online in 2022. Several of these commenters cited biodiesel and renewable diesel production capacity reported by EIA to support their claims.

Response:

Our assessment of the domestic production capacity of biodiesel and renewable diesel is presented in RIA Chapter 5.2.2. This assessment is similar to the estimates of biodiesel and renewable diesel production capacity presented by the commenters.

Comment:

Several commenters stated that additional biodiesel and renewable diesel production capacity is expected to come online in 2022. Some of these commenters stated that renewable diesel production capacity could reach over 5 billion gallons per year by 2024.

Response:

We recognize that several parties have announced their intentions to build new renewable diesel production facilities or to convert existing refineries to renewable fuel production facilities. If completed these projects could significantly increase the renewable diesel production capacity in the U.S. However, with the exception of those facilities discussed in RIA Chapter 5.2.2, we do not expect these projects will be completed in time to produce renewable diesel in 2022. The potential for significantly increased capacity in 2024 is of limited relevance to establishing the 2022 volumes since any facilities built after 2022 cannot generate RINs in 2022. Further, production capacity alone does not equate to production. Production is often constrained by other market factors, including feedstock availability, as is expected for 2022. Nonetheless, we believe this rulemaking does provide strong incentives for increased investments in renewable diesel and other advanced biofuels.

Comment:

Biodiesel and renewable diesel production capacity is increasing. If EPA does not increase the BBD and advanced biofuel volume requirements these investments could be stranded.

Response:

It is possible that as renewable diesel production expands it may out-compete existing biodiesel producers, especially if available feedstocks become limited. However, as discussed in RIA Chapter 5.2.5, we expect domestic biodiesel production to continue at roughly the same level as in recent years through 2022, with a slight increase relative to 2021. In addition, we expect domestic renewable diesel production to increase significantly due to the construction or conversion of new renewable diesel facilities. Thus, we do not believe this rulemaking will cause any stranding of existing investments in biodiesel and renewable diesel. That said, we note that RIA Chapter 5.2 is an assessment of the market's overall ability to produce biodiesel and renewable diesel. It is not an assessment of whether individual facilities operate at full capacity or maximize return on their investments. Such outcomes are a function of market dynamics and individual business decisions.

4.2 Availability of Biodiesel and Renewable Diesel Feedstocks

Commenters that provided comment on this topic include but are not limited to: 0374, 0421, 0431, 0433, 0442, 0445, 0449, 0451, 0453, 0458, 0464, 0470, 0471, 0476, 0486, 0493, 0497, 0510, 0518, and 0556.

Many commenters that discussed the availability of biodiesel and renewable diesel feedstocks also discussed the impact of the proposed volumes on vegetable oil and food prices. Responses to these comments can be found in RTC Section 9.1.5.

Comment:

A commenter stated that increased demand for soybean oil to produce biodiesel will divert soybean oil from other markets such as the oleochemical market and result in increased imports in palm oil as a substitute in other markets. Similarly, other commenters stated that because soybean oil is part of the global vegetable oil market, demand for soybean oil for biodiesel and renewable diesel production would result in increased production of soybean oil in South America and palm oil in Southeast Asia.

Response:

We recognize that increased demand for soybean oil to produce biodiesel and renewable diesel in the U.S. could result in diversions of soybean oil from existing markets or could cause expanding non-biofuel markets to look for alternatives to domestically produced soybean oil. Either of these actions could incentivize increased production of vegetable oils in other parts of the world, including South America and Southeast Asia. We note, however, that the international vegetable oil market is highly complex and is impacted by a number of different factors, including both economic factors and other factors such as tariffs on agricultural commodities. Any international impacts, including increased imports of palm oil, are highly uncertain. EPA's assessment of the availability of feedstocks to produce biodiesel and renewable diesel (presented in RIA Chapter 5.2.3) determined that there was significant potential to increase soybean oil production in the U.S. in 2022, primarily from increased crushing of soybeans. Increased production of soybean oil in the U.S. would reduce the need for diversions and for additional production of vegetable oils in other countries.

Comment:

Multiple commenters stated USDA projects that use of soybean oil in the food market will decrease by 2% in the 2021/2022 marketing year, while the use of soybean oil for biodiesel and renewable diesel production will increase. These commenters generally claimed that this was evidence that soybean oil is already being diverted from the food and industrial markets to biofuel production, and that rationing of soybean oil has already begun. Other commenters noted that USDA's projected consumption of soybean oil in the food market in 2021/2022 was higher than the quantity used in 2019/2020 and suggested that no diversion from the food market had occurred.

Response:

EPA has examined USDA data on vegetable oil consumption in non-biofuel markets. We found that while USDA projected a slight decrease in soybean oil consumption in non-biofuel markets from 2020/2021 to 2021/2022 (from 14.5 billion pounds to 14.4 billion pounds) the projected volume of soybean oil in non-biofuel markets in 2021/2022 was still higher than all but 1 year from 2008/2009 through 2019/2020.[67] During this time period consumption of soybean oil for non-biofuel purposes averaged 14.0 billion pounds.[68] Based on the fact that the use of soybean oil in non-biofuel markets was higher in 2020/2021 than in previous years we do not believe there is evidence that soybean oil was diverted (quantities that were previously used in other markets were instead used for biofuel production) from the food market for biofuel production in 2020/2021. Further, we do not believe that the slight decrease projected by USDA in soybean oil consumption in non-biofuel markets in 2021/2022 demonstrates that soybean has been or will be diverted from non-biofuel markets or that this data provides evidence of rationing (the limiting of a good to a fixed amount) of soybean oil in the non-biofuel market. Instead, we believe that the slight decrease noted by the commenter reflects the historical fluctuation in the use of soybean oil in non-biofuel markets from year to year. Non-biofuel consumption of edible vegetable oils has generally increased each year since 2006, the first year for which data are available, and is projected to be higher than any year since 2006 in 2021.[69]

We have also examined the use of soybean oil to produce biodiesel and renewable diesel that is used in the U.S. According to data from EMTS, consumption of biodiesel and renewable diesel produced from soybean oil decreased slightly from approximately 1.19 billion gallons in 2020 to approximately 1.15 billion gallons in 2021.[70] This data demonstrates that the use of soybean oil to produce biodiesel and renewable diesel for the U.S. market did not increase from 2020 to 2021. While we acknowledge that vegetable oil prices increased dramatically in 2021 and are projected to remain high in 2022, we see no evidence that there will be a supply shortage (where users of vegetable oil will be unable to purchase vegetable oil) through 2022.

Comment:

One commenter stated that the increase in domestic soybean oil consumption has been twice the increase in supply over the last five years, and that demand for soybean oil in the U.S. will outpace supply by 2023.

Another commenter cited articles stating that current soybean crush capacity will need to expand by 15-20% to meet near-term biofuel needs, a process that will take a couple of years. During that time, tight supplies and high prices are expected, which will harm businesses and consumers.

[67] Oil Crops Data: Yearbook Tables. USDA Economic Research Service. Updated March 25, 2022.
[68] Ibid.
[69] Ibid.
[70] See "Biodiesel and Renewable Diesel Feedstocks (2014-2021)," available in the docket.

Response:

According to USDA data the increase in domestic production of soybean oil from 2015/2016 to 2020/2021 (3.07 billion gallons) was very similar to the increase in domestic soybean oil consumption during the same time period (3.16 billion gallons).[71] Increases in soybean oil used to produce biofuels was offset by increased soybean oil production and decreased soybean oil exports, while domestic consumption of soybean oil for other purposes was relatively unchanged. While demand for soybean oil may outpace supply by 2023 if overall demand (including for biofuels and other markets) increases faster than supply in 2023, that is of limited relevance to this rulemaking, which establishes volumes for 2020-2022. As we explain in RIA Chapter 5.2 and in other responses in this section, we believe that the increase in soybean crushing that will be needed to meet the increased demand for near term biofuel production are already under way, and that there are and will be sufficient feedstock, including soybean oil, for the RFS volumes we are finalizing in this rule.

Comment:

Several commenters noted that while the production capacity for the soybean oil market is expanding soybean oil supplies will remain tight and prices will remain high until the supply chain catches up. The commenters stated that if the RFS volumes are not reduced they will add pressure to an already tight market for the next several years.

Several commenters stated that over the past year there has been an unprecedented increase in soybean oil prices (more than doubling) and disruptions in the availability of soybean oil. The proposed volumes will further exacerbate the instability in the vegetable oil market. Suppliers have been unable to ensure the availability of vegetable oil, and in some cases quotes for future delivery of vegetable oil has been unattainable.

Another commenter stated that EPA should reduce the proposed BBD volume by 330 million gallons or more to alleviate high soybean oil prices and supply shortages and reduce market driven palm oil expansion.

Response:

We recognize that soybean oil prices are currently high which is indeed an indication of a tight supply market and a need for market participants to potentially adjust their current business practices. It may be the case that some parties have been unable to secure contracts for the delivery of vegetable oil at a future date. Notably, feedstock suppliers may be hesitant to enter into contracts for the delivery of soybean oil at a future date given the volatility of soybean oil prices. However, this does not mean that these parties are or will be unable to secure feedstock on an as-needed basis, even if they are unable to secure feedstock supplies for future months. As discussed above we see no evidence that users of soybean oil in non-biofuel markets will be unable to access soybean oil in 2022.

We also recognize that the volumes we are finalizing in this rule will likely increase the demand

[71] Oil Crops Data: Yearbook Tables. USDA Economic Research Service. Updated March 25, 2022.

for soybean oil for biofuel production, and that lower volumes could result in decreased vegetable oil demand for biofuel production and ultimately lower vegetable oil prices. As discussed further in RIA Chapter 5.2.3, while demand for soybean oil for biofuel production is likely a contributing factor, we believe the current high prices are largely the result of poor weather conditions in South America and Malaysia over the past year. Increased production of soybean oil domestically (due to increased crushing of soybeans) and internationally (due to better expected harvests of oilseed crops in South America and Malaysia) are expected to increase the supply of vegetable oils to both domestic and international markets in 2022. This increase in supply is expected to help stabilize vegetable oil prices. While it is very difficult to project the price of vegetable oil in future years, we would generally expect the increased supply of vegetable oil from these sources would bring vegetable oil prices back toward more historical prices. This is consistent with the USDA projections for soybean oil prices, which project decreasing vegetable oil prices in 2022 and future years.[72]

We do not believe that reducing the 2022 BBD volume by 330 million gallons would have the effects suggested by the commenter. As we explain in RTC Section 6.3 and RIA Chapter 10, we expect the advanced biofuel and total renewable fuel standards to drive BBD use in 2022. As such, even if we reduced the BBD volume, we expect that the market would use the same volumes of BBD, including BBD made from soybean oils.

Comment:

Raising the BBD and advanced biofuel standard will not result in feedstock switching, as EPA has claimed. EPA has not accounted for the phase out of partially hydrogenated oils, which reduced demand for vegetable oils in the food market.

Response:

We have accounted for the phase out of partially hydrogenated oils described by the commenter, but we nonetheless believe that raising the BBD and advanced biofuel standards could result in diversion of feedstocks from non-fuel markets and replacement with other feedstocks (i.e., feedstock switching). We acknowledge that the Food and Drug Administration released its final determination that partially hydrogenated oils were not generally recognized as safe in 2015.[73] For the majority of uses, partially hydrogenated oils have been prohibited from being added to food products since June 2018.[74] The market turned to palm oil as a replacement in many products that previously used partially hydrogenated oils. We recognize that the FDA determination was one of several factors likely have contributed to increased use of palm oil in the US since 2006.[75]

Nevertheless, the palm oil market is complex and shaped by many factors, not only those mentioned above. Thus, these factors contributing to increased consumption of palm oil in the

[72] USDA Agricultural Projections to 2031. February 2022.
[73] Final Determination Regarding Partially Hydrogenated Oils (Removing Trans Fats). US Food and Drug Administration. 5/18/2018.
[74] Ibid.
[75] Oil Crops Data: Yearbook Tables. USDA Economic Research Service. Updated March 25, 2022.

U.S. does not mean other factors, such as increased demand for soybean oil for biofuel production since 2010, could not have also played a role. As we explain in Preamble Section III and RIA Chapter 5.2, we believe that increased demand for soybean oil for biofuel production in 2022 could impact the vegetable oil market in a number of different ways, including increased domestic crushing of oilseeds and the increased cultivation of other vegetable oils, including palm oil.

Comment:

Several commenters stated that palm oil is not an acceptable substitute for soybean oil in the food market for a variety of reasons, including regulatory burdens on labeling and consumer concerns over the inclusion of palm oil.

Response:

We recognize that palm oil may not be an acceptable substitute for soybean oil in the short term in many food markets for the reasons stated by the commenters. Because of the challenges many food markets face with substituting oils, we expect that the use of soybean oil in food markets will continue at levels similar to previous years. Data from USDA supports this statement and suggests there will not be a decrease in the use of soybean oil in non-biofuel markets through 2022.[76] However, even if palm oil is not a suitable substitute for soybean oil in some food markets, it may be an acceptable substitute in other markets that currently use soybean oil (or other biodiesel and renewable diesel feedstocks such as used cooking oil and animal fats), such as the industrial, oleochemical, or feed markets. Increased prices for soybean oil may cause some to seek lower cost alternatives in markets that can more easily substitute other vegetable oils for soybean oil. As such, there is the potential for palm oil to backfill diversions of soybean oil from such other markets instead of food markets.

Comment:

Several commenters noted that significant investments have been made to increase domestic soybean crushing capacity and soybean oil refining capacity. Increased soybean crushing will increase the quantity of soybean oil produced in the U.S. Some commenters stated that increasing the domestic soybean crushing capacity and reducing soybean exports would allow for an increased production of soybean oil without expanding soybean production. Some commenters also stated that the soybean crushing industry also has the ability to increase soybean oil yield per bushel in response to market demand (in addition to increasing the quantity of soybeans that can be crushed), further increasing the supply of soybean oil.

Another commenter similarly stated that there is ample supply of feedstock for biodiesel production and the expected increase in renewable diesel production. USDA projects that both soybean and soybean oil production will increase in 2021/2022. USDA data also showed the highest soy crush on record in October 2021, and several large oilseed processors have announced investments to expand oilseed crush capacity in North America. USDA data also show high production of other fats and greases that can be used as feedstocks to produce

[76] Ibid.

biodiesel and renewable diesel.

Response:

We have factored the potential for increased crushing of soybeans, as well as higher soybean oil yields, into our determination that sufficient biodiesel and renewable diesel feedstocks are available to satisfy the 2022 RFS volumes finalized in this rule, which represent significant increases from 2021. For further discussion on this topic see RIA Chapter 5.2.

Comment:

Several commenters cited a study by AES estimating that the proposed volumes would result in an increase in soybean oil used to produce biomass-based diesel from 9.1 billion pounds in 2021 to 12-13 billion pounds in 2022. These commenters often noted that this increase (3-4 billion pounds) is larger than the forecasted soybean oil inventory at the end of the 2021/2022 agricultural marketing year, and that the proposed volumes would further exacerbate soybean oil shortages and high prices.

Response:

As discussed in RIA Chapter 2, the RFS volumes we are finalizing in this rule are associated in a significant increase in the production of renewable diesel from soybean oil. However, we do not expect that this increase will necessarily result in a decrease in soybean oil inventories. As discussed in RIA Chapter 5.2.3, we expect increased domestic production of soybean oil to supply much of the feedstock needed for the higher volumes of renewable diesel projected in 2022. Additional feedstocks could come from other sources, such as imported vegetable oils or a diversion of qualifying vegetable oils from existing markets. Further, increased imports or decreased exports of renewable diesel could reduce volume of domestic renewable diesel need to meet the required volumes for 2022. As discussed in previous responses, we believe there will be sufficient vegetable oils to satisfy both biofuel and non-biofuel markets in 2022.

Comment:

Several commenters stated that increased renewable diesel production would result in a significant increase in the demand for refined soybean oil, which is used by virtually all food manufacturers. This has resulted in an unprecedented price premium for refined soybean oil (relative to crude soybean oil) and concerns that refined soybean oil will not be available to the food market in future years.

Response:

We recognize the significant price differential observed between crude soybean oil and refined soybean oil in 2021,[77] and we recognize that increased demand for refined soybean oil from renewable diesel producers likely was a factor in this price differential. In response to this price

[77] See data for crude soybean oil and refined soybean oil prices in comments from the National Retail Federation (EPA-HQ-OAR-2021-0324-0451).

signal, we note that several companies, including both renewable diesel producers and other parties, have already announced increased investment in soybean oil refining capacity in 2022 and future years.[78] Thus, we believe that the market is adjusting to supply the necessary volumes of refined soybean oil to both the biofuel and food markets, and we do expect that food producers will be able to acquire the refined soybean oil they need in 2022 and future years.

Comment:

A commenter stated that increased demand for animal fat products such as chicken fat, beef tallow, and choice white grease has resulted in significant price increases for these products and reduced availability in non-biofuel markets such as pet food manufacturers.

A different commenter stated that production of biodiesel and renewable diesel provides a good market for used cooking oil and animal fats. The commenter also stated that currently only 20% of animal fat that is produced is used to produce biodiesel and renewable diesel, suggesting that this could be a feedstock for greater production of these fuels.

Response:

As with vegetable oils, prices for animal fats such as chicken fat, beef tallow, and choice white grease were high in 2021. While increased demand for biofuel production is likely a contributing factor, we note that the prices for animal fats such as tallow and yellow grease generally increase and decrease with the price of soybean oil[79] since some markets can use either as a source of feedstock. Thus, the current high prices for animal fats are impacted by the poor weather conditions in South America and Malaysia over the past year. Further, a relatively small portion of these feedstocks is used for biofuel production (approximately 20% according to the North American Renderers Association). As we explain in RIA Chapters 2 and 5.2, we expect growth in biofuel production from fats, oils, and greases (FOG) to be limited. Thus, we project that there will continue to be a sufficient supply of these feedstocks to non-biofuel industries such as the pet food manufacturers.

Comment:

A commenter submitted a study by LMC Economics projecting the growth in biodiesel and renewable diesel feedstocks in North America from 2021 – 2025. This study found that the supply of suitable feedstocks for biodiesel and renewable diesel production could increase from 41.1 billion pounds in 2021 to 55 billion pounds in 2025. This study projected significant increases in soybean oil (about 6 billion pound increase from 2021 to 2025) due to increased soybean oil crushing and increased yields of soybean oil. It also projected a 5.8 billion pound increase in the availability of Canadian canola oil (after accounting for increased demand for canola oil in Canada) due to increased crushing capacity. Finally, the study projected smaller increases in the availability of distillers corn oil (0.5 billion pounds), animal fats (0.4 billion pounds), used cooking oil (0.2 billion pounds), minor oilseed crops (0.5 billion pounds), and vegetable oil imports from Mexico (0.6 billion pounds). The study concluded that up to 1.866

[78] See comments from Clean Fuels Alliance America (EPA-HQ-OAR-2021-0324-0458).
[79] Oil Crops Data: Yearbook Tables. USDA Economic Research Service. Updated March 25, 2022.

billion gallons of biodiesel and renewable diesel could be produced from the expected increase in feedstocks from 2021 to 2025.

Response:

This study is generally consistent with our projection of feedstock availability (discussed in RIA Chapter 5.3.2) as sufficient to support the 2022 volumes. It projects large increases in soybean oil production due to increased crushing and yields, and smaller increases in other feedstocks such as distillers corn oil, animal fats, and used cooking oil. We did not specifically project increases in canola oil production in Canada, but we did cite imported feedstocks and/or biofuels in our assessment of the supply of biodiesel and renewable diesel through 2022. While the quantity of biodiesel and renewable diesel that this study projected could be produced from increases in feedstock production in North America is significantly higher than the volumes we are projecting will be used to meet the RFS standards we are finalizing in this rule, we note that these projections cover a longer time horizon (through 2025) than our rule (through 2022).

Comment:

A commenter submitted a study by LMC Economics projecting the growth in global feedstocks for biodiesel and renewable diesel production from 2020 – 2030. This study projected that global lipid supplies would increase by 84 million metric tons from 2020 – 2030. After accounting for increased consumption in the food, feed, and oleochemical markets they projected 122 million metric tons would be available for biofuel production, or enough to produce 34 billion gallons of renewable diesel. This is an increase from the quantity of feedstocks available for biofuel production in 2020, projected at 78 million metric tons, or enough feedstock to produce 22 billion gallons of renewable diesel. The majority of the projected growth in the U.S. was from increased soybean production (8 million metric tons), with limited growth in animal fats, distillers corn oil, and used cooking oil. The study also projected growth in canola oil production in Canada (about 2 million metric tons). The remainder of the increase is expected to come from countries other than the U.S. and Canada, with the largest portions coming from soybean oil and palm oil.

Response:

As with the study discussed previously, this study is generally consistent with our projection of feedstock availability in the U.S. in that it projects large increases in soybean oil production due to increased crushing and yields. While we believe this study supports our conclusions that there will be sufficient feedstocks to produce the biodiesel and renewable diesel we project will be used to meet the RFS standards, we note that this study only considers the potentially available "oil in seed" and does not address potential constraints in oilseed crushing capacity. This reduces its utility in projecting available quantities of vegetable oil in the short term. In addition, this study's timeframe (through 2030) is of limited use in evaluating feedstock availability through the 2022 timeframe for this rule.

Comment:

A commenter cited a Fuels Institute study that found that biodiesel production increased 323% in the past decade while adding only a small amount of soybean acreage due to an increased use of waste and residue feedstocks and increased crop yields per acre. The commenter stated that feedstock availability would not limit biodiesel and renewable diesel production in 2022.

Several commenters similarly noted that biodiesel and renewable diesel producers use a diverse set of feedstocks, with approximately half the feedstocks coming from virgin vegetable oils and the other half coming from distillers corn oil, used cooking oil, and animal fats. These commenters generally suggested that this diverse set of feedstocks would enable the biodiesel and renewable diesel markets to secure sufficient feedstocks to increase production volumes.

Response:

EPA and USDA data are generally consistent with this Fuels Institute study. However, this does not mean that the collection of waste and residue feedstocks such as used cooking oil will be able to increase indefinitely with future expansion in biodiesel and renewable diesel production. EPA data suggests that the quantity of fats, oils, and greases used to produce biodiesel and renewable diesel has increased relatively slowly in recent years. This is consistent with the LMC studies submitted as comments on this rule projecting relatively small increases in these feedstocks in future years.

As discussed in RIA Chapter 5.3.2, we expect the majority of the increase in feedstocks used to produce biodiesel and renewable diesel in 2022 to come from soybean oil. We expect that this increase in soybean oil production will largely be the result of increased domestic crushing of soybeans and decreased soybean oil exports. Additionally, decreased exports of biodiesel and renewable diesel could reduce the need for greater quantities of soybean oil in biofuel production to meet the 2022 volumes. Each of these factors would limit any potential increase in soybean acreage in the U.S. as a result of the 2022 volumes.

In addition, the diverse range of feedstocks that can be used by biodiesel and renewable diesel producers does provide flexibility to source feedstocks from a variety of sources, including both domestic and foreign sources. As a result of this flexibility, biodiesel and renewable diesel producers are not solely dependent on increased domestic soybean oil production in 2022.

Comment:

Multiple commenters noted that soybean oil stocks had reached their highest level since May 2020, indicating that soybean oil production was increasing faster than consumption.

Response:

This data is consistent with EPA's findings that domestic soybean oil production is expanding to meet the needs of both biofuel producers and non-biofuel markets. Data from USDA indicates that crude soybean oil stocks have been increasing since July 2021, and as of February 2022 (the

most recent month for which data are available) are higher than all but one month (April 2020) since January 2019.[80] This indicates that on average production and imports of soybean oil have been higher than domestic use and exports during this time period.

Comment:

Multiple commenters noted that in September and October 2021 the US became a net importer of soybean oil. These commenters suggested that this was evidence of insufficient feedstock for both expanded biodiesel and renewable diesel production and other markets that use these feedstocks such as the food and feed markets.

Response:

Rather than indicating that there is insufficient feedstocks for both expanded biofuel production and for other markets, the fact that the U.S. was a net importer of soybean oil indicates the wide range of potential sources of vegetable oils to both biofuel producers and other markets. Vegetable oil users can always consider imported vegetable oils to meet their needs if the domestic supply of vegetable oil is insufficient to supply their vegetable oil needs.

Comment:

Several commenters stated that if renewable diesel production capacity expands as projected by EIA (from approximately 1 billion gallons a year to approximately 5 billion gallons per year in 2024) there will not be enough feedstock to meet the demand from both the expanded renewable diesel production and the food and feed markets.

Response:

In this rule we have only considered renewable fuel production through 2022. As discussed in RIA Chapter 2 we project domestic renewable diesel production will increase by 769 million gallons from 2021 to 2022 in response to the volumes we are finalizing in this rule. We have determined that there are sufficient feedstocks available to enable this increase in renewable diesel production and to meet the demand for vegetable oils in non-biofuel markets. In this rule we have not considered the potential impacts on the vegetable oil market of increasing renewable diesel production to 5 billion gallons by 2024 as that timeframe is of limited relevance to this rulemaking, which establishes volumes through 2022.

Comment:

A commenter stated that with a market expectation of continued growth and support from the RFS program investment in new feedstocks will continue, bringing new feedstocks such as winter oilseed crops into the market.

[80] Fats and Oils: Oilseed Crushings, Production, Consumption and Stocks. USDA. April 2022.

Response:

As discussed in RIA Chapter 5.3.2, we project that investment will result in increased vegetable oil production in the U.S. At this time, we are not projecting significant growth in winter oilseed crops in 2022, but we recognize that these crops could be an increasing part of the overall vegetable oil supply in future years.

Comment:

A commenter stated that because renewable diesel and biodiesel producers use the same feedstocks and because the availability of these feedstocks is limited any increase in EPA's projection of renewable diesel production must be offset by a decrease in biodiesel production.

Response:

Increased renewable diesel production would result in a decrease in biodiesel production only if there were a limited supply of available feedstocks. As discussed in RIA Chapter 5.3.2, we project that there will be sufficient feedstocks available to enable increased renewable diesel production without decreases in biodiesel production. We are projecting relatively stable biodiesel production, with a slight increase in 2022 relative to 2021.

4.3 Imports and Exports of Biodiesel and Renewable Diesel

Commenters that provided comment on this topic include but are not limited to: 0458, 0462, and 0470.

Comment:

A commenter stated that the U.S. has been a net importer of biodiesel and renewable diesel and that global trade (imports) can provide a source of available biodiesel and renewable diesel in the future.

Another commenter stated that global BBD production enables imports of renewable diesel, further supporting the RFS program's mandates. Biodiesel and renewable imports have increased in recent years and are expected to continue to increase in the future.

Response:

We recognize that imported biodiesel and renewable diesel have been a source of renewable fuel used in the U.S. in recent years. We anticipate that imported biofuels will continue to be available and will be used in the U.S. through 2022, the timeframe covered by this rulemaking. As discussed further in RIA Chapter 5.2.5, we project that renewable diesel imports will increase in 2022 and that biodiesel imports will remain similar to the level imported since 2018. It is possible that imports of biodiesel and renewable diesel could be even higher than we have projected, especially if domestic production of these fuels falls short of our projections.

Comment:

EPA's proposed advanced biofuel volume is greater than the volume that can be produced by domestic producers. This means that the market will be forced to rely on imports. Imported biofuels do not benefit America's rural communities or enhance energy independence, and importing biofuels results in greater emissions than using these biofuels in the country where they are produced.

Response:

Imported biodiesel and renewable diesel are likely to continue to be a part of the renewable fuel supply to the U.S. through 2022 as they have been for many years. It is not necessarily the case that biodiesel and renewable diesel are imported due to an inability of domestic producers to provide this fuel. Rather, imports are most often the result of imported biofuels being available at a lower cost than domestic biofuels. We note that the majority of the increase in renewable fuels we project will be produced to meet the RFS volumes we are finalizing in this rule will be from domestic producers (see RIA Chapter 2), though we acknowledge that some of this increase may be supplied by foreign biodiesel and renewable diesel producers. As we explain in RTC Section 6.3.3, lower RFS volumes would not eliminate biofuel imports. Rather, they would very likely result in continued imports of biofuels together with reduced demand and reduced domestic biofuel production.

While importing biofuels does not increase energy independence, it may potentially increase energy security, as we further discuss in RIA Chapter 4 and RTC Section 9.1.2. We agree that importing biofuels does not directly produce the same level of benefits for America's rural communities as producing those biofuels domestically, a topic we further discuss in RIA Chapter 7; however, greater domestic use of biofuels can spur further investment in domestic biofuel production, resulting in greater domestic production in future years. This turn would further boost rural economic development and energy independence.

While there may be some exceptions, it is generally the case that importing biofuels from foreign countries results in greater GHG emissions associated with the transportation of these biofuels than if they were used in the countries they were produced. However, GHG emissions associated with the transportation of biofuels is a relatively small portion of the overall GHG emissions associated with these fuels.[81] Further, it is not certain that these biofuels would be produced at all but for this RFS rule. It is possible that the demand for biofuels provided by the RFS rule will cause these fuels to be produced, and that without the RFS rule (or with lower RFS volumes) these fuels not be produced at all. Thus, we generally believe that imported biofuels also have potential GHG benefits.

Overall, we continue to believe that the volumes we are finalizing are appropriate based on a holistic consideration of the statutory factors, which we discuss further in Preamble Section III and throughout the RIA.

[81] GHG emissions associated with the distribution and use of biofuels generally range from 0 – 4 kg CO_2e per mmBTU. GHG emissions for the gasoline and diesel baselines for the RFS program are 98.2 and 97.0 kg CO_2e per mmBTU respectively (see Lifecycle Greenhouse Gas Emissions for Select Pathways).

4.4 Potential Infrastructure Constraints for Biodiesel and Renewable Diesel

Commenters that provided comment on this topic include but are not limited to: 0431, 0470, 0494, and 0503.

Comment:

A commenter noted significant public and private investments that are being made in the infrastructure necessary to distribute and blend biodiesel. The commenter specifically mentioned USDA's $100 million High Blend Infrastructure Investment Program as an example, as well as investments the commenter had made to increase their ability to deliver biodiesel blends to consumers. The commenter stated that there is sufficient infrastructure available to support higher volumes of advanced biofuel than EPA proposed for 2022.

Another commenter stated that because renewable diesel works with existing fuel storage and distribution infrastructure, the supply can be immediately increased without adding cost to consumers.

A third commenter stated that there is no blend wall for biodiesel or renewable diesel. Renewable diesel meets the same specifications as petroleum diesel fuel and therefore can be stored in and dispensed through traditional diesel infrastructure. All diesel fuel infrastructure is also certified to store up to 20 percent biodiesel, and virtually all over-the-road trucks are warranted to run on biodiesel blends up to 20 percent. This commenter concluded that there is sufficient infrastructure to distribute and use even higher volumes of biodiesel and renewable diesel.

Response:

We recognize that investment to expand the infrastructure to distribute and consume biodiesel has continued in recent years, by both public and private entities. We also acknowledge that due to its similarity to petroleum diesel, renewable diesel is generally compatible with existing fuel storage and distribution infrastructure. We note, however, that regulatory requirements such as the requirement to label the renewable content of diesel if it exceeds 5 percent make it difficult to transport renewable diesel in common carrier pipelines.

With respect to the consumption of biodiesel, we note that while the vast majority of new diesel engines are compatible with biodiesel blends up to B20, there are a significant number of vehicles for which biodiesel blends above B5 are not recommended by the manufacturer.

Regardless, EPA does not expect that infrastructure to distribute and consume biodiesel and renewable diesel will limit the use of these fuels through 2022. For a further discussion of the infrastructure related to the distribution and use of these fuels see RIA Chapters 6.2 and 6.3.

As we explain RIA Chapter 9, however, both renewable diesel and biodiesel are significantly more expensive than petroleum-based diesel. Thus, we do not agree with the commenter that the supply of these fuels can be increased without adding cost to consumers.

Comment:

EPA should not ignore the need for biodiesel to decarbonize heating oil. Several states have required the use of biodiesel in heating oil. Blending biodiesel into heating oil increases the potential market for biodiesel blends.

Response:

As the commenter notes, RINs can be generated for qualifying renewable fuels used as home heating oil. We recognize that the heating oil market may become increasing important for biodiesel producers, especially as the state mandates for renewable content in heating oil take effect and increase in stringency. Use of increasing quantities of biodiesel in home heating oil applications in future years could allow for increased use of biodiesel without the need to increase the distribution and use of biodiesel in the transportation sector. In RIA Chapter 5.4, we account for the use of heating oil in our projection of advanced biofuel.

4.5 Projected Rate of Production and Use of Biodiesel and Renewable Diesel

Commenters that provided comment on this topic include but are not limited to: 0431, 0433, 0458, and 0544.

Many commenters focused their comments on the appropriate level of the BBD, advanced biofuel, and total renewable fuel volumes, rather than the projected rate of production of biodiesel and renewable diesel in 2020 – 2022. For a further discussion of comments related to the proposed volumes, see RTC Section 6.

Comment:

A commenter projected that 2.4 billion gallons of biodiesel would be produced in 2022, along with an additional 1.8 billion gallons of renewable diesel. The commenter stated that these volume projections, when combined with projected increases in cellulosic biofuel and advanced biofuel, would enable the advanced biofuel industry to produce seven billion ethanol-equivalent gallons of advanced biofuel in 2022. This commenter also projected further growth in biodiesel and renewable diesel production in future years; 4.7 billion gallons in 2023 and 5 billion gallons in 2024.

A second commenter stated that, according to industry data from AES, renewable diesel production capacity is expected to increase to 2.12 billion gallons in 2022, with further increases in future years.

A third commenter stated that domestic biodiesel, renewable diesel, bioheat fuel, and sustainable aviation fuel production reached 3.2 billion gallons and generated more than 4.8 billion advanced RINs in 2021. The commenter suggested there was sufficient feedstocks and production capacity available to increase the production of these fuels in future years.

Response:

The projections of biodiesel and renewable diesel presented by these commenters are generally higher than EPA's projections, discussed further in RIA Chapter 5.2.5. The first commenter appears to have based their projection on projected domestic production capacity of biodiesel and renewable diesel. As discussed in RIA Chapter 5.2.2, the utilization rate at biodiesel production facilities has remained relatively stable at around 70% in recent years. We do not think it is reasonable to project that domestic biodiesel plant utilization rates will increase significantly in 2022 based on this historical data, the often limited availability of feedstocks within the vicinity of facilities, and particularly in light of the current tightness in feedstock supply.

Renewable diesel producers generally produce at rates closer to their facility capacity. However, the first commenter's renewable diesel production projection and the second commenter's renewable diesel production capacity number do not appear to account for the fact that much of this expanded renewable diesel production will not complete construction until well into 2022. After completing construction, these facilities will need to complete commissioning and ramp-

up, during which time these facilities will not produce renewable diesel at a rate consistent with the facility capacity.

The data cited by the third commenter appears to include all biodiesel, renewable diesel, heating oil, and jet fuel for which RINs were generated. This includes both fuels produced domestically and RIN generating fuels produced by foreign facilities. These numbers do not account for the fact that some of this fuel was exported or that RINs were retired because the fuel was used for non-qualifying uses (including fuel that was never imported into the U.S.). While we expect growth in the supply of these fuels in 2022, these numbers (3.2 billion gallons or 4.8 billion ethanol-equivalent gallons) are not an accurate representation of the quantity of these fuels produced or used in the U.S. in 2021.

The first commenter also provided projections for biodiesel and renewable diesel production in 2023 and 2024. Those projections are of limited relevance given the timeframe of this rulemaking, which establishes volumes through 2022.

Comment:

A commenter stated that renewable marine fuel or drop in marine fuel should be included in EPA's assessment of the potential production of biodiesel and renewable diesel.

Response:

Fuel used in ocean going vessels is not considered transportation fuel under the RFS program, and thus any RINs associated with renewable fuel used in ocean going vessels must be retired. See CAA section 211(o)(1)(L); 40 CFR 80.1401 (definition of "Transportation fuel"). Marine applications that are not ocean-going vessels generally use the same gasoline and diesel fuel (including gasoline and diesel fuel blends that contain renewable fuel) as on-highway vehicles. Thus, to the degree that some volume of biodiesel and renewable diesel is used in marine applications other than in ocean going vessels, we believe that this is already reflected in the historical RIN data and that our projection of biodiesel and renewable diesel production and use through 2022 inherently accounts for this fuel.

5. Ethanol

5.1 E10 Blendwall and Total Gasoline Demand

Commenters that provided comment on this topic include but are not limited to: 0462.

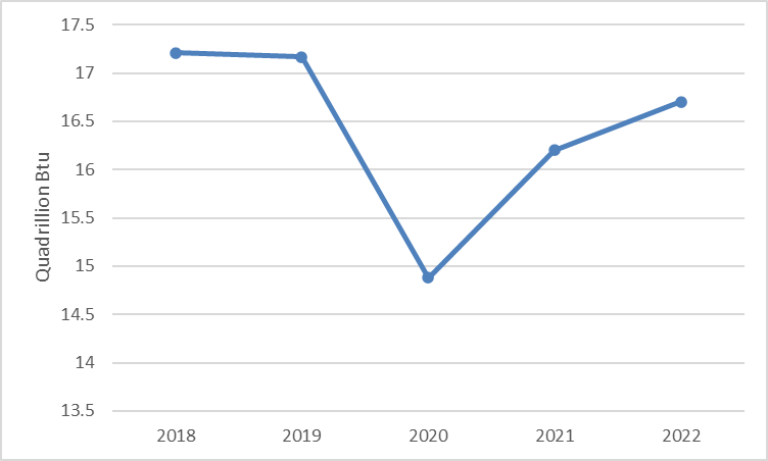
Comment:

One commenter said that EPA should not be proposing increases in ethanol volume for 2022 when gasoline demand for 2022 is projected to be lower than in pre-pandemic years.

Response:

According to EIA, gasoline demand in 2022 is projected to be higher than it was in 2020 and 2021. Since the gasoline pool is comprised almost entirely of E10, total ethanol consumption generally rises and falls as gasoline demand rises and falls. It is therefore not surprising that EIA projects higher total ethanol consumption in 2022 than occurred in 2021 and 2020 (see RIA Table 5.5.1-2).

Gasoline Energy Demand



Source: Derived from gasoline and ethanol volumes in the January 2022 edition of EIA's Short Term Energy Outlook

See RIA Chapter 5.5.1 for additional discussion.

We acknowledge that gasoline demand is projected to be slightly lower in 2022 than it was in 2018 and 2019, as shown above. However, the projection of ethanol consumption in 2022 (14,310 million gallons) is not higher than what we projected in annual rules prior to the COVID-19 pandemic. In the original 2020 final rule, for instance, which was signed shortly before the pandemic, we projected total ethanol consumption of 14,454 million gallons.[82] More

[82] See "Updated market impacts of biofuels in 2020" 6.

importantly, EIA's projection of 14,310 million gallons for 2022 is lower than actual total ethanol consumption in 2018 (14,420 million gallons) and 2019 (14,552 million gallons).

We take projected gasoline demand into account when assessing the ability of the market to meet the volume requirements we are establishing. The total ethanol consumption volumes shown in RIA Table 5.5.1-2, which are the levels we assume in our assessment of the 2022 volume requirements, are taken directly from EIA's Short Term Energy Outlook. Those ethanol consumption volumes are driven by E10 which comprises the vast majority of the gasoline fuel pool. As these are total ethanol consumption volumes, they also account for consumption of E15 and E85.

We have acknowledged that conventional ethanol (and total ethanol) alone cannot reach 15 billion gallons. However, as shown in RIA Chapters 2.1 and 5, we have determined that excess advanced biofuel and non-ethanol conventional renewable fuel, combined with conventional ethanol, can enable the market to reach an implied conventional volume requirement of 15 billion gallons. We took the same approach in recent annual rules prior to the pandemic, where we anticipated that biofuels other than ethanol would contribute to satisfying the 15 billion gallon implied conventional renewable fuel requirement.[83] We discuss this further in RTC Section 6.3.4.

[83] See "Updated market impacts of biofuels in 2020."

5.2 Exceeding the E10 Blendwall

Commenters that provided comment on this topic include but are not limited to: 0356, 0374, 0391, 0409, 0416, 0427, 0430, 0443, 0462, 0469, 0483, and 0573.

Comment:

Stakeholders provided opposing views on whether higher volume requirements for conventional renewable fuel would result in higher consumption of E15 and/or E85. Some said that the higher RIN prices that result from higher volume requirements would increase sales of E15/E85, while others said that this would not occur, or only to a very small degree.

Response:

EPA believes that prospective RFS standards have some, albeit limited, ability to incentivize higher consumption of E15 and E85. This includes the 2022 standards. The implied conventional volume requirement of 15 billion gallons in 2022 is consistent with our approach in the 2017-2020 final rules which also included 15 billion gallons of conventional renewable fuel. In 2022, we are also requiring an additional 250 million gallons as part of the supplemental standard, which provides further incentive for renewable fuel use.

During 2017-2020, the nationwide average concentration of ethanol was above 10% and exhibited an increasing trend as shown in RIA Figure 1.7-3. Since the average ethanol concentration can exceed 10% only insofar as consumption of E15 and/or E85 more than offsets consumption of E0, the EIA data shows that consumption of those higher ethanol blends must generally have been increasing in those years. The applicable standards under the RFS program likely contributed to that trend to some extent, and there is reason to believe that the RFS program will contribute somewhat to increased ethanol use in 2022.

However, the ability of the implied volume requirement for conventional renewable fuel to increase sales of E15 and/or E85 appears to be limited. Prior analyses indicate that only a portion of the value of RINs is passed on to retail fuel prices for E85 so as to influence consumer choices.[84] Also, a prior analysis of the impacts of E85 retail price discounts relative to E10 determined that sales volumes only increase moderately as that discount increases.[85] Finally, D6 RIN prices have been relatively high since 2013, providing a considerable incentive for increasing volumes beyond the E10 blendwall. The extent of such increases, however, have been modest.

[84] "Preliminary Assessment of RIN Market Dynamics," (May 14, 2015) available in the docket. See also supplementary analyses in "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," also available in the docket.
[85] "Updated correlation of E85 sales volumes with E85 price discount," available in the docket.

Comment:

Several commenters said that higher RIN prices have not and will not increase the amount of ethanol used in gasoline nor the amount of E15 and/or E85 consumed.

Response:

Because the gasoline pool has been composed of nearly 100% E10 since at least 2016, higher RIN prices are unlikely to increase the amount of ethanol in the form of E10. The small amount that is E0 meets a niche demand for owners of recreational marine engines, nonroad engines, and others that are willing to pay a premium for it, and we believe that this demand will continue through at least 2022.

However, RIN prices do improve the economic viability of E15 and E85, lowering their costs to consumers in comparison to E10. As discussed in RIA Chapter 1.9.2, RIN prices increased dramatically in 2013 after having been very low (less than $0.05 per RIN) in prior years, and this price increase coincides with the market effectively reaching the E10 blendwall (i.e., essentially all E10 wth a very small amount of E0). Thus, those higher RIN prices marked a transition from increases in ethanol consumption in the form of E10 to increases in ethanol consumption in the form of E15 and E85, with the higher RIN prices providing additional economic incentive for consumers to choose E15/E85 over E10. In addition, an analysis of the relationship between RIN prices and E85 prices at retail indicated that some portion of the RIN value is passed on to consumers at retail.[86]

At the same time, as discussed in the previous response, we acknowledge the difficulty in achieving significant increases in ethanol consumption through increases in consumption of E15 and E85. While consumption of these blends have steadily increased over time and RIN prices have likely contributed to those increases, increased consumption has been constrained by infrastructure as discussed in RIA Chapters 6.4.2 and 6.4.3 and the more favorable economics of other, non-ethanol renewable fuels. See also RTC Sections 5.4.2 and 5.4.3 for responses to comments on E15 and E85, respectively.

Comment:

A number of commenters argued that the 2022 volume requirements should be set in such a way that the pool-wide ethanol content will not exceed the E10 blendwall. They based their preferred approach on the premise that E15 and E85 cannot contribute meaningfully to higher ethanol consumption.

[86] "Updated Assessment of the Impact of RIN Prices on the Retail Price of E85," available in the docket.

Response:

As we said in previous annual standard-setting rules, we do not find the arguments that the pool-wide ethanol content cannot be higher than 10% to be compelling. As other commenters pointed out, the nationwide average ethanol concentration has been above 10.00% since 2016.

While we agree that use of E15 and E85 in 2022 cannot enable the market to achieve 15 billion gallons of ethanol consumption, they can make meaningful contributions. This is reflected in our projections of increased total ethanol consumption, which inherently include volumes of E15 and E85, as discussed in RIA Chapter 5.

Comment:

One commenter said that additional infrastructure to increase E15/E85 cannot be implemented in 2022 because the final rule will be released too late to create the incentive and to permit the necessary lead time for such changes to occur in 2022.

Response:

While the final rule establishing the 2022 volume requirements will be released after January 1, 2022, there will remain over half of the year after the release of the final rule within which the market can respond to the final standards. Moreover, the development of E15 and E85 infrastructure depends on numerous market and regulatory factors, and we have generally seen increases in the number of E15 and E85 stations over time, including in 2021 when there were no prospective RFS standards in place. See discussion about infrastructure for E85 and E15 in RIA Chapters 6.4.2 and 6.4.3, respectively.

In any event, as we explain in RIA Chapter 5.5, we are using EIA's projections for ethanol consumption that include a lower poolwide concentration of ethanol in 2022 (10.30%) than 2021 (10.36%). EIA's projection of total ethanol consumption is higher for 2022 than it is for 2021, but that is due to increased gasoline demand and ethanol use as E10. As such, the 2022 volumes are not dependent on significant additional infrastructure for or use of E15 or E85.

Moreover, as we describe in RIA Chapters 2 and 5.2, the major biofuel (besides E10) that we anticipate increasing to contribute to the implied conventional renewable fuel volume requirement is not E15 or E85, rather but renewable diesel.

Comment:

One commenter said that the combination of insufficient consumer demand, infrastructure limitations, and retailer liability concerns limit the increases in ethanol blending and consumption that can occur in 2022.

Response:

We agree that increases in E15 and E85 use are limited through 2022. We have acknowledged the constraints on potential increases in the consumption of higher ethanol blends elsewhere in this section and in RIA Chapters 1.7 and 6.4.[87] Nonetheless, we anticipate that total ethanol consumption will increase in 2022, due to increased gasoline demand and ethanol used as E10.

See additional discussion of infrastructure and retailer liability in RTC Sections 5.4.2 and 5.4.3 for E15 and E85, respectively.

Comment:

One commenter said that more than 15 billion gallons of ethanol can be produced, and another commenter said that the market can produce and distribute more than 16 billion gallons of ethanol in 2022.

Response:

As we discuss in RIA Chapter 5.5, EIA forecasts in its January 2022 STEO that 15.7 billion gallons of ethanol will be produced in 2022. Moreover, as shown in RIA Figure 1.7-2, ethanol production in the U.S. reached about 16 billion gallons in 2018, and we believe that the market could exceed 16 billion gallons of production in the future.

However, this commenter did not acknowledge that a portion of that production is needed to meet demand for renewable fuels in other countries and thus not all is available to the U.S. market. For instance, in 2018 only 14.6 billion gallons of ethanol was consumed domestically, while the rest was exported. Perhaps more importantly, the commenter also did not address the constraints on domestic ethanol consumption that are discussed in RIA Chapter 6.4. These constraints make the consumption of 16 billion gallons of ethanol infeasible in 2022. 16 billion gallons of ethanol consumption in 2022 would result in a poolwide ethanol concentration of about 11.45%, considerably above the E10 blendwall. This is also far higher than the highest historical poolwide ethanol concentration (10.36% in 2021) and above what EIA is projecting for 2022 (10.30%). This would require the consumption of volumes of E15 and/or E85 that significantly exceed the ability of the available infrastructure to support.

[87] We have also acknowledged these constraints in prior actions. For example, see "Market impacts of biofuels in 2020," available in the docket.

5.2.1 E15

Commenters that provided comment on this topic include but are not limited to: 0438, 0443, 0494, 0517, and 0521.

Comment:

Some commenters pointed to the incompatibility of existing equipment at retail service stations for E15, while others said that most such equipment is in fact compatible with E15.

Response:

Commenters representing retail stations indicated that, while it may be the case that much of the existing tankage at retail is compatible with E15, tank compatibility with E15 is not the same as the entire underground storage systems being compatible with E15 or with those systems being approved for E15 use. Parties storing ethanol in underground storage systems in concentrations greater than 10% are required to demonstrate compatibility of their entire underground storage systems with the fuel, through either a certification or listing of underground storage system equipment or components by a nationally recognized, independent testing laboratory for use with the fuel, written approval by the equipment or component manufacturer, or some other method that is determined by the agency to be no less protective of human health and the environment.[88] These requirements are designed to protect against equipment failure that could lead to leaks and to satisfy insurance requirements. The use of any equipment to offer E15 that has not been demonstrated to satisfy these certification requirements, even if that equipment might technically be compatible with E15, would pose potential liability for the retailer. In sum, even if a retailers' installed tanks are technically compatible with E15, the ability of those retailers to sell E15 may be significantly limited by the incompatibility of other components in the underground storage system and by an inability to demonstrate such compatibility. We further discuss infrastructure constraints on E15 use in RIA Chapter 6.4.

Comment:

One commenter said that the costs to retailers to upgrade their equipment to offer E15 can be prohibitive.

Response:

Actual costs for a retailer to offer E15 will vary depending on whether existing equipment can be recertified for E15, whether it is only pumps/dispensers that must be upgraded versus underground storage tanks and/or other hardware, the number of dispensers at a given retail station that the retailer wants to be able to offer E15, whether it is a new station or existing station modification, and other factors. Whether these costs are prohibitive or not is also a

[88] See 40 CFR 280.32. This rulemaking does not reopen these regulations.

function of the ability for the retailer to access funding and to recover these costs through profits on fuel purchases. We further discuss E15 retail distribution costs in RIA Chapter 9.

Comment:

One commenter said that the lack of a 1 psi RVP waiver for E15 restricts summer sales of E15.

Response:

EPA has issued emergency fuel waivers that allow E15 to receive the 1 psi RVP waiver for the summer of 2022 that otherwise applied only to E10.[89,90] These followed an announcement by President Biden on April 12, 2022, that such an action was forthcoming from the Agency.[91]

However, the overall impact on the projected ethanol consumption in 2022 is expected to be very minor for purposes of this rulemaking and so small that it does not affect our analyses.

Roughly 40% of the gasoline pool cannot take advantage of the 1 psi RVP waiver for E10 since it is reformulated gasoline or is subject to various state programs that disallow it. In these cases, the lack of a 1 psi waiver means that E10 and E15 are treated equally with regard to RVP requirements, and thus E15 is not at a comparative disadvantage even absent a waiver.

There can be some impact for the rest of the gasoline pool where E10 receives a 1 psi waiver but E15 ordinarily does not. Using monthly E15 retail sales data from Minnesota, we estimated that the annual per-station sales of E15 could be about 16% higher when the 1 psi waiver was available for E15 versus when it was not.[92] While this may seem significant, the impact of the 1 psi RVP waiver nevertheless is unlikely to have a meaningful impact on total ethanol use given the small amount of E15 used as well as the relatively small differential in ethanol content between E10 and E15. For instance, if E15 consumption in 2022 were 440 million gallons (see derivation in RIA Chapter 5.5), a 16% increase applied to all conventional gasoline nationwide would represent 42 million gallons of E15, which in turn would increase total ethanol consumption by only 2 million gallons in comparison to E10. This is about 0.02% of the total corn ethanol volume we estimate will be used in 2022.

Comment:

One stakeholder said that there is insufficient distribution and retail infrastructure for E15 to make a meaningful contribution to the total volume of ethanol consumed.

[89] "EPA Issues Emergency Fuel Waiver for E15 Sales," available in the docket.
[90] "Extension of nationwide fuel waiver allowing E15 gasoline," available in the docket.
[91] "Fact Sheet - Using Homegrown Biofuels to Address Putins Price Hike at the Pump and Lower Costs for American Families," available in the docket.
[92] "Estimating the impacts of the 1psi waiver for E15," memorandum from David Korotney to docket EPA-HQ-OAR-2019-0136.

Response:

In RIA Chapter 6.4.3, we discuss the constraints on E15 use related to distribution and retail infrastructure. Besides the constraints discussed there, we do not believe that other potential distribution issues associated with E15 are a significant constraint on consumption of E15. E10 is already distributed nationwide, and many terminals have already announced that they have made the relatively minor adjustments needed to facilitate the blending of 15% instead of 10% ethanol.[93]

Overall, we do believe that E15 will make a meaningful, but relatively small, contribution to the total volume of ethanol used. Regardless, in determining the total volume of ethanol consumption, it was not necessary to estimate E15 volumes that might be used since we have used EIA's projection of total ethanol consumption as discussed in RIA Chapter 5.5. This total ethanol consumption inherently includes ethanol from E15 in additional to ethanol from E10 and E85.

Comment:

One commenter said that retail station owners are liable if a customer uses E15 in a vehicle of model year 2000 or earlier, or in a nonroad engine.

Response:

EPA has implemented regulations designed to help ensure that E15 is only used in approved vehicles.[94] Retailer compliance with those provisions provides a basis for an affirmative defense in the event that E15 is used to refuel a vehicle or engine not approved for its use. This rulemaking does not reopen these regulations.

Comment:

One stakeholder said that even if existing underground storage tanks (UST) are compatible with E15, the various piping, fittings, and dispensing equipment may not be. Another commenter said that USTs do not need to be compatible with E15 if the retailer uses a blender pump, since in that case the USTs would only need to hold E85 and E10.

Response:

These comments relate to the ease with which retail station owners could offer E15. Retail station owners are not under any obligation to offer E15, and will do so only if they deem doing so to be of some advantage. In making the decision about whether to offer E15, they will consider all the changes that they may need to make to their equipment. Insofar as their existing USTs can be demonstrated to be compatible with E15, or if they already have underground storage systems capable of storing E85 that could then be used to provide E15 through blender pumps, the costs associated with the remaining requisite equipment changes may be

[94] 76 FR 44406 (July 25, 2011)

correspondingly lower. We acknowledge that in some cases even if existing UST are compatible with E15, the various piping, fittings, and dispensing equipment may not be, and that this would result in relatively higher costs for a retailer to make its equipment compatible with E15.

Comment:

One commenter said that EPA should assume that every E15 dispenser can dispense E15 at the same average rate as E10 dispensers. This would result in 2.9 billion gallons of E15 consumed.

Response:

E15 dispensers are capable of dispensing fuel at the same rate as E10 dispensers. Actual volumes dispensed, however, are driven not by the dispensing equipment itself but rather by consumer demand for E15. As described in RIA Chapter 1.7, owners of model year 2001 or later vehicles can choose between E10 and E15, and their choice is determined by their knowledge of what fuels are available based on pump labeling, relative price, perceptions (or lack thereof) of impacts on vehicle fuel economy, vehicle operability or longevity, comfort with an unfamiliar fuel, perceived benefits to the environment or economy, whether E15 is legally permitted to be used in their vehicle, and whether the manufacturer has warranted their vehicle for its use. Based on information provided by USDA on their Biofuels Infrastructure Partnership (BIP) program, the average E15 sales rate was about 7% of the sales rate of E10 at stations that offered both, indicating that consumers have chosen E10 at far higher rates than E15.[95]

Comment:

One commenter said that retailer concerns about misfueling are unfounded, and that therefore EPA should not limit volume requirements for ethanol as a result of those concerns.

Response:

We are establishing an implied volume requirement for conventional renewable fuel for 2022 that is equal to the implied volume target of 15 billion gallons in the statute. This is well above EIA's forecast of the 14.31 billion gallons of ethanol that can help meet that implied volume requirement (see RIA Table 5.5.1-2). Consequently, we have not reduced the implied volume requirement below the implied statutory target based on retailer concerns about misfueling. Moreover, while we anticipate that ethanol use will fall short of 15 billion gallons, that is due to market constraints on the use of ethanol, not due to any limit imposed by EPA in this rulemaking.

We note, however, that insofar as retailer's concerns about misfueling limit the degree to which they offer E15, that will limit the amount of E15 actually available.

[95] "Communication with USDA on the BIP program 1-19-22," available in the docket.

5.2.2 E85

Commenters that provided comment on this topic include but are not limited to: 0521.

Comment:

One stakeholder said that E85 use will increase if EPA increases the conventional volume requirement.

Response:

The RFS standards have provided incentives for increased use of E85 in the past and are expected to continuing doing so. However, as we explain above, increases in E85 use have been modest to date. The use of E85 could be expected to increase if the price discount of E85 in comparison to E10 increased and if E85 were a more economical means of achieving the RFS standards than other options. However, commenters provided no new analysis of the future E85 price discount that would occur under the influence of higher RFS volume requirements. As discussed in RTC Section 5.2, D6 RIN prices have been relatively high since 2013, providing a considerable incentive for increasing volumes beyond the E10 blendwall. Nevertheless, E15 and E85 consumption has risen only slowly since 2012.

Thus while higher RFS standards may directionally incentivize higher E85 use, it is unclear to what extent such volumes would actually materialize. Since the RFS program does not require the use of ethanol, the market will determine whether compliance with the applicable standards beyond the E10 blendwall will occur as a result of increased E85 (and/or E15) use, or primarily through the use of non-ethanol renewable fuels such as biodiesel and renewable diesel as has occurred historically. As we explain in RIA Chapters 2 and 5, we expect the latter to occur in 2022.

Comment:

One commenter said that EPA should be using more recent data from DOE's Alternative Fuels Data Center (AFDC) on the number of retail stations that offer E85.

Response:

The retail station data that we presented in DRIA Figure 6.4.2-3 was acquired from AFDC's website in February of 2021. Since that time, the number of stations offering E85 has grown. For this final rule, we present E85 station data through January 2022 in Figure 6.4.2-2. We note, however, that our estimates of total ethanol consumption for 2020 - 2022 are based on EIA estimates as discussed in RIA Chapter 5.5.1, not on the number of stations offering E85.

Comment:

One commenter said that EPA should assume that every E85 dispenser can dispense E85 at the same average rate as E10 dispensers. This would result in 2.31 - 4 billion gallons of E85 consumed.

Response:

E85 dispensers are capable of dispensing fuel at the same rate as E10 dispensers. Actual volumes dispensed, however, are driven not by the dispensing equipment itself but rather by consumer demand for E85. As described in RIA Chapter 1.7, owners of FFVs can choose between E10 and E85, and their choice is determined by their knowledge of the fact that they own a vehicle capable of using E85, what fuels are available based on pump labeling, relative price, perceptions (or lack thereof) of impacts on vehicle fuel economy, vehicle operability or longevity, comfort with an unfamiliar fuel, and perceived benefits to the environment or economy. Based on information provided by USDA on their Biofuels Infrastructure Partnership (BIP) program, the average E85 sales rate was about 4% of the sales rate of E10 at stations that offered both, indicating that consumers have chosen E10 at far higher rates than E85.[96]

Comment:

One commenter said that EPA should assume that every FFV owner refuels on E85.

Response:

We do not think that would be a reasonable assumption. The number of retail service stations offering E85 was 4,377 as of January 2022 according to DOE's Alternative Fuels Data Center (AFDC). This represents about 3% of all stations. There is no information to suggest that FFVs only operate in areas where they have access to E85. It is much more likely that FFVs are distributed approximately equally around the country, such that only a minority have access to E85. Regardless, we note that our estimates of total ethanol consumption for 2020 - 2022 are based on EIA estimates as discussed in RIA Chapter 5.5.1, not on the number of FFVs that are assumed to refuel on E85.

[96] "Communication with USDA on the BIP program 1-19-22," available in the docket.

5.3 Sugarcane Ethanol Imports

Commenters that provided comment on this topic include but are not limited to: 0491.

Comment:

One commenter said that, while EPA's methodology and resulting projection of the import volume of sugarcane ethanol in 2022 is reasonable, it should take into account more precise data if it becomes available.

Response:

At the time of the proposal, we only had data on historical imports of sugarcane ethanol through 2020. For this final rule we have updated our analysis to include data from 2021, as discussed in RIA Chapter 5.3.

5.4 Projected Rate of Production and Use of Domestic Ethanol

Commenters that provided comment on this topic include but are not limited to: 0521 and 0556.

Comment:

One commenter said that EPA's assessment of how the market would achieve 15 billion gallons of conventional renewable fuel in 2022 is flawed because it assumes that excess renewable diesel will make up for the shortfall in corn ethanol, but renewable diesel will be constrained by feedstocks. Even if renewable diesel does increase, biodiesel production will decrease.

Response:

As discussed in RIA Chapter 5.2, we have determined that there will be sufficient feedstocks for biodiesel and renewable diesel to allow these fuels, together with ethanol, to meet the 15 billion gallon implied conventional renewable fuel volume requirement. We note, however, that the domestic production of feedstocks for BBD is not the only means through which the applicable volume requirements can be met. Additional feedstocks or renewable diesel can and are projected to be imported. We do anticipate some decreases in biodiesel use in 2021 and 2022 relative to 2020, but these decreases are far smaller than the large increases we project for renewable diesel. Consequently, we believe that biodiesel and renewable diesel will be the primary means of making up for the shortfall in conventional ethanol in meeting the 2022 15 billion gallon implied conventional renewable fuel volume requirement. See also discussion of feedstocks for BBD in RTC Section 4.3.

6. Proposed Volumes

6.1 Proposed Volumes for 2020

Commenters that provided comment on this topic include but are not limited to: 0355, 0361, 0365, 0369, 0370, 0380, 0381, 0383, 0384, 0385, 0391, 0393, 0396, 0402, 0403, 0404, 0405, 0406, 0411, 0412, 0416, 0421, 0422, 0426, 0427, 0428, 0431, 0442, 0443, 0446, 0447, 0454, 0456, 0457, 0458, 0462, 0464, 0466, 0469, 0471, 0479, 0481, 0483, 0484, 0485, 0486, 0495, 0505, 0506, 0510, 0513, 0517, 0524, 0525, 0529, 0556, 0564, 0570, 0574, and 0577.

Comment:

Several commenters said that EPA should not retroactively reduce volumes that were previously established and for which the compliance year is over.

Response:

As described in the proposal, as a general matter we believe that previously established standards should not be retroactively revised.[97] However, 2020 was such a unique year in multiple respects, and we believe that those unique circumstances warrant the revisions we are finalizing in this action. We describe these circumstances and our rationale for revising the 2020 volumes in Preamble Sections III.B and C. In addition, we note that many commenters agreed with our rationale and our proposed decision to retroactively revise standards. See also the discussion of legal issues associated with establishing a retroactive standard in RTC Section 2.4, and our response to specific criticisms of our rationale in the remainder of this section.

Comment:

Several commenters said that revising a previously established standard sets a bad precedent for the future and increases uncertainty in the market about whether future standards will similarly be revised after the compliance year is finished.

Response:

We generally do not believe it is appropriate to reconsider and revise previously finalized RFS percentage standards established through annual rulemakings under CAA section 211(*o*)(3)(B)(ii). This is consistent with statements we have made in the past.[98] We agree with the commenters' premise that in order for the RFS program to operate properly, the market must generally have confidence that the applicable percentage standards are fixed once they are established and that obligated parties are responsible for meeting those standards. However, as we describe in Preamble Sections III.B and C, the circumstances for 2020 were unique and warrant the revisions we are finalizing in this action. In finalizing these revisions, we have carefully considered the concerns raised by these commenters. We have balanced the importance

[97] See 86 FR 72448 (December 21, 2021)
[98] 75 FR 76805 (December 9, 2010). See also 78 FR 49826 (August 15, 2013) (reaffirming this position).

of repose and market confidence that the standards will be met with the anticipated adverse effects if we do not revise the 2020 standards. EPA's general policy, however, remains one of not reconsidering and revising RFS standards previously established through the annual rulemaking process.

Comment:

One commenter said that retroactively reducing the 2020 standards rewards obligated parties who did not acquire sufficient RINs for compliance, and penalizes those who did. A commenter also suggested that EPA failed to explain why it was appropriate to harm renewable fuels producers through reducing the volume requirements in 2020.

Response:

We describe the rationale for revising the 2020 standards in Preamble Sections III.B and C. The revision does not improperly reward obligated parties who did not acquire sufficient RINs for compliance or penalize those who did.

As we further explain in the preamble, if we were to leave the 2020 standards unchanged, we find that there would be a substantial probability that some obligated parties would not be able to comply with those standards. This risk exists even for obligated parties that individually are making reasonable, good faith efforts to comply. The revisions to the 2020 rule mitigate the potential for non-compliance and civil penalties. While this may benefit those obligated parties that may otherwise be unable to comply, we think that is appropriate.

The revisions to the 2020 standards do not penalize any obligated party. Obligated parties who acquired sufficient RINs to comply with the original 2020 standards will still have sufficient RINs to comply with the lower, revised 2020 standards. In addition, these parties will now have excess RINs that they may choose to sell in the market or carryover for 2021 compliance. To the extent these parties are concerned that the market expectations under which they acquired the RINs at an earlier time are now disrupted by the revised standards, we address this in Preamble Section III.C.

Comment:

Several commenters said that there was no need to reduce the 2020 standards to account for the dramatically lower gasoline and diesel demand caused by the COVID-19 pandemic because the percent standards automatically adjust the applicable obligations when gasoline and diesel demand differs from that assumed in establishing those percent standards.

Response:

We addressed this issue in detail in the proposal (86 FR 72448), and again in Preamble Section III.C. In short, commenters who said that there was no need to reduce the 2020 standards due to the self-adjusting nature of the percent standards generally did not acknowledge the

disproportionate impact of changes in gasoline versus diesel demand on renewable fuel use in 2020.

Comment:

One commenter said that retroactively reducing the 2020 standards would increase the carryover RIN bank, which would reduce the demand for biofuel in the future.

Response:

The revision to the 2020 standards will not result in an increase to the carryover RIN bank. Instead, since we will be setting the 2020 standards at what actually occurred, that revision will avoid a sharp decrease to the carryover RIN bank that would have otherwise been necessary for all obligated parties to comply with the original 2020 standards. The carryover RIN bank that was available entering 2020 will then be available to the market as it enters 2022 (as the 2021 volume requirements will also be set at the volumes actually consumed). As we explain in Preamble Sections III.B and C, the carryover RIN bank entering 2020 already represents a large drawdown that we anticipate as a result of 2019 compliance, which erased several previous years of incremental increases in the carryover RIN bank.

While the market could use the carryover RIN bank to meet the 2022 volume requirements, we do not think the presence of this relatively low carryover RIN bank will unduly depress demand for biofuel in 2022. Specifically, the carryover RIN bank is already at its lowest levels since 2016. Moreover, we are projecting that sufficient biofuel will be available to meet the 2022 volume requirements.

Our approach to 2020 also avoids compliance concerns that could adversely affect biofuel use going forward. Notably, were we to leave the 2020 standards unchanged, the drawdown in the carryover RIN bank resulting from 2020 compliance presents a substantial probability of noncompliance for some obligated parties. As we explain in Preamble Sections III.B and C, this could negatively impact the regulatory and market certainty critical to the investments needed to increase renewable fuel volumes in 2022 and into the future.

Comment:

One commenter said that there was no need to reduce the 2020 standards because there are sufficient carryover RINs available to enable all obligated parties to comply.

Response:

The available carryover RIN bank entering 2020 is theoretically sufficient to enable the market as a whole to comply with the original 2020 standards since the aggregate number of 2020 RINs plus 2019 carryover RINs exceeds the aggregate effective volume requirements for 2020 that we established on February 6, 2020. However, the market does not comply as a whole; rather, individual obligated parties comply. Thus, in reality, given the small size of the carryover RIN bank, the uneven holding of carryover RINs among obligated parties, and other factors, we find

that if we were to leave the 2020 standards unchanged, there would be a substantial probability that some obligated parties would not be able to comply with those standards. We discuss this further in Preamble Sections III.B and C.

Comment:

Several commenters said that the 2020 standards should be reduced below the level of actual consumption to reduce burdens on small and/or merchant refiners, since these parties are disproportionately impacted by the costs associated with purchasing RINs for compliance. Another commenter suggested that high RIN prices are an indication that EPA's reduction in the 2020 standards is insufficient.

Response:

As we explain in Preamble Section III.C, we do not believe it would be appropriate to reduce the 2020 standards below what the market actually used. Moreover, as discussed in Preamble Section V.B, we believe that all small refineries and merchant refiners are able to pass through the RIN costs of RFS compliance onto their customers in the form of higher sales prices on gasoline and diesel fuel, and are thus not disproportionately impacted by the applicable standards.

RIN prices are not a basis for our decision to reduce the volume requirements for 2020. Instead, we are revisiting the 2020 standards because of significant shortfalls in the market and our incorrect projections of small refinery exemptions in calculating the percentage standards as described in Preamble Section III. Moreover, higher RIN prices provide greater subsidies for renewable fuels, as explained in RIA Chapter 9.4.3, so high RIN prices are not generally an indication that the standards are erroneous.

See also responses to comments in RTC Section 2.6.1.

Comment:

Several commenters who indicated their belief that the proposed 2022 volume requirements were too high suggested that the 2020 and/or 2021 volume requirements could be further reduced in lieu of reducing the 2022 total renewable fuel volume requirement by 1.5 billion gallons. They also indicated that the reduction in either the 2022 total renewable fuel volume requirement or an equivalent reduction in the 2020/2021 total renewable fuel volume requirements would reduce the costs of compliance that is the result of the required purchase of RINs.

Response:

As discussed in RTC Section 6.3.4, commenters who opposed our proposed 2022 standards and requested a reduction of up to 1.5 billion gallons did not provide convincing arguments for their position. Instead, they by and large repeated arguments presented in response to past annual standard-setting proposed rulemakings in which they highlighted the E10 blendwall and the inability of the market to reach 15 billion gallons of ethanol consumption. Based on our review

and consideration of those comments, we have determined that an implied conventional renewable fuel volume requirement of 15 billion gallons is indeed appropriate as we project that the market can and will provide sufficient volumes of renewable fuel, albeit not entirely in the form of ethanol. As a result, a reduction in the proposed 2022 volume requirement of 1.5 billion gallons is not warranted. See further discussion in Preamble Section III.F and in RTC Section 6.3.4.

Since such a reduction to 2022 is unwarranted, by implication, a shifting of that reduction to 2020 or 2021 is also unwarranted. As we further explain in Preamble Section III.C, we do not believe it would be appropriate to reduce the 2020 and 2021 standards below what the market actually used.

Finally, we address the costs of RIN purchases for compliance in Preamble Section V.B, concluding that refiners are able to pass through the RIN costs of RFS compliance onto their customers in the form of higher sales prices on gasoline and diesel fuel. The costs of RIN purchases is therefore not a legitimate basis for reducing the volume requirements below those we proposed in any year 2020 - 2022.

Comment:

Several parties said that EPA's estimates of the volumes of renewable fuel consumed in 2020 were outdated, and that EPA should use more recent data from EIA.

Response:

For the proposal, we used data on actual consumption in 2020 from the EPA-Moderated Transaction System (EMTS) that was available in March of 2021. We now have more recent data from EMTS, and have used that data as the basis for the 2020 (and 2021) volume requirements that we are establishing in this final rule. The changes in the 2020 volumes were very small as summarized below.

2020 Renewable Fuel Consumption from EMTS

	Units	Final rule	Proposal	Difference
Cellulosic biofuel (D3+D7)	mill RINs	505	505	0
BBD (D4)	mill RINs	3,792	3,791	+1
BBD (D4)	mill gal	2,457	2,457	0
Other advanced biofuel (D5)	mill RINs	335	334	+1
Conventional renewable fuel (D6)	mill RINs	12,493	12,500	-7

We continue to believe that EMTS is a more accurate and more appropriate source for actual consumption in 2020 than EIA. EIA tracks biofuel consumption according to broad fuel types (ethanol, biomass-based diesel) but does not track them by the RFS categories (shown in the table above). EIA also does not track biofuel types consumed in small amounts, such as heating oil and jet fuel. Finally, EIA does not adjust volumes consumed to account for those that do not qualify for RIN generation under the RFS program, adjustments that are relevant as they

determine the number of RINs actually available for compliance. Since EMTS tracks precisely the volumes and associated categories that are relevant under the RFS program, we believe it is the more appropriate source for data on actual consumption of RFS-qualifying biofuel.

6.2 Proposed Volumes for 2021

Commenters that provided comment on this topic include but are not limited to: 0355, 0361, 0365, 0369, 0370, 0380, 0383, 0384, 0385, 0391, 0393, 0402, 0404, 0405, 0406, 0411, 0412, 0416, 0421, 0422, 0426, 0427, 0428, 0438, 0440, 0443, 0446, 0454, 0456, 0457, 0458, 0462, 0466, 0469, 0479, 0481, 0483, 0484, 0485, 0486, 0495, 0505, 0506, 0515, 0517, 0524, 0525, 0529, 0556, 0564, 0570, 0574, and 0577.

Comment:

While many commenters supported our proposed approach of setting the 2021 volume requirements at the levels actually consumed, a number of them asked that those volumes be updated to reflect more recent data.

Response:

In the proposal, we made a projection of what actual consumption could be through the end of 2021. Now that 2021 is in the past, there is no need to make a projection. We have used actual 2021 consumption data from EMTS to provide the basis for the 2021 volume requirements as presented in Preamble Section III.D. The changes in 2021 consumption were noteworthy as summarized below.

2021 Renewable Fuel Consumption from EMTS[a]

	Units	Final rule	Proposal	Difference
Cellulosic biofuel (D3+D7)	mill RINs	562	620	-58
BBD (D4)[b]	mill RINs	4,260	3,770	+490
BBD (D4)[b]	mill gal	2,721	2,432	+289
Advanced Biofuel	mill RINs	5,048	5,200	-152
Total Renewable Fuel	mill RINs	18,835	18,520	+315

[a] The proposal used a combination of actual consumption data for months for which it was available, and a projection for the remaining months.
[b] Note that these values reflect applicable volume requirement, not actual consumption. The BBD volume for 2021 was established in a previous rule at 2.43 billion gallons. See 85 FR 7016 (February 6, 2020).

As described more fully in RTC Section 6.1, we have used data from EMTS because we believe it is both more accurate and more appropriate than using data from EIA to determine actual volumes consumed in 2021.

Comment:

Several commenters who indicated their belief that the proposed 2022 volume requirements were too high suggested that the 2020 and/or 2021 volume requirements could be reduced in lieu of reducing the 2022 total renewable fuel volume requirement by 1.5 billion gallons.

Response:

See response to the same comment in RTC Section 6.1.

Comment:

Several commenters said that the 2021 standards should be reduced below the level of actual consumption to reduce burdens on small and/or merchant refiners.

Response:

See response to the similar comment for 2020 in RTC Section 6.1. We also address this issue in Preamble Section III.D.

Comment:

One commenter said that cellulosic waiver credits should not be made available in 2021 since there will not be any concern about a potential shortfall in cellulosic RINs, inasmuch as EPA is setting the cellulosic biofuel volume requirement equal to the volume of cellulosic biofuel actually consumed.

Response:

Under CAA section 211(o)(7)(D)(ii), whenever EPA uses the cellulosic waiver authority to reduce the required volume of cellulosic biofuel below the volume target in the statute, EPA "shall" make cellulosic waiver credits available to obligated parties. This is indeed the action that we are taking, and thus EPA does not have the flexibility to not offer cellulosic waiver credits in 2021. Moreover, cellulosic waiver credits may in fact be useful to individual obligated parties given the uneven holdings of carryover RINs, notwithstanding the fact that the market as a whole has sufficient RINs to comply with the 2021 volume requirements.

Comment:

One commenter said that the implied volume requirement for conventional renewable fuel in 2021 should be 15 billion gallons because refiners have known since 2007 that this is the level that would be required.

Response:

While the statutory volume targets provide an indication to the market of what the applicable volume requirements could be in any year through 2022, the statute also provides several different waiver authorities, in addition to the reset authority, that could result in the applicable volume requirements being lower than the statutory targets. EPA has exercised its waiver authorities on an annual basis since 2010, and the exercise of these waiver authorities is based on facts specific to each year. As such, no party knew in 2007 what the required levels would be in 2021.

In any event, we believe that establishing the 2021 volume requirements at those actually used is appropriate. Requiring higher volumes would result in a substantial drawdown of the carryover

RIN bank, which in turn could decrease the liquidity of RINs in the market and cause market disruption. We further discuss this in Preamble Sections III.B. and D.

6.3 Proposed Volumes for 2022

6.3.1 Proposed Cellulosic Biofuel Standard for 2022

Commenters that provided comment on this topic include but are not limited to: 0370, 0385, 0403, 0428, 0435, 0437, 0438, 0440, 443, 0444, 0462, 0464, 0469, 0484, 0485 ,0495, 0505, 0513, 0515, 0530, 0564, and 0576.

Several commenters that provided comments on the cellulosic biofuel volume for 2022 also commented on EPA projection of cellulosic biofuel production in 2022 and the methodology used to project cellulosic biofuel production in 2022. Responses to these comments can be found in RTC Section 3.

Comment:

A number of commenters supported the proposed cellulosic biofuel volume for 2022.

Response:

In this final rule we have used the same general methodology as in the proposal to project cellulosic biofuel production in 2022 and have incorporated the most recently available data in our projection. While the projection in this final rule is lower than the volume from the proposal, we believe this volume is justified based on the data available since our proposal.

Comment:

Multiple commenters stated that EPA's proposed cellulosic biofuel volume is too high and does not represent a projection of cellulosic biofuel production that takes a neutral aim at accuracy. One commenter stated that the proposed cellulosic biofuel volume for 2022 represented too big of an increase over the proposed volumes for 2020 and 2021.

Another commenter stated that the proposed cellulosic biofuel volume (762 million gallons) would require rapid growth that is inconsistent with the historical trends. The commenter suggested that EPA should update the projection of cellulosic biofuel production in 2022 using the same methodology as the proposed rule, but with more recent data.

Response:

After reviewing available RIN generation data for cellulosic biofuel from 2021 we have updated our projection of cellulosic biofuel production for 2022. The methodology used to project cellulosic biofuel production in 2022 takes neutral aim at accuracy and is described in RIA Chapter 5.1. In the final rule we have reduced the cellulosic biofuel volume for 2022 (relative to the proposed volume) based on updated projections of the projected volume available using additional data from 2021.

Comment:

Several commenters stated that EPA should finalize a higher cellulosic biofuel volume for 2022. These commenters generally argued that the 2022 volume should be calculated using a higher rate of growth for CNG/LNG derived from biogas based on the increase in the number of operational renewable natural gas (RNG) facilities in 2021 and/or the number of RNG facilities currently under construction. Other commenters similarly suggested EPA should consider a higher cellulosic biofuel volume for 2022 to account for ongoing investments by cellulosic biofuel producers and recent growth in the RNG industry. These commenters generally suggested that EPA should finalize a cellulosic biofuel volume of 900 million ethanol-equivalent gallons for 2022.

Another commenter stated that the cellulosic biofuel volume for 2022 in the final rule should not be lower than the proposed volume, even if RIN generation data from 2021 would suggest a lower rate of growth for CNG/LNG derived from biogas. The commenter argued that the rate of growth in 2021 did not accurately reflect available RNG volumes, and that using a higher growth rate would better reflect the actual industry capacity and would reflect where the industry would have been had EPA acted on time. The commenter recommend EPA set the cellulosic biofuel volume for 2022 at 800-900 million ethanol-equivalent gallons.

Response:

As discussed in RTC Section 3.2.2, it would not be appropriate to project cellulosic biofuel production using a higher rate of growth based on production increases in previous years or on the increase in the number of potential cellulosic biofuel producers. We believe our projection of cellulosic biofuel, presented in RIA Chapter 5.1, represents a neutral projection of cellulosic biofuel production and imports in 2022. As discussed in Preamble Section III, we further believe that it is appropriate to establish the cellulosic biofuel volume for 2022 at the projected volume available.

We disagree with the commenter's statement that RIN generation in 2021 did not reflect the available volume CNG/LNG derived from biogas used as transportation fuel in that year. We recognize that the total production potential for RNG may have been larger than the number of RINs generated but note that not all of this fuel was produced from qualifying cellulosic feedstocks nor was all of this fuel used as transportation fuel. Despite the delay in establishing required RFS volumes for 2021, cellulosic RIN prices remained high in 2021. The average price for a 2021 D3 RIN in 2021 was $2.75. Thus, there was a significant financial incentive for producers of qualifying CNG/LNG derived from biogas to sell as much of this fuel as possible into the transportation sector and to generate RINs.

Comment:

A commenter stated that EPA's proposed cellulosic biofuel volume for 2022 under-estimates potential production in 2022, and that if this number is finalized that it would negatively impact investment, growth, and production of RNG.

Response:

We recognize that if EPA significantly and consistently under-projects cellulosic biofuel production this could have a negative impact on investment in the cellulosic biofuel industry. However, we believe our projection of cellulosic biofuel production in 2022 represents a neutral projection and therefore provides an appropriate level of support for cellulosic biofuel production, consistent with our statutory authorities. We note that the projection methodology used in this rule is the same methodology used in recent, previous RFS annual rules, and that we have seen significant increases in the quantity of cellulosic biofuel used in recent years. Overall, we believe this rulemaking provides a strong market signal of EPA's intention to support a robust cellulosic biofuel market.

Comment:

Multiple commenters stated that EPA should finalize a higher cellulosic biofuel volume for 2022 that includes RINs generated for electricity used as transportation fuel. Similarly, multiple commenters stated that EPA should resolve the outstanding technical issues related to generating RINs for cellulosic ethanol produced from corn kernel fiber and finalize a higher cellulosic biofuel volume for 2022 that includes RINs generated for this fuel. Some commenters suggested EPA should include an additional 210 million ethanol-equivalent gallons of ethanol produced from corn kernel fiber in the required cellulosic biofuel volume for 2022.

Response:

We are projecting zero RINs will be generated for cellulosic biofuel from renewable electricity and corn kernel fiber in 2022. For a further discussion of our consideration of these fuels see RIA Chapter 5.1.3 and RTC Section 3.1.

Comment:

One commenter further stated that EPA should set the 2022 cellulosic biofuel volume 20% below the projected volume of CNG/LNG derived from biogas used as transportation fuel. The commenter stated that this approach would allow obligated parties to build up a bank of cellulosic carryover RINs and would encourage over-compliance with the cellulosic biofuel volume requirement since excess cellulosic biofuel would be cost competitive with advanced biofuel and conventional renewable fuel.

Response:

We recognize that establishing a cellulosic biofuel volume for 2022 that is below the projected volume available would allow obligated parties to increase the cellulosic carryover RIN bank and would likely reduce the costs of this rule by allowing relatively inexpensive CNG/LNG derived from biogas to displace other more costly advanced biofuels. Doing so would likely decrease the incentive for the production of cellulosic and advanced biofuels in 2022, negatively impact investment in cellulosic and advanced biofuel production, and thereby reduce the benefits associated with the use of these biofuels. After considering the statutory factors we have decided

to finalize a cellulosic biofuel volume for 2022 that is equal to the projected volume available. For a further discussion of our consideration of the statutory factors see Preamble Section III.

Comment:

A commenter stated that EPA should shift the focus of the RFS program to cellulosic biofuels that have clear climate benefits without the negative environmental impacts associated with other biofuels. This commenter requested that EPA increase the cellulosic biofuel volume for 2022.

Response:

In this final rule we are in fact finalizing a significant increase in the cellulosic biofuel volumes for 2022. We are establishing the cellulosic biofuel volume for 2022 at the projected volume available. The cellulosic waiver authority prohibits EPA from establishing a cellulosic biofuel volume that exceeds the projected volume available. The final volume is also justified under the reset authority. As we explain in RTC Section 3, requiring cellulosic biofuel volumes above what the market is projected to produce and use is unlikely to actually result in greater cellulosic biofuel consumption but likely to result in higher costs.

6.3.2 Proposed BBD Standard for 2022

Commenters that provided comment on this topic include but are not limited to: 0355, 0374, 0428, 0431, 0433, 0442, 0445, 0449, 0458, 0459, 0462, 0463, 0471, 0473, 0476, 0505, 0518, and 0576.

Comment:

Many commenters supported our proposed BBD volume for 2022. Other commenters suggested that the volume requirement should be reduced to no greater than the volume of BBD available in 2021, or to 2.43 billion gallons (the required volume of BBD in 2021) to protect soy oil availability for food and oleochemical uses. Other commenters suggested the BBD volume should be reduced to 1.0 billion gallons, the lowest allowed by the statute.

Some commenters noted that the market could supply 4 billion gallons of BBD, and requested that EPA increase the BBD volume for 2022 to be at or closer to the availability of BBD in 2022.

Response:

Our discussion of the BBD volume for 2022, including our consideration of volumes both higher and lower than the volume in this final rule can be found in Preamble Section III and RIA Chapter 10. We have chosen to increase the 2022 BBD volume to 2.76 billion gallons. We continue to believe that the advanced volume will generally drive BBD use including in 2022. Moreover, with respect to 2022 specifically, we project in RIA Chapters 2 and 5.2 that additional volumes of BBD will be used above the advanced standard to satisfy the total standard. Therefore, a higher or lower BBD volume is unlikely to result in different volumes of BBD use. However, a significantly higher BBD volume could displace other advanced biofuels and reduce the available incentives for these fuels. As we explain in RIA Chapter 10, that result would be improper as leaving adequate room for growth of other advanced biofuels could have a beneficial impact on certain statutory factors. We discuss the interactions between our standards and food and oleochemical uses in RTC Section 6.3.3. We discuss the availability of BBD in RIA Chapter 5.2 and RTC Section 4.

Comment:

A commenter suggested that EPA should increase the BBD volume significantly so that new renewable diesel and biodiesel can be additive, as opposed to renewable diesel replacing biodiesel.

Response:

We acknowledge that it is possible that some of the expansion in renewable diesel production may come at the expense of biodiesel production. However, we are not projecting that renewable diesel will displace existing biodiesel use in 2022, but rather provide additional volumes on top of biodiesel. As we explain in RIA Chapters 2 and 5.2 and RTC Section 4, we expect biodiesel use to remain roughly flat in 2022, with a slight increase relative to 2021 levels. In addition, we

believe that the advanced biofuel and total renewable fuel volumes will drive BBD use, and thus a higher BBD volume is unlikely to result in increased biodiesel use.

6.3.3 Proposed Advanced Biofuel Standard for 2022

Commenters that provided comment on this topic include but are not limited to: 0361, 0363, 0365, 0369, 0370, 0374, 0380, 0385, 0387, 0391, 0392, 0393, 0403, 0411, 0412, 0416, 0421, 0428, 0431, 0433, 0443, 0445, 0451, 0453, 0456, 0458, 0459, 0462, 0464, 0469, 0470, 0473, 0476, 0481, 0485, 0490, 0493, 0494, 0495, 0497, 0503, 0506, 0513, 0518, 0524, 0544, 0570, and 0576.

Comment:

Multiple commenters supported the proposed advanced biofuel volume for 2022.

Response:

In the final rule we are taking the same approach to the advanced biofuel volume for 2022 as in the proposed rule. The final advanced biofuel volume for 2022 is slightly lower than the proposed volume due to the slightly lower cellulosic biofuel volume (discussed in RTC Section 6.3.1), but the final advanced biofuel volume retains the same implied 5 billion ethanol-equivalent gallon volume for non-cellulosic advanced biofuels as the proposed rule.

Comment:

Several commenters pointed to our conclusion that a substantial volume of excess advanced biodiesel and renewable diesel would be used to fill the shortfall in consumption of conventional ethanol in comparison to the implied volume requirement of 15 billion gallons, and said that EPA should instead shift that shortfall in projected consumption of conventional ethanol from the implied conventional renewable fuel volume requirement to the advanced biofuel volume requirement. This would leave the total volume requirement unchanged but would align the projected availability of each type of renewable fuel more directly with their corresponding standards. Specifically, these parties asked that EPA increase the advanced biofuel volume by 1.2 – 1.5 billion gallons without increasing the total renewable fuel volume. These commenters generally claimed that this change would increase GHG emission reductions and benefit obligated parties through lower D6 RIN prices since the implied conventional volume (13.5 – 13.8 billion gallons) would be below the E10 blendwall.

Several other commenters similarly suggested that the statutory factors supported an advanced biofuel volume higher than EPA's proposed volume for 2022. These commenters generally noted that there is an ample supply of biodiesel and renewable diesel production capacity and feedstocks available to support a higher advanced biofuel volume. Many of these commenters stated that a higher advanced biofuel volume would increase the GHG and/or energy security benefits of the proposed rule. Several commenters requested an advanced biofuel volume of 7 billion ethanol-equivalent gallons for 2022 or that EPA should increase the advanced biofuel volume by one billion ethanol-equivalent gallons (e.g. to 6.77 billion gallons). Others stated that if EPA believes advanced biofuel volumes will be produced above the proposed volume (5.77 billion ethanol-equivalent gallons) the advanced biofuel volume requirement should be increased.

Another commenter stated that EPA should set the 2022 non-cellulosic advanced biofuel volume at a minimum of 5.425 billion ethanol-equivalent gallons (equivalent to 3.5 billion gallons of biodiesel and renewable diesel). The commenter requested that EPA set the 2022 advanced biofuel volume at 6.77 billion ethanol-equivalent gallons to account for additional volumes of BBD that could be produced and other non-BBD advanced biofuels.

Response:

EPA has not taken the approach advocated for by these commenters. While we anticipate that greater volumes of advanced biofuel will be used than required by the advanced biofuel standard in 2022, we do not believe it is appropriate to increase the advanced biofuel volume (whether by 1.2 billion gallons, 1.5 billion gallons, to 6.77 billion gallons, to 7 billion gallons, or any other similar numbers suggested by the commenters). As discussed in further detail in Preamble Section III we believe the volumes we are finalizing are appropriate based on our review of the statutory factors. We provide further explanation below.

Neither the statute nor the regulations require that only conventional renewable fuel (renewable fuel identified with a D code of 6) be used to fulfill the implied volume requirement for conventional renewable fuel. Indeed, the implied volume requirement for conventional renewable fuel is not a requirement per se, but instead is only a description of that portion of the total volume requirement which is not required to be advanced biofuel. Any portion of the implied volume requirement for conventional renewable fuel can be met with advanced biofuel. As we describe in RIA Chapter 10, this has occurred in several historical years. We also expect this to occur in 2022. Because additional volumes of advanced biofuels will be used anyways to satisfy the total standard, we expect that the positive impacts of increased advanced biofuel production mentioned by many commenters will be realized despite the fact that we have not increased the advanced biofuel volume requirement. This includes potential impacts on climate change and energy security as highlighted by some commenters.

In addition, by not shifting the shortfall in corn ethanol to the advanced biofuel volume requirement as commenters suggested, we have maximized the flexibility obligated parties have in complying with the implied volume requirement for conventional renewable fuel. Obligated parties can comply with the 15 billion gallon implied volume requirement with a combination of RINs representing corn ethanol and RINs representing excess advanced biofuel, or they can seek out non-ethanol conventional renewable fuel such as imported renewable diesel produced from palm oil. Were we to shift the shortfall in corn ethanol to the advanced biofuel volume requirement, obligated parties would not have this option.

While making such a shift might have the impact of lowering D6 RIN prices for obligated parties, as a commenter suggested, lower D6 RIN prices are not a goal of the RFS program. Lower D6 RIN prices would reduce the incentives for higher level ethanol blends, as well as the incentives for other non-ethanol conventional biofuels. We recognize that lower D6 RIN prices would reduce the cost of purchasing RINs for obligated parties, but we note that we have concluded that obligated parties recover the cost of the RINs they acquire in the sales price for the petroleum-based fuels they produce and therefore are not negatively impacted by higher RIN

prices (see RTC Section 9.1.8 for a further discussion of the impact of the RFS program on refiners).

Comment:

A commenter stated that to alleviate high vegetable oil prices and reduce the market-driven increase in palm oil expansion resulting from soy oil demand, EPA should reduce the proposed 2022 BBD volume by a minimum 330 million gallons to 2.43 billion gallons and reduce the proposed advanced biofuel and total renewable fuel volumes by an equal amount (e.g. 500 million ethanol-equivalent gallons).

Another commenter similarly requested that EPA reduce the required volume of non-cellulosic advanced biofuel by 1.5 billion ethanol-equivalent gallons to reduce the pressure on vegetable oil markets and avoid the negative impacts of increased cultivation of oilseed crops due to higher demand for vegetable oils for biofuel production on the climate and biodiversity.

Response:

We acknowledge that increased demand for vegetable oils to produce biodiesel and renewable diesel could result in increased production of oilseed crops, including soybeans and palm oil. However, there is considerable uncertainty about how increased demand for vegetable oils will be met. It is possible that use of vegetable oils in other sectors will decrease, or that crushing of oilseeds will increase. Either of these responses would result in an increase in the available quantity of vegetable oil without increasing the production of oilseed crops. We further discuss these potential responses in RIA Chapter 5.2 and RTC Section 4.2. For 2022, EPA's assessment of the availability of feedstocks to produce biodiesel and renewable diesel determined that there is significant potential to increase soybean oil production in the U.S., primarily from increased crushing of soybeans.

If increased use of vegetable oil to produce biofuels does not lead to increased production of oilseed crops we would not expect negative impacts on climate or biodiversity. If oilseed crop production does increase, there is significant uncertainty related to the land on which these new crops will be grown, including in what part of the world they are grown on and whether they displace existing crops or are grown on newly cultivated cropland. Any potential impact on climate and biodiversity that results from increased oilseed production varies greatly depending on where and how these oilseeds are produced. For example, to the extent that native forests are newly converted to soybean fields, we expect far greater negative impacts on climate and biodiversity than if existing soybean fields were to be cultivated more intensively. That said, as discussed further in RIA Chapter 3, we do generally acknowledge the negative environmental impacts of increased oilseed crop production, particularly of palm production. We believe the advanced biofuel volume we are finalizing for 2022 is appropriate in light of these considerations, and the potential positive impacts of increased advanced biofuel use and production discussed in Preamble Section III.

Comment:

Multiple commenters requested that EPA reduce the proposed advanced biofuel volume for 2022.

One commenter stated that the proposed 2022 volumes represent too large of an increase over the renewable fuel volumes used in 2020 and 2021. EPA's proposal shows that the available volume of renewable fuels will fall short of the combined volume standard and supplemental standard and compliance with the proposed 2022 standards will likely require a significant draw on the bank of carryover RINs.

Another commenter stated that setting high advanced combined with high implied conventional renewable volumes will aggravate the E10 blendwall issue and may require significant use of carryover RINs for compliance. EPA should establish reasonable standards that can be achieved in the market.

Response:

EPA's assessment of the rate of production and use of renewable fuel can be found in RIA Chapter 5. Based on this assessment EPA has determined that the renewable fuel volumes we are finalizing for 2022, including the supplemental volume, can be met with actual renewable fuel use in 2022. With respect to advanced biofuel in particular, as discussed in RIA Chapter 5.2, the annual increases in the volume of biodiesel and renewable diesel we project will occur in response to the 2022 volumes we are finalizing in this rule are similar to the annual increases we have observed in some previous years. We project there will be sufficient feedstocks and production capacity to enable the market to meet the required volumes for 2022. While it is possible that some obligated parties may use carryover RINs to meet their compliance obligations for 2022, we do not agree that the volumes we are finalizing will necessarily require the use of carryover RINs due to a shortfall in renewable fuel production and use in 2022. As we explain in Preamble Section III.B, we have not set the standards with the intent to draw down the carryover RIN bank.

Comment:

One commenter stated that the 2022 advanced biofuel volume should be no higher than the volume of advanced biofuels used in 2021 to ensure the supply of vegetable oil to the food markets. Higher volumes could result in food shortages.

Similarly other commenters requested that EPA reduce the advanced volume to reduce demand for vegetable oil for biofuel production and ensure the availability of vegetable oil to other markets. Some suggested that EPA should set the 2022 advanced biofuel volume equal to the volume of advanced biofuel used in 2020 (4.63 billion ethanol-equivalent gallons) or forgo increasing the advanced biofuel volume in 2022 (e.g., set the advanced biofuel volume at or below 5 billion ethanol-equivalent gallons).

Response:

EPA's assessment of available feedstocks concluded that there will be sufficient feedstocks available to produce the higher volumes of biodiesel and renewable diesel we project will be used to meet the renewable fuel standards we are establishing in this rule and to satisfy demand in other markets. In particular, we project increased production of vegetable oil from increased crushing of soybeans in the U.S. Additionally, larger oilseed harvests in South America and Southeast Asia due to more favorable weather conditions than occurred in 2020/21 could provide an opportunity for increased vegetable oil imports and/or lower demand for domestically produced soybean oil in foreign markets. We do not anticipate that the 2022 advanced biofuel volume will result in food shortages. More information on our assessment of feedstock availability can be found in RIA Chapter 5.2.3 and RTC Section 4.3. Moreover, as we explain in RTC Section 6.3.4, we have already observed significant increases in biofuel use in the first quarter of 2022, indicating that the final volumes are achievable.

As we explain in Preamble Section III.E, the 2022 volumes are intended to be achievable but also market forcing, based on our assessment of the statutory factors. We do not believe it is appropriate to flatline the 2021 volume into 2022 or to adopt a lower volume in 2022 (e.g., 5 billion gallons) than was actually achieved in 2021.

Comment:

A commenter stated that EPA should set the 2022 advanced biofuel volume at the actual domestic production of advanced biofuel. Another commenter similarly stated that EPA should set the advanced volume at the sum of the projected volume of cellulosic biofuel, 1.5 billion ethanol-equivalent gallons to account for a 1 billion gallon BBD volume requirement, and a projection of other cost-effective advanced biofuels that EPA projects will be produced domestically and use in the U.S. market. These commenters generally argued that these approaches would reduce the need for imported biofuels, reducing the cost of the program, advancing domestic energy security, and fostering greater development of domestically produced advanced biofuels.

Response:

We do not believe it would be appropriate to set the advanced biofuel volume based solely on domestic production of advanced biofuels or domestic production that is cost-effective (in combination with the projected available volume of cellulosic biofuel and the 1 billion gallon statutory minimum volume for BBD). First, the RFS program was intended to be a market-forcing program. Restricting the required advanced biofuel volumes to those fuels that are cost-effective (that is, those that have a lower cost than the petroleum fuels they displace) would be contrary to this intent and would make the RFS volume requirements meaningless. Indeed, Congress expressly contemplated that the RFS program would result in costs, and it directed EPA to consider costs as one of numerous factors in determining the appropriate volumes. See CAA section 211(o)(2)(B)(ii)(V).

Second, the RFS program does not restrict imported biofuels from generating RINs. The statute

does not contain any such limitation. Rather, Congress directed EPA "to ensure that transportation fuel sold or introduced into commerce in the United States" contains sufficient volumes of renewable fuel. CAA section 211(o)(2)(A)(i). Imported fuels, including biofuels, used in the United States are also "sold or introduced into commerce." Cf. also CAA section 211(o)(2)(A)(iii) (directing EPA to establish compliance provisions for importers). Furthermore, the statutory provision regarding credits expressly indicates that imported biofuels can generate credits. CAA section 211(o)(5)(A)(i), (E). Pursuant to these statutory provisions, EPA's regulations have allowed imported biofuels to generate RINs so long as they meet the relevant legal requirements. See 40 CFR 80.1426(a). As such, imported biofuels have contributed to U.S. renewable fuel supply since the beginning of the RFS program and are expected to continue to do so. Imported biofuels can, in some cases, be produced and imported at a lower cost than biofuels produced in the U.S. The market may choose to use such imported biofuels.

Setting the advanced biofuel standard based solely on a consideration of the projected production of advanced biofuels in the U.S. would not eliminate the ability of market actors to import renewable fuels and use those fuels for RFS compliance. This approach thus would ignore an important aspect of renewable fuel supply on which the standard was based. It would also very likely result in continued imports of biofuels together with reduced demand and reduced domestic biofuel production. This outcome is not supported by our review of the statutory factors.

We agree with the commenter that reducing the advanced biofuel volume would likely reduce the costs of the program. However, cost is not the sole consideration. As we explain in Preamble Section III.E and the RIA, we believe the final advanced biofuel volume to be justified when we balance all the statutory factors.

We do not agree with the commenter that reducing the advanced biofuel volume would increase energy security. For one, imported biofuels have the potential to provide energy security benefits, a topic we discuss further in RIA Chapter 4. Moreover, reducing the advanced biofuel volume would also very likely decrease the use of domestically produced biofuels, which would reduce U.S. energy security. As we explain in RIA Chapters 2 and 5.2, the vast majority of the increase in advanced biofuels is projected to come from increased domestic renewable diesel.

Comment:

EPA should increase the advanced biofuel volume to incentivize the production of advanced biofuels other than BBD. Because the proposed increase in the BBD requirement (330 million gallons or 512 million ethanol-equivalent gallons) is greater than the proposed increase in the non-cellulosic advanced volume (420 million ethanol-equivalent gallons) EPA's proposal would reduce the incentives available for advanced biofuels other than BBD.

Response:

In this final rule we are increasing the implied volume for non-cellulosic advanced biofuel volume by 510 million gallons from 2021 to 2022. This increase is slightly higher than the implied statutory increase for non-cellulosic advanced biofuels of 500 million gallons. The

resulting 2022 implied non-cellulosic advanced biofuel volume is 5 billion gallons, which is also equal to the implied statutory volume (5 billion gallons). Additionally, because we are increasing the BBD volume by nearly the same amount (330 million gallons or 500 million ethanol-equivalent gallons) we are preserving the prospective incentives for other advanced biofuels that do not qualify as cellulosic biofuel or BBD. The opportunity for other advanced biofuels in 2022 (860 million ethanol-equivalent gallons) is significantly higher than the volume of these fuels used in the U.S. in recent years. We further discuss this topic in RIA Chapter 10.

Comment:

EPA should project the production of sustainable aviation fuels in 2022 and should include these fuels in the required advanced biofuel volume.

Response:

EPA has considered sustainable aviation fuels in our projections of renewable fuel production for 2022. Sustainable aviation fuel is one of the "other" BBD fuels (see RIA Chapter 2). For 2022 we are projecting a relatively small volume of sustainable aviation fuel (about 5 million ethanol-equivalent gallons). We will continue to monitor developments in sustainable aviation fuel production and anticipate including this renewable fuel in future projections as warranted.

In addition, we note that sustainable aviation fuel as currently produced is a portion of the distillate fuel that is otherwise produced and sold as renewable diesel. A portion of the distillate fuel produced is in the distillation range of jet fuel range and separated and sold separately as SAF. However, if this added step is not taken, the product continues to be sold as renewable diesel. Thus, increasing SAF production in 2022 would likely be offset by lower renewable diesel production, rather than increasing overall BBD or advanced biofuel production (which include qualifying sustainable aviation fuel).

6.3.4 Proposed Total Renewable Fuel Standard for 2022

Commenters that provided comment on this topic include but are not limited to: 0347, 0355, 0356, 0361, 0363, 0365, 0367, 0369, 0370, 0373, 0376, 0379, 0380, 0382, 0383, 0384, 0385, 0386, 0387, 0391, 0392, 0393, 0394, 0396, 0397, 0400, 0402, 0403, 0404, 0405, 0406, 0409, 0411, 0412, 0416, 0419, 0420, 0421, 0422, 0424, 0426, 0427, 0428, 0430, 0431, 0433, 0438, 0443, 0446, 0447, 0451, 0452, 0454, 0455, 0456, 0457, 0462, 0464, 0466, 0469, 0475, 0479, 0481, 0482, 0494, 0495, 0501, 0505, 0506, 0513, 0517, 0521, 0524, 0525, 0529, 0556, 0568, 0570, 0573, 0573, 0576, and 0577.

This section includes comments related to the implied conventional renewable fuel volume requirement (that portion of the total renewable fuel volume requirement which is not required to be advanced biofuel).

Comment:

A number of commenters claimed that the proposed implied volume requirement of 15 billion gallons for conventional renewable fuel cannot be met with ethanol, and that as a result it is too high. In this context, some commenters referred to conventional renewable fuel as the "ethanol requirement" or the "ethanol mandate," while others made the implicit assumption that the total volume of ethanol that would be used was identical to the implied volume of conventional renewable fuel.

Response:

These comments conflate the implied conventional renewable fuel volume requirement with ethanol. The two are not the same. Despite the fact that ethanol has been the predominant component of conventional renewable fuel, it is not the only component. Congress defined renewable fuel without reference to ethanol. See CAA section 211(o)(1)(J). The statutory scheme thus plainly allows other renewable fuels, besides ethanol, to qualify as renewable fuel so long as they meet the statutory requirements. See CAA section 211(o)(1)(J), (o)(2)(A)(i). EPA's regulations follow the same approach. Historically, other conventional renewable fuels, such as conventional biodiesel and renewable diesel, have been used in the U.S. In modifying the RFS volumes under the reset provision, EPA is mandated to consider renewable fuels generally, not just ethanol. See, e.g., CAA section 211(o)(2)(B)(ii)(III) (requiring EPA to analyze "the expected annual rate of future commercial production of renewable fuels" generally, not just of ethanol).

Moreover, not all ethanol is conventional renewable fuel. For example, Congress specifically indicated that certain kinds of ethanol could qualify as advanced biofuel. See CAA section 211(o)(1)(B). Over time, significant volumes of ethanol have been used to meet the advanced biofuel volume requirement. As we explain in RIA Chapter 5, we expect advanced ethanol to continue to be used in 2022.

Also, there is no conventional renewable fuel standard under the statute. Instead, the implied conventional renewable fuel volume requirement is merely that portion of total renewable fuel that is not required to be advanced biofuel. Advanced biofuel, however, may be used to satisfy

any portion of the total renewable fuel volume that is not required to be advanced biofuel (i.e., the implied conventional renewable fuel volume requirement). See CAA section 211(o)(1)(B)(i), (o)(2)(B)(i)(II). Thus if more advanced biofuel is used than required by the 2022 advanced biofuel standard, then less than 15 billion gallons of conventional renewable fuel will be needed to meet the total renewable fuel standard. As explained in RIA Chapters 2 and 5.2, we project that large volumes of advanced biofuel will be used in just this way. These advanced biofuel volumes, together with corn ethanol and conventional renewable diesel, will enable the market to satisfy the total renewable fuel standard, including the 15 billion gallon implied conventional renewable fuel portion. This reliance on advanced biofuel to satisfy the implied conventional portion of the standard is consistent with what we have observed in some historical years, as discussed in RIA Chapter 10.

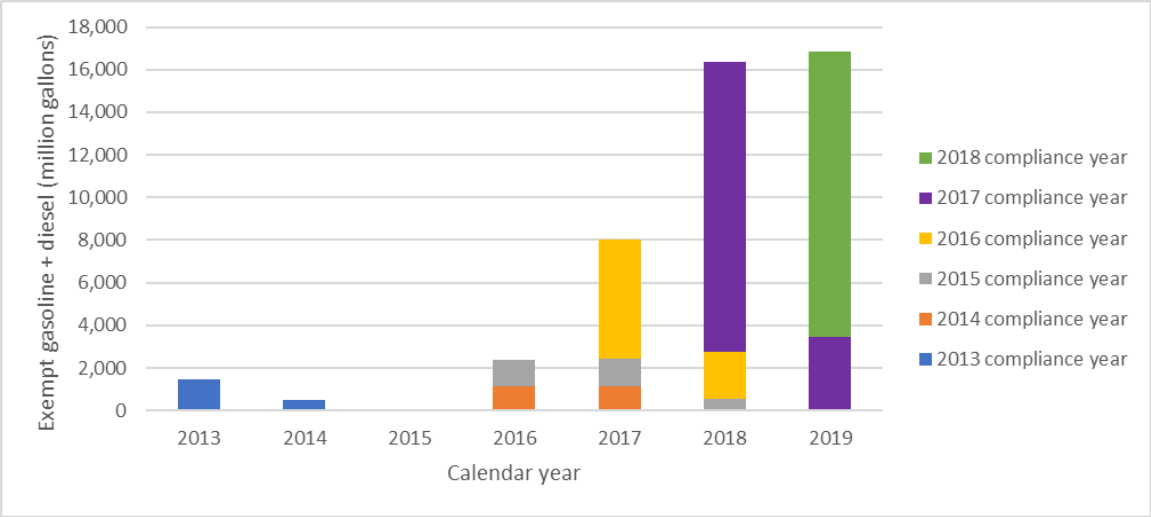
The 2017-2020 annual standard-setting rules also established total renewable fuel standards consistent with an implied conventional renewable fuel volume of 15 billion gallons. We also justified the total renewable fuel volume for each of those years based in part on our projections of what the market could make available.[99] We recognize that in those years the market did not achieve the total renewable fuel volumes that we used to establish the percent standards.

Despite this, we believe that the 2022 total renewable fuel volume, including the implied conventional renewable fuel volume of 15 billion gallons, is achievable. The fact that the market fell short of the 2017-2020 final rule volume requirements is of limited relevance in determining the achievability of the 2022 volumes. This is because, as we further explain in Preamble Section V, those volume requirements are not themselves applicable to obligated parties and are thus not binding. Rather, EPA implements the volume requirements by converting them into percentage standards that apply to obligated parties. These percentage standards, not the volumes, are what bind obligated parties. Obligated parties determine their renewable volume obligations (RVOs) by multiplying the percentage standards by the volume of gasoline and diesel they produce or import that is subject to RFS obligations. See 40 CFR 80.1407. The sum of these individual RVOs is the "effective" volume requirement for the nation as a whole.

The effective implied conventional renewable fuel volume requirement was less than 15 billion gallons for all four years for which we used 15 billion gallons in the calculation of the applicable percentage standards. Thus, it is unsurprising that obligated parties did not meet 15 billion gallons: they were not required to. The lower effective volume requirements occurred for various reasons. One of those reasons was the granting of exemptions for small refineries deemed to have experienced disproportionate economic hardship. The figure below shows the volume of SREs granted for the 2013-2018 compliance years, as well as the calendar year during which EPA granted the exemptions.

[99] See, for example, "Updated market impacts of biofuels in 2020," available in the docket.

Exemptions for Small Refineries Granted After the Applicable Percentage Standards Were Established



In 2017 and 2018, the fact that the effective implied volume requirement for conventional renewable fuel was less than 15 billon gallons was largely due to numerous small refinery exemptions being granted after the percentage standards had been established.[100] Nevertheless, in these two years, the market actually exceeded the effective volume requirements for implied conventional renewable fuel.

During calendar year 2019, there were no SREs granted for compliance year 2019, but there were significant volumes exempted for the two previous compliance years, 2017 and 2018. The market very likely responded in real time to those SREs granted in calendar year 2019 by adjusting consumption of renewable fuel to account for the expectation of a larger carryover RIN bank carried over from 2017 and 2018. EPA has chosen to deny all 2019 SREs in a recent action,[101] thereby maintaining higher effective volume requirements. As we explain in Preamble Section III.B, we expect the market to significantly draw down the carryover RIN bank for 2019 compliance, down from its historical high.

In 2020, the effective volume requirements were also lower than those we based the percent standards on in the original 2020 final rule. This was due to the sharp fall in transportation fuel demand associated with the COVID-19 pandemic, which we discuss further in Preamble Section III. Obligated parties also fell short of the effective volume requirements for reasons we explain

[100] EPA recently reconsidered and denied certain remanded SRE petitions for the 2016-2018 compliance years that were initially granted. See "April 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-005, April 2022; and "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022. However, because this reconsideration occurred after these years had passed, it did not affect the use of renewable fuel in these past years. This reconsideration is thus not reflected in the figure above, which is meant to depict the history of SREs granted through the 2019 calendar year and the impacts such exemptions had on the effective volume requirements and biofuel use in those years.

[101] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

in Preamble Section III.B and C. The two key reasons were a change in EPA's SRE policy and the disproportionate shortfall in gasoline demand in comparison to diesel demand.

In 2022, we are confronted with different facts than in 2017-2020. We do not anticipate that the effective volume requirements will be diminished by future SREs. This is in large part because we do not intend to grant any SREs for the 2022 compliance year. We discuss this further in Preamble Section V. Moreover, while obligated parties continue to have access to the carryover RIN bank and carryforward deficits as flexibilities in complying with their RVOs, the size of the carryover RIN bank is expected to be much lower in 2022 than in 2017-2019. Taken together, these facts mean that the 2022 standards will place significantly greater upward pressure on actual renewable fuel use than in 2017-2020, despite the fact that we continue to maintain an implied conventional renewable fuel volume requirement of 15 billion gallons. We accordingly expect the market in 2022 to exceed the levels of renewable fuel consumed in 2017-2021. Our comprehensive analysis in the RIA accounts for these facts specific to 2022 and demonstrates how the market can achieve the 2022 volumes.

Comment:

Several commenters stated that the implied volume requirement for conventional renewable fuel in 2022 should be set at a level reflecting the realities of limitations in ethanol consumption. Some said that the E10 blendwall should be the target, while others said that conventional should be set below the E10 blendwall.

Response:

We acknowledged in the proposal that ethanol consumption in 2022 cannot reach 15 billion gallons due primarily to infrastructure constraints associated with E15 and E85. For the proposal we used EIA's projection of 13,975 million gallons of ethanol consumption based on their May 2021 Short-Term Energy Outlook (STEO). For this final rule we have updated the projected 2022 ethanol consumption to 14,310 million gallons based on EIA's January 2022 STEO. We note that this quantity of ethanol includes not only E10, but also E15 and E85, which can also be used for RFS compliance. For instance, EIA's projection of 14,310 million gallons of ethanol consumption in 2022 represents almost 300 million gallons in excess of the E10 blendwall. More importantly, as explained above, we expect the market to rely on both ethanol and non-ethanol biofuels to meet the total renewable fuel requirement (including the implied conventional renewable fuel portion).

Comment:

One commenter said that 15 billion gallons of ethanol consumption would require that 20% of the gasoline pool be E15, which is not possible.

Response:

Based on the total projected 2022 gasoline energy demand derived from the January 2022 edition of EIA's STEO (16.70 Quad Btu) and assuming that there was no E0 or E85, the total volume of

E15 that would be needed in order for total consumption of ethanol to reach 15 billion gallons would be 19.4 billion gallons.[102] This would represent about 14% of all gasoline. While this is lower than the 20% estimated by the commenter, this level of E15 consumption is indeed not achievable in 2022 given the small number of retail service stations that currently offer it.

However, as explained above, we expect that the market will meet the 15 billion gallon implied volume requirement with both ethanol and non-ethanol biofuels.

Comment:

One commenter said that an implied volume requirement for conventional renewable fuel of 15 billion gallons will not require more ethanol than can be supplied by the market.

Response:

As noted above, the 15 billion gallon implied conventional volume can be met with non-ethanol biofuels. The market will determine precisely how to comply with the implied volume requirement for conventional renewable fuel. We would expect the primary factors affecting the mix of biofuels that are supplied would be comparative costs, the practical ability of the market to produce or import biofuels, and constraints on distribution and consumption. Our assessment of how the market may do this in 2022, as shown in RIA Table 2.1-1, assumes that the market will supply 14,173 billion gallons of corn ethanol, and that the remainder of the implied volume requirement of 15 billion gallons will be met with other biofuels, principally biodiesel and renewable diesel.

Comment:

One commenter said that the increase in the volume requirements from 2021 to 2022 is too large for the market to handle.

Response:

The increase in the cellulosic volume requirement from 2021 to 2022 is 70 million gallons (560 to 630 million gallons). This is a smaller increase than actual increases in cellulosic biofuel use on several occasions in the past:

- The increase from 2014 to 2015 was 90 million gallons
- The increase from 2015 to 2016 was 107 million gallons
- The increase from 2016 to 2017 was 81 million gallons
- The increase from 2018 to 2019 was 130 million gallons

Similarly, the increase in the implied non-cellulosic advanced biofuel volume requirement from 2021 to 2022 is 510 million gallons (4,490 to 5,000 million gallons), which is also a smaller

[102] Conversion factors used in these calculations were taken from Tables A1 and A3 of the December 2021 edition of EIA's Monthly Energy Review: 3.557 mill Btu per barrel for denatured ethanol, 5.222 mill Btu per barrel for gasoline blendstock.

increase than actual increases in non-cellulosic advanced biofuel use on several occasions in the past:

- The increase from 2011 to 2012 was 646 million gallons
- The increase from 2012 to 2013 was 754 million gallons
- The increase from 2015 to 2016 was 623 million gallons
- The increase from 2016 to 2017 was 589 million gallons

The implied volume requirement for conventional renewable fuel of 15 billion gallons in 2022 does represent a substantial increase over the 2021 requirement of 13.79 billion gallons, and this is a larger increase than has occurred in the past. However, we also set the implied volume requirement for conventional renewable fuel at 15 billion gallons in the 2017–2020 final rules. The large increase from 2021 to 2022 is largely an artifact of our setting the 2021 volumes at the levels actually supplied and those volumes being depressed due to the COVID-19 pandemic and the associated reduction in demand for gasoline and diesel.

Ultimately, however, the fact that the increases in volume requirements from 2021 to 2022 may appear large does not by itself make them inappropriate or unachievable. As discussed in Preamble Section III.E and RIA Chapter 5, we analyzed the 2022 volume requirements to determine if they could be achieved under market circumstances expected to exist to 2022 and have determined that they can and that they are appropriate given the various economic and environmental factors that we analyzed.

Comment:

One commenter said that the 2022 volume requirement for total renewable fuel should be set no higher than the 2021 volume requirement due to constraints on edible oil feedstocks, particularly soybean oil. Another commenter said that it should be set no higher than the 2020 volume requirement for the same reason.

Response:

As described in RIA Chapter 5.2 and RTC Section 4.3, our determination of the appropriate standards for 2022 is based in part on an assessment of the availability of feedstocks for the production of biodiesel and renewable diesel. The market is capable of making available increased quantities of edible oil feedstocks in 2022 relative to 2020 and 2021. We expect that there will be sufficient feedstocks available, including but not limited to edible oils such as soybean oil, to produce the projected volumes of biodiesel and renewable diesel.

Comment:

One commenter said that the high proposed volume requirement for total renewable fuel in 2022 would require a significant drawdown of the carryover RIN bank. Another commenter said that the 15 billion gallon implied volume requirement for conventional renewable fuel will force obligated parties to use more biodiesel and renewable diesel or to use carryover RINs for compliance.

One commenter said that there will not be sufficient excess advanced biofuel in 2022 to make up for the shortfall in ethanol consumption.

One commenter said that due to insufficient volumes of biodiesel and renewable diesel in 2022, the market will be forced to increase the use of E15 and that this increase will mean that E15 is stored and dispensed from incompatible equipment.

Response:

As discussed in Preamble Section III.E and RIA Chapter 2, we project that there will be sufficient biofuel use in 2022 to meet the volume requirements, including the total renewable fuel requirement. We agree with the commenter that obligated parties will likely turn to biodiesel and renewable diesel (both advanced and conventional), in addition to ethanol, to meet the 15 billion gallon implied conventional renewable fuel volume requirement. We acknowledge that some obligated parties may use carryover RINs to help them comply with their 2022 RVOs. However, we have not established the volumes with the intention of drawing down the carryover RIN bank.

With regard to E15 use, retail station owners, who control the mix of gasoline blends that they sell, are not obligated parties subject to the standards under the RFS program. This rule does not force them to offer E15 or any other fuel, nor does this rule authorize them to store or dispense E15 from incompatible equipment. We expect they will offer E15 only insofar as their equipment is compatible with and certified for E15, and if they expect a financial advantage for doing so. Moreover, while we expect E15 to contribute to satisfying the 2022 standards, E15 volumes will continue to be relatively small, and that the bulk of the increases used to meet the 15 billion gallon implied conventional standard will be from ethanol as E10 and renewable diesel.

Comment:

One commenter said that higher volume requirements do not result in higher ethanol consumption.

Response:

From its inception, the RFS program was intended to increase the use of renewable fuels in the transportation sector over time. The standards themselves were expected to create the incentive for the market to respond with greater production of renewable fuels, and for infrastructure to be modified to allow increased volumes of renewable fuel to be consumed. Renewable fuel production and consumption has indeed increased since the program was established through the Energy Policy Act of 2005, and at least part of that increase can be attributed to the RFS program.

Ethanol consumption, however, appears to have had a more limited response to the incentives created by the RFS program than other types of renewable fuel. Ethanol use as E10 has been economical to blend without the incentive created by the RFS program since the program's

inception, with volumes in the early years far exceeding the volumes mandated by the RFS program. After effectively reaching the E10 blendwall in the 2011 - 2015 timeframe (see RIA Figures 1.7-2 and 1.7-3), ethanol use has increased much more slowly due to poorer economics and various constraints that directly affect sales of higher level ethanol blends such as E15 and E85. Further increases in biofuel production and use were driven largely by increasing volumes of biodiesel and renewable diesel as more viable alternatives. As evidenced by the relatively consistent increase over time in the average ethanol concentration of gasoline, consumption of E15 and E85 has continued to increase, albeit slowly. This increase has been supported by the RFS program as well as other programs, such as USDA's BIP.

Our assessment of the ability of the market to meet the 2022 volume requirements assumes only moderate increases in the consumption of ethanol beyond that consumed as E10 in 2022 in comparison to previous years. As discussed in RIA Chapter 5.5.1, we have used the total ethanol consumption projection from EIA's STEO in our assessment of the ability of the market to meet the 2022 volume requirements that we are establishing in this action. While that projection represents a 3.1% increase in ethanol consumption between 2021 and 2022, and a 12.6% increase in ethanol consumption from 2020 to 2022, most of these increases are the result of increases in total gasoline demand and the correspondingly higher consumption of ethanol as E10.

Comment:

One commenter said that the market will fall short of the sum of the proposed 2022 total renewable fuel volume requirement and the supplemental volume requirement by 563 million RINs.

Response:

As shown in DRIA Table 2.1-1 for the proposal, we projected that the 2022 volume requirements could be met in part with 558 million RINs from imported renewable diesel.[103] The commenter, however, excluded imports of renewable diesel in its assessment of available supply. Note that for this final rule, our analysis of available feedstocks and projected production of BBD for 2022 has led us to project that 266 million RINs in the form of renewable diesel may be imported, rather than the 558 million RINs that we projected would be imported in the proposal.

Comment:

One commenter said that the 2022 volume requirements should be based on actual renewable fuel consumption data for those months for which data is available at the time of the final rule, and a projection of renewable fuel consumption for the remaining months of 2022.

[103] The commenter's estimate of 563 million RINs is likely due to rounding.

Response:

In the final rulemaking which established the volume requirements for 2014 - 2016, we used the approach suggested by this commenter for 2015:

> *"Therefore, in deriving the final 2015 volume requirements we used the data on actual supply that is available to us (through September 2015), along with a projection of supply for the remaining months of 2015 based on actual supply in the months for which we have data and historical trends regarding seasonal renewable fuel supply." (80 FR 77426, December 14, 2015)*

However, in that rule we also clarified that the final rule "...will be issued too late in the year to have any further effect on supply in 2015."[104] Thus our projection of supply for October through December of 2015 was based on what we believed the market would supply in the absence of applicable standards, not based on what the market could supply under the influence of the applicable 2015 standards.

For 2022, the circumstances are different. We issued the proposed rule in December 2021 and are issuing this final rule with more than half of the calendar year remaining. Thus, the volume requirements that we establish for 2022 will be able to influence the market for a majority of the calendar year. This is consistent with our statements in the 2015 rulemaking, where we determined that the market appeared to have responded to the proposal, which was issued June 2015, with significantly greater renewable fuel use during the remainder of 2015.[105]

More importantly, the volume requirements and associated percentage standards under the RFS program do not apply monthly, nor do they constrain renewable fuel supply in any given month. Rather, the standards apply to the total volume of gasoline and diesel produced in a given year. See, e.g., CAA section 211(o)(3)(B)(i), (o)(2)(B); 40 CFR 80.1405, 80.1407. Our determination of what volume requirements are appropriate are thus based on what the market can supply for the year as a whole. Our assessment of factors related to supply of renewable fuel (e.g., production capacity, availability of feedstocks, infrastructure, imports and exports) have led us to conclude that the 2022 volume requirements we are establishing through this action are achievable.

Nevertheless, we have examined the available RIN generation data from 2022 to assess whether this data would indicate that the volumes can be achieved. We compared RIN generation for January – March 2022 with RIN generation in January – March 2021 to calculate the observed growth rate for each of the 4 categories of renewable fuel for which we are setting standards. We then compared these observed growth rates to the growth rates that would be necessary to achieve the volumes that we are establishing for 2022. These numbers are summarized in the table below.

[104] 80 FR 77426.
[105] 80 FR 77426.

Million RINs[a]	Cellulosic	BBD	Advanced	Total
Observed RIN generation[b]				
Jan. 2021 – March 2021	84.0	1,014	1,142	4,315
Jan. 2022 – March 2022	93.4	1,241	1,393	4,944
Growth Rate	11.2%	22.3%	22.0%	14.6%
RFS Volume Requirements				
2021	560	2,430	5,050	18,840
2022	630	2,760	5,630	20,880
Growth Rate	12.5%	13.6%	11.5%	10.8%

[a] Total volume includes 250 million gallon supplemental standard
[b] All RIN generation numbers are from EMTS

For three of the categories (BBD, advanced biofuel, and total renewable fuel) the observed growth rates are higher than would be needed to meet the volumes we are finalizing for 2022. The cellulosic biofuel growth rate is slightly lower. Part of this is due to the fact that because of when data on the production of CNG/LNG derived from biogas and its use as transportation fuel is available, RIN generation in January each year is very low and not reflective of the quantity of CNG/LNG derived from biogas used as transportation fuel in January.[106] We have observed this same trend in prior years. This is a relatively significant impact when we only have three months of data available. We also expect cellulosic biofuel production to increase in the remaining 9 months of the year as new facilities begin producing CNG/LNG derived from biogas. While a simple rate of growth projection may not capture the complexities of renewable fuel production and use in 2022, the available data from 2022 indicate that the volumes we are finalizing for 2022 are achievable.

Comment:

One commenter said that EPA should not be using EIA's projection of ethanol for 2022, but instead should make its own projection of the volume of ethanol that can be consumed in 2022 under the influence of the applicable volume requirements. The commenter criticizes the EIA projection for not adequately accounting for the impact of the RFS standards on increased ethanol consumption as E15 and E85.

Response:

Nothing in the statute requires EPA to independently project ethanol or specifically prohibits EPA from using EIA's projection. It falls well within EPA's discretion to use data and analyses produced by other entities, particularly EIA. The statute specifically directs EPA to establish the volumes in coordination with DOE, of which EIA is a part. See CAA section 211(o)(2)(B)(ii). Moreover, although the statute does not indicate a particular source for ethanol projections that EPA should use in determining appropriate volume requirements, it does direct EPA to consider EIA's projections for other fuels, including transportation fuel. See CAA section 211(o)(3)(A). Congress furthermore specifically vested EIA with the authority to collect and analyze data related to energy production and demand. See, e.g., 42 USC 7135. As such, EPA's decision to

[106] This low RIN generation in January is off-set by very high RIN generation in December, which generally represents approximately 2 months of production.

rely on EIA ethanol projections is well supported by the statutory text and is plainly reasonable. Indeed, the commenter cites data from EIA numerous times in its comments, implicitly identifying EIA as a legitimate and accurate source.

Moreover, since the vast majority of all gasoline is E10, the total volume of ethanol that is consumed is driven primarily by gasoline demand. EPA does not project total gasoline demand and is not required to by law. Instead, such projections are the domain of the Energy Information Administration. Cf. CAA section 211(o)(3)(A). Regardless of whether a projection of total ethanol consumption were generated by EPA or by EIA, therefore, the core component of such a projection - gasoline demand - would come from EIA.

To a lesser degree, total ethanol consumption is also a function of ethanol used as E15 and E85, while taking into account some gasoline without ethanol (E0). Because data on the consumption of these three gasoline blends is limited as described in RIA Chapter 5.5.4, we believe it is more technically sound to project total ethanol consumption based on the estimates provided by EIA in its Short-Term Energy Outlook. Those EIA projections presume the existence of the RFS program in 2022, and thus the influence of the applicable RFS standards on the economic attractiveness of E15 and E85.

In any event, as we explain earlier in this section, RTC Section 5.4, and RIA Chapters 1 and 6, the use of E15 and E85 blends has been limited and is expected to continue to be limited given infrastructure constraints. These blends are expected to contribute to a relatively small portion of the total renewable fuel standard in 2022.

Comment:

One commenter said that EPA did not consider costs to consumers in its proposal.

Response:

One of the statutory factors that EPA is required to analyze when exercising the reset authority under CAA section 211(o)(7)(F) is "the impact of the use of renewable fuels on the cost to consumers of transportation fuel and on the cost to transport goods." The costs of the proposed volume requirements were analyzed at length in DRIA Chapter 9.

For this final rule, we discuss the implications of renewable fuel costs in various places throughout Preamble Section III, including in assessing the costs of various biofuel types in Preamble Section III.A and in the context of our determination of the appropriate volume requirements to establish for 2022 in Preamble Section III.E. We also analyze costs in RIA Chapter 9 and address other comments related to costs in RTC Section 9.1.1. We note that costs are one of many factors we must consider under CAA 211(o)(2)(B)(ii) and thus cannot be the singular determining consideration to the exclusion of all other factors.

7. Percentage Standards

7.1 Accounting for Small Refinery Exemptions

Commenters that provided comment on this topic include but are not limited to: 0402, 0411, 0421, 0428, 0440, 0442, 0443, 0458, 0462, 0469, 0471, 0483, 0485, 0510, 0520, 0521, 0523, and 0525.

EPA originally modified the formulas used to calculate the percentage standards to account for a projection of exempt gasoline and diesel fuel volumes produced by small refineries and small refiners in the 2020 final rule. In this action we sought comment on whether we should maintain the modified formulas. Many commenters made similar comments as they did in the 2020 RFS rulemaking, and some even included exact copies of past comments. To the extent we received the same comments on the modified formulas or our authority or duty to account for exempted volumes in the 2020 final rule that are not otherwise addressed below, we incorporate our previous responses to those comments.[107]

Comment:

Many commenters supported EPA's methodology to account for the volume of exempt gasoline and diesel volumes in 2020, 2021, and 2022. Several of these commenters, however, caveated their support in several ways. Some stated that while they supported a zero projection, they were opposed to any higher projection that would reallocate those exempt gallons to other obligated parties. Others stated that EPA could only justify using a zero projection if it in fact followed through on its proposed denial of all pending SRE petitions, and that to do otherwise would be arbitrary and capricious. These commenters also stated that if EPA were to issue any SREs, EPA should instead use of the actual volume of gasoline and diesel fuel exempted, rather than the volume that would have been exempted had EPA followed DOE's recommendation.

A commenter stated that EPA has no basis on which to make a projection of exempted volumes since it has no way of knowing which small refineries may petition for an exemption, which could lead to the exempted volume being significantly less than EPA's projection.

Several commenters stated that EPA must account for "retroactive" SREs (i.e., exemptions that are granted after the standards are established) so long as the possibility of granting them exists. The commenters stated that using a zero projection was arbitrary unless EPA makes clear that it will not grant any "late" SRE petitions.

One commenter opposed EPA's proposed range of percentage standards and stated that EPA should instead propose a single value for each standard. The commenter stated that EPA should continue to use the same methodology to project exempt volumes as was used in the 2020 final rule (i.e., use the 3-year average of DOE recommendations) since EPA is still in the process of considering 2019, 2020, and 2021 SRE petitions. Several other commenters stated that EPA

[107] "Renewable Fuel Standard Program - Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes: Response to Comments," EPA-420-R-19-018, December 2019.

should use updated data from DOE recommendations for 2018, 2019, and 2020 to project the exempt volume.

Response:

Consistent with the low end of the proposed range, we are finalizing a projection of zero gallons of exempt gasoline and diesel fuel for 2020, 2021, and 2022. In two separate actions, EPA denied 105 pending SRE petitions for 2016-2021.[108] As detailed in the SRE Denials, EPA has determined that all obligated parties are being paid for their RFS compliance costs (i.e., RIN costs) through the higher prices of gasoline and diesel fuel that they sell. As a result, no obligated party—including small refineries—experiences disproportionate economic hardship (DEH), which is the only basis for which EPA can grant an SRE. Therefore, it is appropriate that we project that no SREs will be granted for 2020, 2021, and 2022.

Because we have determined that all obligated parties recover RIN costs and are projecting that no SREs will be granted, our projection is not dependent on knowing which small refineries may petition for an exemption. Moreover, there is no scenario in which the exempted volume would be less than our projection, since the projection is zero.

Furthermore, comments regarding whether EPA should use the actual volumes of fuel exempted or updated DOE recommendations are moot. We have now denied all 2020 and 2021 SRE petitions that were previously pending, and do not anticipate granting any additional SREs for 2020-2022. Thus, it would be inappropriate to use a 3-year average of DOE recommendations to project future exemptions, as any non-zero number would be a clear over-projection of the volume of exempted fuel for these years.

We disagree with the commenter who suggested EPA should only propose a single value for each standard. We proposed a range of values for the SRE projection because EPA was considering that range of options at the proposal stage, and we wanted to solicit public input on that range. In any event, we do not see how proposing a range prejudiced the commenter in any way. As explained above, we are finalizing only a single value for each standard based on the low end of the range.

Comment:

One commenter stated that EPA's failure to account for previous "retroactive" SREs led to the growth of the carryover RIN bank, which in turn resulted in EPA setting standards that cannot "ensure" that the required volumes of renewable fuel would be met. This, the commenter argued, is a violation of the statute, as it amounts to EPA impermissibly converting the SREs into atextual waivers. The commenter further stated that EPA's refusal to account for these past exemptions is arbitrary and capricious. The commenter argued that EPA should either apply a

[108] See "April 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-005, April 2022; "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022 (hereinafter the "SRE Denials").

lesser use of the cellulosic waiver to the advanced biofuel and total renewable standards, or increase the 2022 standards or impose a supplemental standard.

Response:

We do not believe it would be necessary or appropriate for EPA to apply any of the commenter's recommended remedies to account for SREs granted for prior compliance years. Our objective is not to reallocate prior-year exemptions or to impose a retroactive obligation on obligated parties. Rather, we are seeking to make a projection of the volume of gasoline and diesel fuel that we expect will be exempt in 2020, 2021, and 2022, thereby ensuring that the volume requirements are met. As described in the SRE Denials, EPA believes that no obligated party experiences DEH as a result of compliance with the RFS program, and thus we are not aware of any circumstances that would warrant EPA granting SREs in the future. As such, we believe that the projection of zero gallons of exempt gasoline and diesel fuel best represents the volumes ultimately exempted from the 2020, 2021, and 2022 standards and will ensure that the volume requirements will be met.

We acknowledge that SREs granted subsequent to certain prior annual rules effectively reduced the required volume of renewable fuel for those prior years. We have accounted for this dynamic in several ways in establishing the 2020-2022 volumes, including in our review of the implementation of the program described in RIA Chapter 1, our assessment of the carryover RIN bank in Preamble Section III.B, and our assessment of the feasibility of the 2022 volumes in RTC Section 6.3.4.

The commenter, however, seems to be suggesting that because of past SRE grants, past annual rules violated the statutory mandate to ensure that renewable fuel volumes are used. EPA did not reopen any of these past annual rules in this action, and therefore these comments are beyond the scope. (We did, of course, reopen the 2020 annual rule; however, EPA has denied all 2020 SRE petitions.) To the extent the commenters continue to take issue with past annual rules, those claims are properly raised in an administrative petition to revise those rulemakings.

We also disagree with the commenter that EPA must specifically account for those past exemptions in this rulemaking by increasing the volumes for 2020-2022 or in calculating the percentage standards. Beginning with the volumes, EPA is exercising the reset and cellulosic waiver authorities to adjust the volumes in this rulemaking. Neither waiver authority plainly requires EPA to account for exemptions granted for past compliance years by reducing the extent of the waiver in 2020-2022. Indeed, neither waiver authority addresses the issue of SREs at all, indicating that Congress entrusted this issue to EPA's discretion.

Specifically, the cellulosic waiver authority mandates that EPA reduce the cellulosic volume to the "projected volume available during that calendar year." EPA does not interpret the term "projected volume available during that calendar year" to include exempted small refinery volumes from past calendar years. There is a mismatch both in terms of the timing ("that calendar year" versus past years) and the substance ("projected volume available" of cellulosic biofuel versus cellulosic biofuel that was not required in past years due to SREs). To the extent the commenter is suggesting that EPA increase the cellulosic volume above the projected volume

available to account for prior-year SREs, that reading appears foreclosed, and in any event, is unquestionably not required by the statute.

In addition, the cellulosic waiver authority confers discretion on EPA to reduce the advanced biofuel and total renewable fuel volumes. The statute limits the extent of the reductions to "the same or a lesser volume" as the reduction in the cellulosic biofuel volume. However, it contains no other limitations on EPA's authority, and no statutory text indicates that EPA must limit the extent of the discretionary cellulosic waiver by SREs granted for prior years. Thus, we do not interpret the cellulosic waiver authority to require EPA to reallocate prior-year exemptions in adjusting the total and advanced volumes. Our interpretation of the cellulosic waiver authority is consistent with the original 2020 rule, where we addressed this issue at length.[109]

The reset authority confers discretion on EPA to modify the volumes based upon our review of the implementation of the program and an analysis of the statutory factors. In exercising that discretion, EPA has considered past SREs in various ways, as explained above. However, as with the cellulosic waiver, nothing in the reset authority indicates that EPA must limit its modification of volumes to reallocate SREs granted in prior years.

The standard-setting provision does address how EPA must consider renewable fuel use by exempted small refineries. CAA section 211(o)(3)(C)(ii) states that "In determining the applicable percentage for a calendar year, the Administrator shall make adjustments … to account for the use of renewable fuel during the previous calendar year by small refineries that are exempt under paragraph (9)." But this provision does not require increasing the standards or the volumes to account for SREs. Rather, it indicates that Congress expressly considered the impacts of SREs on the annual standard-setting process, chose to mandate this sole adjustment, and entrusted discretion to make other potential adjustments to the agency. Further discussion of this provision is set forth in a later response below.

Our interpretation, where we account for a projection of SREs only for the relevant compliance year (i.e., EPA accounts for only 2020 exemptions in setting the 2020 standards), is also consistent with the statutory context and structure. Under the statute, the RFS standards are to be set prospectively, and thus, will inherently include projections. While the statute does direct EPA to "ensure" that the volumes are achieved, the prospective nature of the statutory scheme means that "Congress allowed for some imprecision to exist in the actual volumes of renewable fuel that are consumed as a result of the percentage standards that [EPA] set[s] each November."[110] Such imprecision can occur for various reasons, including differences in projected and actual gasoline and diesel projection, SREs, and renewable fuel use.

Congress also did not explicitly provide a means for correcting the percentage standards after November to ensure that the applicable volumes of renewable fuel are exactly met in a given compliance year.[111] Accounting for a projection of exemptions for only the compliance year thus accords with the statute's prospective, annual scheme. By contrast, the commenter places

[109] See Renewable Fuel Standard Program -Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes: Response to Comments 20-22.
[110] 85 FR 7016, 7051 (February 6, 2020, quoting 77 FR 1340).
[111] 77 FR 1320, 1340 (January 9, 2012).

inappropriate weight on the statutory term "ensure." That term simply means EPA's standard-setting process for each year must be reasonably designed with the intention of achieving the volumes for that year. It does not mean EPA must also conduct a retrospective review each year to see whether the past-year volumes were met or not, and then reallocate unmet volumes into a future-year.

Although the statute does not require the commenter's desired result, EPA could in theory discretionarily increase the volumes or standards to account for past year SREs. But we do not think doing so would be appropriate. As we explain above and in Preamble Section III.B, past SREs have contributed to increases in the size of the carryover RIN bank and are thus already being accounted for in setting the volumes and standards, and we do not believe intentionally drawing down the carryover RIN bank is appropriate in light of the circumstances. Those circumstances include the very large drawdown expected to take place for 2019 compliance, which will wipe out multiple years of increases in the carryover RIN bank driven in large part by SREs.

We also disagree with commenters who suggest that failure to reallocate past SREs will necessarily depress renewable fuel use in 2022. The last year for which SREs were granted was 2017, five years ago, and we do not anticipate granting any future SREs for 2020-2022 that might subsequently affect the final standards. Thus, were we to account for past exempt volume, it would be the past volume from five years ago. Particularly given the large drawdown of the carryover RIN bank already expected as a result of compliance with the 2019 standards, we see no evidence that these 2017 or earlier exemptions are depressing renewable fuel use in 2022. Nor do we think, contrary to what some commenters suggest, that obligated parties will use the entire carryover RIN bank in lieu of new renewable fuel production; that has never happened in any year of the program, and commenters provided no evidence that the market would radically transform its compliance strategy in this way in 2022. We discuss these issues further in RTC Section 6.3.4.

More generally, as we explain in the preamble, we do not think higher requirements are appropriate. For example, were EPA to reallocate exemptions for 2016-17 consistent with some commenters' requests,[112] that would increase the total renewable fuel volume by roughly 2.61 billion gallons.[113] Requiring this amount of additional renewable fuel use in 2020, or 2021, or both, would eliminate the entire RIN bank (which is estimated to be 1.83 billion RINs following 2019 compliance), cause some obligated parties to take deficits, and almost certainly result in noncompliance by some obligated parties. While requiring this amount of additional renewable fuel use in 2022 could further incentivize such use, the 2022 volumes are already market forcing and are associated with very large increases in renewable fuel use relative to 2021. We have significant doubt about the market's ability to consume an additional 2.61 billion gallons. Doing so would likely generally aggravate the negative effects of higher volumes, and also specifically

[112] EPA has not granted any SREs for 2018, and therefore there is no need to reallocate such volumes.

[113] See https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rfs-small-refinery-exemptions. In addition, were EPA to retain the final volumes and adjust the standard-setting formula to account for the same prior-year exemptions, the practical impact on the final standards would be the same and therefore also inappropriate.

result in large drawdown of the carryover RIN bank and increases in costs. We further address comments suggesting we increase volumes more generally in RTC Section 6.

Because we do not believe we should account for past SREs by increasing the volumes generally, doing so by utilizing a supplemental volume would also not be appropriate.

As a separate matter, we note that certain biofuels stakeholders previously submitted a reconsideration petition suggesting that EPA should address SREs in setting the percentage standards.[114] EPA responded to that petition in the 2020 final rule. In this action, we are reaffirming our response to that petition. Namely, as described above, we are reaffirming the modification of the percentage standard formulas from the 2020 final rule to account for SREs projected to be granted in the applicable year. We have chosen not to reallocate exempt volume from SREs for past years, whether through revisions to the percentage standard formulas or otherwise. This action constitutes our final and complete response to that petition.

To the commenters' suggestion that not accounting for past exemptions results in an "atextual waiver," we disagree. CAA section 211(o)(7) provides waiver authorities for EPA to directly reduce the volumes in paragraph (2). SREs may be granted under CAA section 211(o)(9) and apply to particular small refineries; they do not directly reduce the applicable volume. To the extent these exemptions affect the actual volume of renewable fuel used in the market, the statute does not address how EPA is to address the issue. Our approach of projecting SREs and accounting for them for the particular years in which they are or would be granted is a permissible and reasonable approach.

Comment:

Several commenters stated that EPA lacks the statutory authority to reallocate exempted volumes as a result of SREs. These commenters rehashed legal arguments that they had made in their comments on the 2020 rulemaking.

Response:

We explain our legal authority for reallocating a projection of exempt volumes in Preamble Section V.B. We supplement our response here.

We agree with commenters that there are specific waiver authorities provided in the statute that allow for the downward adjustment of the applicable volumes, including the general waiver authority in CAA section 211(o)(7)(A), the cellulosic waiver authority in CAA section 211(o)(7)(D) and the BBD waiver authority in CAA section 211(o)(7)(E). We also agree that the statute provides in CAA section 211(o)(3)(C)(ii) that EPA is to account for renewable fuel used by exempt small refineries and also includes other provisions regarding small refineries. However, none of these provisions specifically address whether EPA is authorized to account for

[114] Petition for Reconsideration of 40 CFR 80.1405(c), EPA Docket No. EPA-HQ-OAR-2005-0161, promulgated in 75 FR 14670 (Mar. 26, 2010); Petition for Reconsideration of Periodic Reviews for the Renewable Fuel Standard Program, 82 FR 58364 (Dec. 12, 2017)" (June 4, 2018).

a projection of exempted small refinery volumes when promulgating the percent standards so as to ensure that the volumes are met under CAA section 211(o)(2)(A)(i) and (3)(B).

We do not find that the exercise of our waiver authorities diminishes our ability to adjust the percentage standards to ensure that the statutory volumes are met. CAA section 211(o)(3)(B) provides that EPA is "to determine the renewable fuel obligation that ensures that the requirements of paragraph (2) are met." EPA's waiver authorities in CAA section 211(o)(7) allow EPA to modify the volumes in paragraph (2). They do not address how EPA is to ensure that the volumes in paragraph (2) are met through the annual standard-setting process in paragraph (3)(B), and we do not read them to imply that we are not allowed to consider exempt small refinery volumes in the standard-setting process.

Relatedly, CAA section 211(o)(3)(C)(ii) states that EPA "shall make adjustments to account for the use of renewable fuel during the previous calendar year by small refineries that are exempt under paragraph (9)." In the 2010 RFS2 rule, EPA prospectively determined that this number was zero, given that this number was expected to be very small and in any event the RIN system accounted for the use of renewable fuel by small refineries.[115] In other words, qualifying biofuel used by small refineries (e.g., if a small refinery blends ethanol as E10) generates a RIN like any other biofuel. It is therefore automatically accounted for by the RFS program without the need to make any other adjustments. We have not reexamined this determination in this rulemaking.

In any event, this statutory provision does not foreclose EPA's authority to account for exempted small refinery volumes to ensure that the volume are met.[116] Indeed, it does not address exempted small refinery volumes at all, namely the volumes of non-renewable transportation fuels (gasoline and diesel) that are projected to be exempt from RFS obligations during the compliance year. Rather, it addresses the volumes of renewable fuels used by small refineries during the previous compliance year. These are two different issues.

Moreover, the statutory adjustment is meant to ensure that non-exempt obligated parties are not redundantly required to ensure the use of renewable fuels already used by small refineries but not accounted for by the RFS program. Thus, we stated that "[a]ccounting for this volume of renewable fuel would reduce the total volume of renewable fuel use required of others, and thus directionally would reduce the percentage standards."[117] By contrast, the formula terms GE_i and DE_i are meant to ensure that the volumes of renewable fuels required by EPA are met (i.e., when small refineries do not use renewable fuel because of their exemptions, the terms GE_i and DE_i ensure that the renewable fuel is used by non-exempt obligated parties). The two provisions do not conflict and in fact both ensure the use of the renewable fuel volumes in CAA section 211(o)(2), the former by ensuring that renewable fuels used by small refineries not participating

[115] 75 FR 14717; see also 72 FR 23911 (making the same determination under RFS1); 77 FR 1340 (2012 annual rule) (reaffirming the conclusion in the RFS2 rule).
[116] We acknowledge that the statutory adjustment at CAA section 211(o)(3)(C)(ii) suggests that other adjustments for small refineries in the standard-setting process are not statutorily mandated. However, that does not mean, as we explain in the text, that EPA lacks authority to make other adjustments.
[117] 75 FR 14717.

in the RFS2 program are nonetheless accounted for, and the latter by ensuring that renewable fuels not ensured by exempt small refineries are ensured by other, non-exempt refineries.

Relatedly, we disagree with commenters who suggest that the statutory prohibition on imposing redundant obligations in CAA section 211(o)(3)(C)(i) forecloses the revised definitions. To begin with, these commenters do not explain with reasonable specificity what they think this provision means or why it prohibits EPA's approach to projecting exempt volumes. In any event, we are not imposing redundant obligations on any obligated party. Rather, all obligated parties are subject to the same percentage standards, and none are required to comply with the same standards multiple times. Indeed, far from conflicting with the statute, EPA's approach to accounting for exempted volumes serves the same purpose as the mandatory adjustments in CAA section 211(o)(3)(C)(i)–(ii), which is to ensure achievement of the renewable volume targets. The former ensures that exemptions do not cause a shortfall in achieving the targets, whereas the latter ensures that additional volumes beyond the targets are not required. EPA's approach, which aims to make a neutral projection of exempt small refinery volumes, also seeks to ensure achievement of the volumes.

It is of course possible that a different volume of renewable fuel will ultimately be used because a particular projection turns out to be inaccurate. This is true not only for the SRE projection, but also for our other projections of gasoline and diesel fuel use and the projected availability of cellulosic biofuel. If we over-project SREs, then we will effectively require more renewable fuel use than the final volumes; by contrast, if we under-project SREs, then we will require less renewable fuel use than the final volumes. However, as we explain above and in Preamble Section V.B, we have reasonable confidence in our projection. Moreover, we note that a commenter's particular concern regarding over-projection—that subsequent changes in EPA's SRE policy could lead to more renewable fuel to be required than the final volumes in this rule—is unfounded with respect to the 2020-2022 standards we are finalizing in this action. That is mathematically impossible since we projected an exempt volume of zero.

The other small refinery provisions also do not preclude EPA from accounting for exempted volumes in the standard-setting process. CAA section 211(o)(5)(A)(iii) and (o)(9)(C) address the generation of credits by non-exempt small refineries, while (o)(9)(D) simply allows small refineries to waive the statutory exemptions provided by Congress and based on the DOE study. None of these provisions address the annual standard-setting process at all, much less the specific issue of whether EPA can account for exempted volumes in setting the standards.

To the extent commenters are suggesting that Congress needed to explicitly provide for this adjustment in the statute for EPA to implement it, we disagree. The statute provides EPA broad authority to implement the RFS program and the corresponding percentage standards with which obligated parties must comply.[118] This includes adjusting those percentage standards to account for SREs that are projected to be granted in the relevant compliance year. As with many other

[118] CAA sections 211(o)(2)(A)(i), (o)(3)(B), 301(a); *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 842-44 (1984).

aspects of the RFS program, Congress delegated to EPA the authority to determine how to address this detail in implementing the program.[119]

Some commenters argued that EPA's approach to projecting exempt volumes is impermissible under the statute, but also argue that EPA's prior approach, which only accounted for exempt volumes associated with SREs granted prior to establishing the percentage standard, "was correct."[120] However, if EPA lacks statutory authority to consider exempted volumes at all in the annual rule, it is difficult to understand how this could be. The statute does not indicate EPA can consider SREs granted prior to the final rule, but not SREs granted thereafter. Indeed, the statute does not address this timing issue at all, indicating that EPA may adopt any reasonable approach such as the one we are finalizing in this action.

Moreover, commenters are simply wrong that EPA's prior interpretation was that the statute prohibited us from accounting for SREs granted after the annual rule. Rather, we previously said that we did not think it appropriate to reconsider the final rule based on subsequently granted SREs. We further address the prior interpretation in Preamble Section V.B.

Comment:

One commenter requested that EPA provide more transparency regarding DOE's recommendations regarding SRE petitions by disclosing future DOE recommendations in aggregate.

Response:

We have taken steps in this rulemaking to provide additional transparency on SREs. As discussed in Preamble Section VIII.D, EPA is finalizing regulations that will release certain information regarding requests submitted under the RFS program, which includes SRE petitions. As noted earlier, however, we no longer believe that using DOE's findings is an appropriate basis upon which to base our projection of exempted fuel, and therefore are not providing that information, in aggregate or otherwise.

Comment:

A commenter suggested that EPA should revise the percentage standard formulas to remove the reference to "projections of" SREs consistent with the proposed denial of SRE petitions.

Response:

We address this issue in Preamble Section V.B.

[119] See generally 75 FR 14670 (promulgating regulations to implement EISA and filling numerous gaps left by Congress).
[120] See comments from API, Appendix 1 p. 6, Docket Item No. EPA-HQ-OAR-2019-0136-0721.

Comment:

Several commenters stated that EPA should take a firm position on if and how it will grant SREs in the future.

Response:

As explained above, EPA has not granted, and does not intend to grant, any SREs for the compliance years covered by this rulemaking (i.e., 2020-2022). Comments regarding EPA's SRE policy in years after 2022 are beyond the scope of the rule. Nonetheless, we note that as described in the SRE Denials, EPA believes that no obligated party experiences DEH as a result of compliance with the RFS program, and thus we are not aware of any circumstances that would warrant EPA granting SREs in the future.

EPA's projection of zero exempt volume for 2020-2022 is the Agency's best estimate based on the information available to us at this time, including our decision to deny all pending SRE petitions for 2020 and 2021 and the robust underlying technical justification suggesting that future exemptions are not warranted. However, it is impossible to predict future SRE decisions with complete accuracy, and decisions on future SRE petitions must await EPA's receipt and adjudication of those petitions. We are cognizant, moreover, that future events beyond EPA's control, such as a legislative amendment or adverse judicial decisions, could lead EPA to resolving SREs in a different manner.

In general, even were some SREs to be later granted for 2020-2022, EPA does not anticipate revising the final standards. As we explain in Preamble Sections II and III.C and RTC Section 6.1, we generally do not believe it is appropriate to reconsider and revise previously finalized standards. This is true even when the market's actual performance deviates from EPA's projections (including whether they are projections of gasoline and diesel fuel consumption, biofuel consumption, the size of the carryover bank, or SREs). Our reconsideration and revision of the 2020 standards was based on unique and unusual circumstances described in Preamble Section III.C. Absent such truly unusual circumstances, EPA does not intend to convene a reconsideration and revision of final standards merely based on some deviation between actual and projected values. This has been EPA's longstanding practice.[121] The statutory scheme requires prospective, annual rulemaking, and does not contemplate regular retroactive adjustments to make up for deviations between actual and projected data. Moreover, reconsideration on such a basis would unduly undermine the regulatory certainty that supports the ongoing implementation of the RFS program and investments in renewable fuels production and use. It would also significantly delay EPA's ability to implement the statute, including the promulgation of the rulemaking establishing volumes and standards for 2023 and later years. Finally, even when reallocation of SREs may be warranted based on the circumstances, EPA has authority to do so in ways other than reconsidering the standards, including in determining

[121] See 85 FR 7016, 7050-51 (citing 77 FR 1340) ("the Act is best interpreted to require issuance of a single annual standard in November that is applicable in the following calendar year, thereby providing advance notice and certainty to obligated parties regarding their regulatory requirements. Periodic revisions to the standards to reflect waivers issued to small refineries or refiners would be inconsistent with the statutory text, and would introduce an undesirable level of uncertainty for obligated parties.").

whether and what extent to draw down the carryover RIN bank in establishing prospective volumes.

8. *ACE* Remand

8.1 General Comments on Response to *ACE* Remand

Commenters that provided comment on this topic include but are not limited to: 0355, 0356, 0365, 0370, 0374, 0382, 0385, 0392, 0396, 0400, 0402, 0403, 0407, 0411, 0419, 0422, 0426, 0430, 0438, 0443, 0451, 0454, 0455, 0458, 0462, 0464, 0469, 0471, 0473, 0476, 0479, 0483, 0486, 0501, 0502, 0503, 0505, 0506, 0510, 0518, and 0529.

Comment:

Some commenters suggested that EPA's proposed response was not compelled by the court in *ACE*. Other commenters suggested that EPA's response was "required" by the D.C. Circuit, and that EPA's obligation is to account for the 500 million gallons waived for the 2016 standards.

Response:

The D.C. Circuit, in remanding EPA's action in the 2014-2016 rule to waive the 2016 total renewable fuel applicable volume by 500 million gallons, did not specify how EPA should respond to the court's remand. Thus, EPA could take the approach proposed, and being finalized in this action, or some other approach. We find that the approach we are finalizing in this action is appropriate, but this exact approach is not required by the D.C. Circuit's decision.

Comment:

Some commenters stated that because EPA suggested the supplemental standard could be met with imported biodiesel, the supplemental standard is contrary to EPA and the statute's goals in promoting American energy security.

Response:

As an initial matter, we note that the statute allows for the use of imported biofuel to comply with the RFS standards. Further discussion of the statute's provisions relating to imported biofuel can be found in RTC Section 6.3.3. The energy security impacts of this action are discussed further in RIA Chapter 4 and RTC Section 9.1.2.

EPA calculated costs associated with the supplemental standard as if the standard was met entirely through the use of imported biodiesel. In calculating costs for this action, we assumed that the supplemental volume will be met with imported renewable diesel produced from palm oil because this is the marginal conventional volume; i.e., it is the most likely source of additional renewable fuel given the increased volume of other renewable fuels projected to be utilized to comply with the other 2022 standards being finalized in this action, However, this is not a "suggestion" that the supplemental volume will be met with imported biodiesel. We acknowledge that the standard can be met instead through the use of other types of renewable fuel (i.e., domestic corn ethanol, or any other qualifying renewable fuel type) or a drawdown of the carryover RIN bank. The supplemental standard can be met with any renewable fuel type that

qualifies for RIN generation as permitted under the statute. Additionally, while the supplemental standard and the total renewable fuel standard are distinct in our regulations, in practice parties will comply with the total renewable fuel standard and the supplemental standard simultaneously. Thus, it will be impossible to identify which fuel is used for compliance with the supplemental standard or the total renewable fuel standard. Our responses to comments about the use of imported biofuel in the program are provided in RTC Section 6.3.3.

Through this action, we have noted the importance of the carryover RIN bank in meeting the obligations, and we find that the standards we are promulgating should not require an intentional drawdown of the carryover RIN bank. This is consistent with our approach to recent prior RFS annual rulemakings. The supplemental standard is not expected to *require* a drawdown of the carryover RIN bank, however, obligated parties may choose to utilize that mechanism of compliance. We find that compliance with additional renewable fuel use, including imported biodiesel or any other qualifying renewable fuel type, would be feasible and appropriate, given our obligation to "ensure" that the statutory volumes are met, less any waived volume for 2016, and our outstanding obligation to promulgate percentage standards associated with the 2016 standards that do the same, consistent with the statute.

Comment:

A commenter suggested that EPA should not focus on alleviating "burdens" on refiners, but should instead focus on "enforcing the RFS" and "obeying the D.C. Circuit's directive."

Response:

EPA has a duty to consider and mitigate burdens caused by the delay for obligated parties, including refiners, when promulgating late and/or retroactive RFS standards. *See Americans for Clean Energy v. EPA*, 864 F.3d 691 (D.C. Cir. 2017), *Monroe Energy, LLC v. EPA*, 750 F.3d 909 (D.C. Cir. 2014), *National Petrochemical & Refiners Association v. EPA*, 630 F.3d 145 (D.C. Cir. 2010). See Preamble Section IV for our rationale on why our approach is, consistent with the statute, and the D.C. Circuit's remand and jurisprudence.

Comment:

Some commenters suggested that the approach to the *ACE* remand is not compatible with the statute, which requires EPA to set annual standards prospectively. A commenter suggested that imposing a 2022 standard is not compatible with the CAA which is to be based on projections of future renewable fuel and transportation use. The commenter suggested that the approach articulated in this case "rewrites EPA's intentions for 2016." Commenters also pointed to the changing market participants between 2016 and 2022, indicating that this has "inequitable impacts" that could deprive parties of due process. The commenter suggested that obligated parties were not on notice of a supplemental standard in response to the remand. Finally, commenters criticized our action as a situation of "specific performance" which is not required or contemplated by the statute.

Response:

We discuss EPA's authority to promulgate late and retroactive RFS standards in Preamble Sections II and III. It is true that under the ideal circumstances prescribed in the statute, EPA promulgates standards prior to the compliance year, consistent with EPA's authority to modify the volumes utilizing the articulated waiver authorities. However, in this uncommon circumstance, a court has vacated EPA's previous action in waiving volumes for the 2016 compliance year and remanded the rule. Our action in promulgating the total renewable fuel standard for 2016 was based on our understanding, at the time, of both our authority under the Clean Air Act to utilize the general waiver authority (i.e., considering downstream factors, such as demand), as well as the contemporary state of the market. However, the intervening court decision in *ACE* means that it is no longer appropriate to attempt to effectuate EPA's misunderstanding of the general waiver authority on the basis of inadequate domestic supply as articulated in the 2016 rule. And, EPA continues to have a statutory obligation to "ensure" that the 2016 statutory volumes are met.[122] It is now appropriate to abide by the Court's decision in *ACE* regarding the proper interpretation of "inadequate domestic supply" and utilize our information about the current state of the renewable fuels market. Our intentions in 2016 are not relevant today when the standard is not a 2016 standard, but rather a 2022 standard that will be complied with in the market as it exists today, and where the court struck down our 2016 action as inconsistent with the CAA.

While it is likely that there are different participants in the RFS program in 2022 than in 2016, we are confident that the vast majority of the obligated party participants are the same based on recent compliance report data. It is possible that there will be obligated parties in 2022 who were not subject to the standard in 2016. However, it is appropriate to place the obligation on all obligated parties in 2022, even those who were not obligated parties in 2016, because the carryover RIN bank functions such that each year's obligations are linked to prior year obligations. The overall programmatic goals of imposing a supplemental standard are benefitted by this standard applying the same way as any other 2022 standard – on the participants in the 2022 transportation fuel market. Additionally, we have provided all parties who will be subject to the 2022 supplemental standard with notice that this standard will apply to them through this notice and comment rulemaking process.

A commenter suggested that the supplemental standard "could deprive current obligated parties of due process," but failed to identify any such parties or explain exactly how EPA's action would do so, such that we could evaluate the magnitude or likelihood of such an issue. More generally, it is questionable whether the Due Process Clause requires EPA to do anything in this RFS standards rulemaking beyond the generous procedures already afforded by CAA section 307(d). We are aware of no caselaw reaching such a result, and the commenter did not point to any. The commenter did not affirmatively conclude that the supplemental standard does or does not deprive obligated parties of due process and did not provide a rationale to support either conclusion for the EPA to consider. Moreover, this rulemaking imposes standards applicable to all obligated parties in 2022, and therefore is not the kind of "quasi-judicial determination by

[122] See CAA sections 211(*o*)(2)(A)(i), (iii), and 211(*o*)(3)(B)(i).

which a very small number of persons are exceptionally affected, in each case upon individual grounds" that might warrant additional procedures under the Due Process Clause.[123]

Commenters also noted that obligated parties lacked notice that EPA may impose a supplemental standard at a later time. We disagree. *ACE* was decided on July 30, 2017, after compliance with the 2016 standards were complete. We did issue guidance in 2019, prior to compliance with the 2017 standards, stating that we may respond to the *ACE* remand with the use of later year RINs, and that parties should not choose to retain 2016 RINs to comply with an adjusted 2016 standard when making decisions about their compliance demonstrations.[124] Additionally, EPA has provided an opportunity for notice and public comment through this rulemaking action.

Additionally, the combined total renewable fuel and supplemental volume we are finalizing in this action is less than the statutory total renewable fuel volume for the same year, and thus, had EPA not waived the 2022 statutory volumes in the manner finalized in this action, EPA could have imposed an even higher standard. Parties thus had notice it was possible that the 2022 volumes could be as high as the combined 2022 total renewable fuel standard and the 2022 supplemental standard EPA is finalizing in this action.

We do not believe that the supplemental standard is akin to "specific performance." First, specific performance is an inappropriate comparison to EPA's response to the court remand. Contrary to the argument asserted by the commenters, EPA is not simply returning a stolen object to its rightful owner, as the commenter suggested. EPA is not simply restoring 500 million gallons of total renewable fuel to the 2016 compliance year; rather, EPA has carefully developed a response to the *ACE* vacatur and remand in light of the statute, applicable caselaw, and the current state of the renewable fuels market. As explained elsewhere, we believe that our response is reasonable.

Comment:

Some commenters suggested that the supplemental standard should be an advanced or cellulosic standard. Others supported our proposal, such that the supplemental standard is a total renewable fuel standard.

Response:

The D.C. Circuit vacated EPA's exercise of the inadequate domestic supply waiver and remanded the rule to EPA for further consideration in light of the court's decision that the statute

[123] *Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 542 (1978); see also *Bi-Metallic Investment Co. v. State Board of Equalization*, 239 U.S. 441, 446 (1915).

[124] See https://19january2021snapshot.epa.gov/fuels-registration-reporting-and-compliance-help/enviroflash-announcements-about-epa-fuel-programs_.html#compliance-deadline where we stated "we anticipate that, consistent with the Court's decision, any future action we may take on a past year's renewable fuel standards will take into account the retroactive nature of such future action. For example, without prejudging any future action, we note that we currently believe that it would be appropriate for the EPA to allow use of current-year RINs (including carryover-RINs) to satisfy further obligations, if any, for a past compliance year that may result from the ACE remand. Therefore we do not believe concerns regarding future EPA action on remand should lead parties to retain 2016 RINs that they would otherwise retire for 2017 compliance."

foreclosed the Agency's 2016 approach. The court provided no additional instruction on how EPA must address its vacatur and remand, and the approach the Agency is taking is a reasonable one consistent with our discretion under the Act. Thus, as proposed, the supplemental standard is a total renewable fuel standard, such that it can be complied with utilizing any RIN type. In 2015, EPA waived 500 million gallons from the total renewable fuel standard only; it is appropriate therefore, to require the supplemental standard volume from the same renewable fuel category.

Comment:

Some commenters suggested EPA should instead return to our proposed response to the remand in the 2020 NPRM; there, EPA proposed to maintain the 2016 volume requirements and impose no additional volume requirement. In particular, the commenters suggested that because EPA cannot induce additional demand for a prior year, EPA should not impose additional requirements either in that year, or in a future year. Another commenter pointed to the supplemental volume as being particularly inappropriate because they believe 2022 standards are unachievable, and the supplemental standard would exacerbate the problem. Several commenters suggested that the supplemental volume will reduce the RIN bank, which could result in market disruption due to the loss of the RIN bank's ability to act as a buffer.

Response:

We have considered the approach proposed in the 2020 annual rule NPRM and have concluded that such an approach would not be appropriate for the reasons discussed in this final rule. EPA still has a statutory duty to "ensure" that the volumes are met. While it is true that we cannot induce additional demand in 2016, imposing a supplemental standard in 2022 is expected to induce additional renewable fuel demand in 2022. In support of the supplemental standard, we have considered obligated parties' ability to obtain RINs to meet that additional demand, and find that an additional 250 million gallons can be used by the market. The market's ability to achieve both the 2022 volumes, and the supplemental volume is discussed in Preamble Section IV, RIA Chapter 5, and RTC Section 6. We do not anticipate that a drawdown of the carryover RIN bank will be required by this action, however, it is an available compliance option for obligated parties as discussed further in RTC Section 2.6. Further discussion of our consideration of other alternatives is provided in response to the next comment.

Comment:

Commenters suggested that EPA should instead utilize the cellulosic waiver authority or the general waiver authority to reduce the volume. They suggested that because, in establishing the 2016 standards, EPA did not utilize the full extent of the cellulosic waiver authority to reduce the advanced biofuel and total renewable fuel standards, and instead allowed advanced biofuel to "backfill" for some of the missing cellulosic biofuel volume, that EPA still retains the authority to reduce the total renewable fuel standard by an additional 380 million gallons. They suggested that EPA should instead evaluate a 120 million gallon supplemental standard, not a 500 million gallon standard. A commenter suggested this would be "consistent with [EPA's] original determination and intent in the original rulemaking." The commenter also suggested that

imposing a 500 million gallon standard over two years "ignores EPA's contemporaneous decisions based on the state of the market going into 2016." Some commenters also suggested that EPA could now waive the total renewable fuel requirement for 2016 under a finding of inadequate domestic supply or severe economic harm. A commenter suggested there was "no supply of 2016-produced biofuel, or RINs."

Response:

The commenters who suggested EPA use its cellulosic waiver authority did not specify whether such a waiver would be retroactive or prospective, applied to the 2016 requirements or the 2022 requirements, or how it would be applied in conjunction with a supplemental standard, given what we know now about the renewable fuel actually used in 2016 and the market's ability to meet a 250 million gallon supplemental standard this year. Commenters would like to have it both ways. They argue that EPA should act consistent with the knowledge at the time of the 2016 standards when it declined to exercise the full cellulosic waiver authority, but also that, at the same time, EPA should utilize the cellulosic waiver authority to lessen the amount of the supplemental standard imposed in this action. Instead, we are utilizing the entire scope of information EPA has before it now, including the actual use of renewable fuel in 2016, the appropriateness of the standards as implemented in 2016, and the ability for a 2022 supplemental standard to be met and to remedy our past action which erroneously waived the 2016 total renewable fuel standard.

Commenters, without much explanation, suggested that we should now waive the volume under a finding of inadequate domestic supply based on an "inadequate supply" of 2016 renewable fuel volumes and 2016 RINs. Other commenters suggested that we should waive the volumes on the basis of "severe economic harm" or "inadequate domestic supply." We disagree. Doing so would be inappropriate for several reasons. Our use of the inadequate domestic supply prong of the general waiver authority was the basis for the court's remand in *ACE*. To argue now that there is an inadequate domestic supply, of EPA's own creation due to the passage of time between the initial rule, the court's decision, and this action, would arguably obviate any meaningful response to the remand. We note also that the market provided approximately 800 excess 2016 RINs in 2016, and thus an argument that there were insufficient 2016 RINs would not be based in facts. While we recognize that the factual circumstances have changed between our use of the general waiver authority in the final rule in December 2015, and now, including the passage of time such that 2016 RINs are no longer valid, we have a mechanism to allow for the use of 250 million gallons of total renewable fuel in 2022 (and an additional 250 million gallons in 2023). Additionally, use of the general waiver authority is discretionary ("The Administrator . . . *may* waive the volumes"). Therefore, even if the statutory criteria (an "inadequate domestic supply" or "severe economic harm") were met, EPA may choose not to waive volumes utilizing those waiver authorities. While there are no valid 2015 and 2016 RINs available to obligated parties to comply with a supplemental 2016 standard, which could amount to an "inadequate domestic supply," or "severe economic harm" were EPA to require compliance with such RINs for the supplemental standard, EPA has the discretion to not impose such a supplemental standard, and not to issue a waiver on the basis of "inadequate domestic supply" or "severe economic harm." As discussed further in Section 13, in determining whether to exercise the general waiver authority, under a finding of "severe economic harm," we also consider the benefits of the RFS

program; any consideration of reductions in the 2016 standards utilizing this authority would thus consider the benefits provided to the biofuels and agricultural industries by maintained volumes. Imposing a supplemental standard in 2022 balances rectifying our error in waiving volumes in 2016 by requiring additional renewable fuel use, without imposing unreasonable burdens on obligated parties.

As described in the proposed rule, we considered an approach where EPA could have obligated parties comply with a modified 2016 total renewable fuel standard that required an additional 500 million gallons of renewable fuel relative to the 2016 standard promulgated in 2015. However, such an approach would be at a minimum impractical, if not infeasible, to implement. Under the RFS regulations, only 2015 and 2016 RINs can be used to demonstrate compliance with the 2016 standard.[125] However, compliance with a 2016 standard is no longer possible, as RINs only have a 2-year lifespan, and so 2015 and 2016 RINs have long since expired.[126] These expired RINs are invalid and not available for use to comply with any standards.

As we have stated in the past, we believe the burdens associated with altering the existing 2016 total renewable fuel standard are high.[127] To illustrate the burdens associated with such an approach, we considered the steps that would be required to implement a revised 2016 standard. First, we would need to rescind the existing 2016 standard and promulgate a new one. Next, we would need to return all of the RINs used for compliance to the original owners. Once those RINs were unretired (a process that could take several months), trading of those RINs could resume for a designated amount of time before retirements would again be required to demonstrate compliance. Obligated parties could then attempt to comply with a new, higher total renewable fuel standard that included an adjustment to the required total renewable fuel volume to address the *ACE* decision. However, simply unretiring 2016 RINs would not result in sufficient RINs for compliance with the higher standard because obligated parties only retired the RINs necessary for compliance with the previous, lower standard; any excess 2016 RINs were likely used for compliance with the 2017 standard. Furthermore, because the suite of obligated parties is no longer the same as it was in 2016, with some companies no longer in business, the distribution of unretired RINs could be perceived as unfair as well as uneven, highlighting the complexity of attempting to go back in time. This approach would be burdensome and likely infeasible to implement.

To remedy the insufficient 2016 RINs used for compliance with the 2016 standard, we also considered an approach where 2016 RINs used for compliance with the 2017 standards could be unretired and used for compliance with the increased 2016 standard, but this would also reopen 2017 compliance, with cascading impacts on each subsequent year's compliance. Reopening compliance would impose a significant burden on both obligated parties and EPA as described above. Moreover, stakeholders have expressed strong desire for consistent compliance requirements on an annual basis. Having compliance demonstrations for the prior year be completed before requiring compliance with the subsequent year is considered essential to allow obligated parties to properly account for the vintage of the various RINs in their holdings as they

[125] 40 CFR 80.1427(a).
[126] Based on EMTS data, 29 million 2016 RINs remain unretired. Although these RINs still show up in the database as "available," they are all expired.
[127] 84 FR 36762, 36788 (July 29, 2019).

develop their compliance strategies and avoid having RINs expire. Therefore, we do not find that it would be appropriate or reasonable to reopen compliance with the 2016 total renewable fuel standard.

Applying a supplemental standard to the 2016 compliance year would also require us to consider whether the obligated gasoline and diesel fuel volumes used in the calculation of the percentage standards would be derived from the projected volumes used in the rulemaking that established the 2016 standards, or instead use the actual obligated gasoline and diesel fuel volumes in 2016. Of these two choices, using the actual obligated gasoline and diesel fuel volumes would more accurately result in the full volume of the adjustment being realized through the retirement of RINs.[128] However, using the actual obligated gasoline and diesel fuel volumes for the supplemental standard would make it inconsistent with the other 2016 standards, and call into question whether the other percentage standards should also be revised to account for actual obligated 2016 gasoline and diesel fuel volumes and compliance revised for all obligated parties. Doing so could also result in the intended volume falling short due to the departure of several obligated parties from the market since 2016. We do not believe that it would be appropriate to revise the other 2016 percentage standards when only the total renewable fuel standard is at issue under the *ACE* remand. Applying the supplemental standards to 2022, aw we are finalizing in this action, and 2023, as we intend to propose in a future action, avoids this issue.

It is true that in 2016, EPA could have waived the total renewable fuel volume by an additional 380 million gallons utilizing the cellulosic waiver authority. However, for the same reasons described above, we do not find that going back and adjusting the 2016 standards 7 years after they were established would be appropriate. Were we to do so, obligated parties would still need to adjust their compliance obligations for 2016, and there would not be any valid 2015 and 2016 RINs for obligated parties to use to come into compliance. We are instead narrowly responding to the remand in this action through a reasonable and measured response which can incentivize additional renewable fuel use, while still ensuring enough renewable fuel is available to obligated parties to come into compliance.

Comment:

A commenter suggested that EPA should use its reset authority to reduce the 2022 volumes to "no greater than the amount of actual and projected ethanol usage in 2022, including the supplemental obligation."

Response:

We respond to comments about a lesser volume for 2022 in RTC Section 6.

[128] The projected 2016 non-renewable gasoline volume and diesel volume used in the rulemaking that set the 2016 standards was 179.33 billion gallons. According to EIA's May 2021 STEO, the actual non-renewable gasoline and diesel fuel consumption volume in 2016 was 179.16 billion gallons.

Comment:

Several commenters supported EPA's action in responding to the *ACE* remand though a supplemental standard in 2022.

Response:

We agree with commenters who supported the action we are choosing to finalize in this rule. We note that we intend to fully address our response to the *ACE* remand with a subsequent 250 million gallon supplement in 2023 to be proposed in a future rulemaking.

8.2 Demonstrating Compliance with the 2022 Supplemental Standard

Commenters that provided comment on this topic include but are not limited to: 0431.

Comment:

A commenter suggested that EPA should allow obligated parties to utilize 2015 and 2016 RINs to comply with the supplemental standard, as those RINs represent actual renewable fuel used in 2015 and 2016, and would reduce the burdens of the supplemental standard.

Response:

First, we proposed that the supplemental standard would be a 2022 standard in all respects, including relating to which RINs can be utilized to demonstrate compliance (i.e., 2021 and 2022 RINs). We have done so to ensure all obligated parties subject to compliance obligations in 2022 would have equal access to the RINs necessary for compliance with the supplemental standard as 2022 RINs are freely available in the market. We continue to believe that this approach properly balances the burdens and benefits of the supplemental standard.

Additionally, as described in other actions, the 2015 and 2016 RINs that the commenter may continue to hold are expired and invalid.[129] As described in the prior section, EPA notified RFS stakeholders in 2019 that we may respond to the *ACE* remand with the use of later year RINs, and that parties should not choose to retain 2016 RINs to comply with an adjusted 2016 standard.[130]

Additionally, we do not believe that the 39 million 2015 and 2016 expired RINs still in the EMTS accounts of some obligated parties would provide additional liquidity to the market were we to allow them to be used for compliance with the supplemental standard, and in contrast, would only complicate the compliance process. It is not atypical for excess RINs to remain even after they are expired. They may remain for many reasons, including having been improperly generated, or subsequently determined not to be valid. The commenter characterized the 2015 and 2016 RINs as "overcompliance," but EPA has no way of knowing whether the RINs remain in the accounts of obligated parties unretired because they represent real renewable fuel use, or for some other reason, and given the passage of time would have little ability to verify their validity. At the most basic level, because the compliance dates for the years in which they were

[129] 2015 RINs expired at the time of compliance with the 2016 standards on March 31, 2017. 2016 RINs expired at the time of compliance with the 2017 standards on March 31, 2018. See "June 2022 Alternative RFS Compliance Demonstration Approach for Certain Small Refineries," EPA-420-R-22-012, June 2022; Brief for Respondent at 32, *Kern Oil & Refining Co. v. U.S. EPA*, No. 21-71246 (9th Cir. Aug. 27, 2021).

[130] See https://19january2021snapshot.epa.gov/fuels-registration-reporting-and-compliance-help/enviroflash-announcements-about-epa-fuel-programs_.html#compliance-deadline where we stated "we anticipate that, consistent with the Court's decision, any future action we may take on a past year's renewable fuel standards will take into account the retroactive nature of such future action. For example, without prejudging any future action, we note that we currently believe that it would be appropriate for the EPA to allow use of current-year RINs (including carryover-RINs) to satisfy further obligations, if any, for a past compliance year that may result from the ACE remand. Therefore we do not believe concerns regarding future EPA action on remand should lead parties to retain 2016 RINs that they would otherwise retire for 2017 compliance."

valid is past (i.e. the 2016 compliance deadline and the 2017 compliance deadline), the 2015 and 2016 RINs are now invalid. This treatment of RINs as invalid after the compliance year passes provides certainty to obligated parties and the market, and encourages the use of any carryover RINs at the time of compliance, such that RINs are not left stranded and unused.

The commenter suggested that the majority of the 39 million 2015 and 2016 RINs are being held by small refineries, and that small refineries should be given the opportunity to satisfy a portion of the supplemental standard with these RINs. We disagree that small refineries, in general, should be given this flexibility on the sole basis that they are small. Small refineries have already been advantaged due to their receipt of small refinery exemptions in past years; providing them special treatment to use invalid RINs would not be appropriate.

The commenter pointed to its individual experience and RIN holdings. The commenters' small refinery petition for 2015 was initially denied by EPA and challenged by the commenter in the Tenth Circuit. The commenter's 2015 petition was remanded to EPA following the issuance of new case law that by the Tenth Circuit that impacted the petition.[131] On remand, EPA granted the commenter's petition. The commenter asserted that had EPA granted its exemption request in the first instance, the commenter would not have been stuck with "worthless" 2015 RINs after the agency granted its petition on remand. But the commenter did not have "worthless" 2015 RINs. In 2018, EPA created replacement RINs for the commenter of equivalent quantity as the RINs the commenter retired to demonstrate compliance with its 2015 obligation.[132] On this basis, the commenter is not disadvantaged by EPA's initial action in denying their petition, and being granted special treatment to utilize 2015 and 2016 RINs would be inappropriate.

As to commenter's suggestion that complying with the 2022 supplemental standard utilizing only 2021 and 2022 RINs will be an additional cost to the obligated party that could be avoided were we to allow the use of 2015 and 2016 RINs, we point to our findings with regard to RIN cost pass through, described in detail in the 2022 SRE Denials, which find that the cost of RINs is not a "cost" borne by obligated parties but rather passed through to the their customers and ultimately to consumers of transportation fuels.[133] Therefore, we disagree that allowing the use of 2015 and 2016 RINs would reduce costs for obligated parties.

The commenter suggests that simply allowing the use of the expired 2015 and 2016 RINs in addition to 2021 and 2022 RINs to comply with the supplemental standard will avoid many of the burdens associated with reopening 2016 compliance or requiring the use of a scarce number of 2015 and 2016 RINs. However, doing so would make the supplemental standard no longer a 2022 standard, but rather a 2016 and 2022 standard, which would raise the concerns described above regarding reopening the 2016 compliance year. Doing so would also likely expand the lifespan of RINs articulated in the statute in CAA section 211(o)(5)(B) by allowing 2015 and 2016 RINs to be used for at least 3 years of compliance, and possibly more if we were to take the

[131] See Resp.'s Unopposed Motion for Voluntary Remand and Vacatur, *Sinclair Wyo. Refining Co. v. EPA*, No. 16-9561 (10th Cir. Filed Dec. 13, 2017), Doc. No. 01019915364. See also *Sinclair v. EPA*, 887 F.Supp. 986 (10th Cir. 2017).
[132] See *Producers of Renewables United for Integrity Truth and Transparency v. EPA*, No. 19-9532, Supplemental Brief of Respondent (10th Cir. Filed August 19, 2019), Doc. No. 10671884.
[133] See "April 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-005, April 2022; "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

same approach to a future 2023 supplemental standard. There is no basis to allow for a longer lifespan in this circumstance, where EPA is establishing a supplemental standard that can be met through currently valid RINs.

The commenter also suggests there are benefits to allowing 2015 and 2016 RINs to be used for compliance, including reducing the need for new renewable fuel use in 2022 and reliance on imports of biofuel. To the first contention, we continue to believe that the market-forcing 2022 standards and the 2022 supplemental standard associated with the *ACE* remand properly balance the goals of the RFS program and the burdens such an obligation may place on obligated parties. Energy security impacts of this action are discussed in RIA Chapter 4 and RTC Section 9.1.2.

The commenter suggests that EPA need only reopen the compliance reports from 2016 for those parties who "wish to comply . . . using 2015 and 2016 RINs," and notes EPA's past practice of reopening compliance for small refineries for 2019. We note that our past reopening of the compliance period for small refineries was a unique circumstance, as a result of ongoing uncertainty surrounding the RFS obligations for small refineries while litigation regarding small refinery exemptions remained ongoing.[134] It was, and is being done, such that the sequencing of compliance is maintained, and future compliance years are not implicated by reopening 2019 compliance; i.e., compliance for 2020 and later years has not yet occurred, and thus reopening compliance for 2019 does not result in cascading impacts on compliance for later years.

Finally, the commenter suggests EPA could make the supplemental standard for 2022 or 2016 and allow obligated parties to choose between the standards. As noted above, 2015 and 2016 RINs are expired and invalid. "Choosing" between the standards would allow obligated parties to cherry pick the year with the lowest resulting volume, as a 2016 standard would likely be calculated based on gas and diesel production in 2016, while a 2022 standard would be calculated based on 2022 gas and diesel production. This could result in less than the full 250 million gallon standard being fulfilled as a result of these decisions, which would not ensure that the volumes were met. Finally, having open compliance for both the 2016 compliance year and the 2022 compliance year would likely result in many errors in compliance as the RIN retirement system is not designed to allow for RIN retirements for multiple years at the same time. We are still providing obligated parties with the usual scope of flexibilities, including carry forward deficits and the use of carryover RINs. We do not find that additional flexibilities are warranted.

[134] See 87 FR 5696, 5698-9 (February 2, 2022).

9. Economic and Environmental Impacts

9.1 Economic Impacts and Considerations

9.1.1 Costs of the Program

Commenters that provided comment on this topic include but are not limited to: 0378, 0402, 0443, 0485, 0578, 0579.

Comment:

A commenter stated that when retrofitting retail stations to distribute high-level ethanol blends is necessary, average costs are not as high as EPA projects. As even EPA admits, "[m]any owners may already be able to demonstrate compatibility for the tanks and piping in their UST systems. These components are often the largest expenses. In this situation, owners may be able to upgrade other components of their UST system with less operational downtime and less cost because they will not need to break the concrete pad over the UST system to replace tanks or piping." Recognizing this, Stillwater has found that an incompatible station can generally offer E85 with just $30,000 in costs: $15,000 for an E85-capable dispenser, and $15,000 for underground infrastructure work. Those costs can be reduced even further by taking advantage of the industry's regular cycle for replacing dispensers every seven years. By upgrading during the ordinary replacement cycle, the station's marginal cost of upgrading to E85 is just $20,000: $15,000 for the underground work and an incremental $5,000 for the E85-compatible dispenser over the $10,000 for an E10 dispenser.

Furthermore, as EPA's Regulatory Impact Analysis notes, government funds are also available to mitigate these costs. Specifically, in 2020, the USDA initiated its Higher Blends Infrastructure Incentive Program (HBIIP), which provides funds to help retail service station owners to upgrade or replace their equipment to offer higher ethanol blends.

Response:

The commenter's cost estimate of $15,000 to install a dispenser and $15,000 for underground infrastructure work to make E85 available at retail stations is similar to and within the bounds of uncertainty of our estimate of $34,500 presented in RIA Chapter 9. We believe, however, that the Petroleum Equipment Institute (PEI) cost estimate of $20,000 per dispenser cost estimate that we used is more accurate since it is based on a survey of actual fuel dispenser replacement costs.[135]

As we explain in the RIA and as the commenter notes, there are a wide range of service stations configurations in the country, and the retrofit costs vary considerably. Compared to both our estimate of $34,500 and the commenter's estimate of $30,000, the costs can be lower, even an order of magnitude lower, for some retail stations. Conversely, the costs could be higher, even an

[135] Renkes, Robert; Scenarios to Determine Approximate Cost for E15 Readiness; Prepared by the Petroleum Equipment Institute for the United States Department of Agriculture; September 6, 2013.

order of magnitude higher, if either new underground storage tanks or piping needs to be installed, as not all retail stations already have a tank and piping compatible for storing E85.

For example, the PEI Institute cost estimates for offering E15 at retail stations ranged from $1,000 for labeling/signage changes to over $330,000 per station for significant retrofit scenarios, and costs for retrofitting retail stations for selling E15 are likely similar to retrofitting for offering E85.[136] This very large cost range helps to illustrate the uncertainty involved in estimating the average costs for retrofitting retail stations to offer E85.

The commenter states that the HBIIP program should be used to lower the cost estimate for making E85 available at retail stations. However, federal funds which defray the capital costs for retail stations to install E85 compatible hardware are transfer payments and should not be subtracted in a social cost analysis.

Comment:

A commenter stated that, in the past, EPA itself estimated and detailed some costs and negative impacts of greater biofuels consumption. In its current proposed rule, EPA estimates its 2021 and 2022 biofuels volumes, if finalized, would increase fuel costs by $2.3 billion as compared to 2020 (including the supplemental standard). As EPA notes, fuel costs could increase further if commodity prices (primarily for corn and soybeans) rise. While we appreciate EPA's recognition of some of these costs – for instance, higher fuel costs for consumers – EPA has acknowledged these estimates provide only a small glimpse of the full picture. As the Agency noted, these past assessments do not include other taxpayer or consumer costs associated with increased biofuels use, such as federal cellulosic and biodiesel tax credits, which amount to more than $3 billion annually. USDA also recently announced another $100 million for biofuels infrastructure programs, which would bring total USDA spending on these special interest projects to $303 million. These negative impacts and higher taxpayer and consumer costs should be fully considered in EPA's final decision on the RVO rule.

Another commenter stated that EPA's cost estimates do not consider federal state or local infrastructure support funding (e.g., the USDA Higher Blends Infrastructure Incentive Program; HBIIP) supporting E85 and E15 retail station equipment. Ignoring this funding—particularly HBIIP—would likely result in an overstatement of capital costs for many retailers that have participated in such programs (and there are private-sector incentives as well).

Response:

We have considered the costs and impacts the commenters describe.

In RIA Chapter 9, we assess and report the costs associated with this rulemaking in multiple ways. One way is to assess the social costs associated with this rulemaking, which are presented in RIA Chapters 9.4.1 and 9.4.2. Consistent with federal government guidance described in OMB Circular A-4, this analysis does not include transfer payments such as those noted by the

[136] Renkes, Robert; Scenarios to Determine Approximate Cost for E15 Readiness; Prepared by the Petroleum Equipment Institute for the United States Department of Agriculture; September 6, 2013.

commenter. For instance, tax credits and USDA grants for biofuel infrastructure are transfer payments. These transfer payments do not equate to social costs but rather reflect who is paying for the costs and have distributional effects. For instance, tax credits equate to the costs of producing and using biofuels but may shift the costs of such production and use from the fuel consumer to taxpayers at large. Therefore, in this social cost analysis the federal subsidies (as well as any state, local, or private subsidies) are not subtracted from the cost of the fuel.

Another way we have assessed costs is by looking at costs borne by consumers of transportation fuel, which is presented in RIA Chapter 9.4.3. The fuel price impacts estimated in RIA Chapter 9.4.3.1 account for the social costs less the federal renewable fuel tax credits described by the commenter. Those credits provide a subsidy for fuel consumers and therefore decrease their fuel purchase costs. This analysis does not factor in other subsidies, such as the USDA HBIIP program or state and local programs, because we lack available information on how and to what extent retailers may be passing on these subsidies to fuel consumers. However, we are cognizant that these other factors also may reduce apparent costs to fuel consumers and have considered them qualitatively. The second way assesses the impacts on consumer fuel purchase costs associated with RIN prices.

We have also considered costs to retailers. As noted by the second commenter, federal subsidies like HBIIP reduce the costs borne by fuel retailers for installing E15 and E85 retail station equipment. We further discuss the impacts of HBIIP and other programs on retailer costs in RIA Chapters 1, 5.5, and 9.

We have considered updated information on commodity prices in this final rulemaking, as described in RIA Chapter 9.

Comment:

EPA estimated that the use of ethanol reduced the cost of gasoline to consumers (i.e., at retail) by $146 million in 2021 and that the proposed RFS biofuel volume requirements will reduce the cost by an additional $24 million in 2022. The analysis appears not to have properly allocated a credit to E15 for its blending value, resulting in an underestimation of the impact of ethanol usage on gasoline prices.

EPA should have assumed that E15 has a blending value similar to the $0.65/gallon that was estimated for E10 based on an analysis by ICF and MathPro, since E15 currently is produced using the same sub-octane blendstock as E10 or by combining E10 with E85. As noted by EPA, refiners are able to reduce costs by producing such blendstock. In Table 9.4.1-1, the blending cost (actually a credit) for E15 should be similar that for E10.

EPA's analysis of the cost impacts of the proposed RFS volumes also suffers from the use of outdated and incorrect assumptions about ethanol production. In DRIA Chapter 9, EPA noted, "The operating costs and ethanol plant yields were based on a 2012 survey of corn ethanol plants." However, considerable progress has been made in ethanol facility operations in the decade since that survey was conducted. Table 9.1.2.2-1 contained an ethanol yield of 2.83 gallons per bushel (gal/bu), but data from EIA and the U.S. Department of Agriculture (USDA)

indicate that from January through October 2021 the average yield was 2.916 gal/bu. The DDG yield is now approximately 15 lbs/bu rather than the 15.7 lbs/bu assumed in the table. Distillers corn oil yield is now 0.88 lbs/bu at facilities that extract it; it is estimated that facilities representing approximately 95% of dry-mill capacity extract corn oil, meaning that the average yield across all dry mills is 0.84 lbs/bu. EPA assumed a corn oil yield of 0.53 lbs/bu and noted, "Of the corn ethanol plants in the 2012 survey, 74% were separating and selling corn oil so selling corn oil was assumed for 70% of the plant capacity." EPA assumes electricity usage of 0.75 kilowatt hours (kWh) per gallon. However, the Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model from Argonne National Laboratory reflects usage of 0.63 kWh/gal for dry mills with corn oil extraction, which is consistent with (actually slightly higher than) private surveys of the industry.

There are issues with other parts of the analysis in DRIA Chapter 9 as well:

In DRIA Chapter 9.1.4.1.2 Retail Costs, EPA stated that for Iowa, "Retail stations offering E15 are estimated to sell 187 thousand gallons of E15 per year while each retail station offering E85 are estimated to sell 80 thousand gallons of E85 per year." However, based on an annual report from the Iowa Department of Revenue, it can be calculated that the average E15 volume per station was approximately 298,800 gal. in 2020, and the average E85 volume per station was approximately 42,670 gal. (down from 54,370 gal. in 2019). As a result, the calculated per-gallon cost of capital for retail equipment is overstated, at least for E15.

Given all of the issues raised above regarding DRIA Chapter 9, it is highly likely that EPA overestimated the cost of ethanol, which would also have resulted in an underestimation of the cost savings versus gasoline.

Response:

The commenter correctly pointed out the need to account for the E10 ethanol blending value for the Blendstock for Oxygenate Blending (BOB) gasoline material which is blended with ethanol to produce E15 and E85, and which was not included in the cost analysis conducted for the proposed rule. This ethanol blending value is now included in the cost analysis for E15 and E85 for the final rulemaking.

The commenter suggested some adjustments to the per-gallon corn ethanol input and output factors, including lower electricity consumption, a lower quantity of corn input, lower dried distiller grains soluble (DDGS) output, and higher corn oil output. As the commenter correctly points out, these adjustments on average lower corn ethanol production costs, but by a very modest amount. Applying these suggested input adjustments to the 2021 production cost for corn ethanol lowers corn ethanol production cost from $2.07 to $2.02 per gallon, or about 2.5%.[137] Without a newer estimate for corn ethanol plant capital costs, though, it is not clear that there would be any net decrease in production costs. For example, the lower ethanol plant electricity usage could be due to the use of variable speed pump motors which reduces electricity demand, but also contributes to higher capital costs. Similarly, the equipment added to increase corn oil

[137] An alternative cost to produce corn ethanol based on the values suggested by the commenter is contained on the corn ethanol costs page in the cost spreadsheet available in the docket for this action.

extraction would also increase corn ethanol capital costs. If the capital costs are higher, this contributes to the overall production and maintenance costs for corn ethanol plants, and potentially offsets some or most of these other potential cost saving measures identified by the commenter. Thus, it is unclear that even the modest cost savings described above would be realized. Even if they were, the resulting impact on the final cost estimates would be small and would not affect our judgment as to the proper volumes.

The commenter provided E15 and E85 retail station throughput volumes based on 2020 data from Iowa which are much higher for E15 and lower for E85 than the volumes used for the cost analysis. EPA's E15 and E85 per station throughput volumes, which are based on the same data set, differ from those of the commenter because EPA included the number of stations offering other higher ethanol blends (blends which contain more than 15 volume percent ethanol up to E20) which the commenter chose not to include. The commenter did not persuasively explain why EPA's choice was unreasonable.

In any event, while the commenter's data would result in lower E15 cost estimates, it would also result in higher E85 cost estimates. Given these offsetting impacts and how small the volumes of E15 and E85 are relative to the total volumes for this rulemaking (the estimated E15 E85 retail costs comprise only 1.5% of the total cost in 2021, and well under 1% of the total cost in 2022), the commenter's approach would only result in small changes to the total costs associated with this rule and have no impacts on our judgment as to final volumes.

Moreover, as we explain in RIA Chapter 9.1.4, the most comprehensive data available (data from 19 states versus 1) for E15 and E85 throughput volumes at retail stations is the Biofuel Infrastructure Partnership (BIP) data we obtained from USDA. The BIP data shows lower throughput volumes for E15, and higher throughput volumes for E85 than both the volumes we used in calculating costs in RIA Chapter 9.1.4 and the volumes suggested by the commenter. As we explain in RIA Chapter 9.1.4, using the BIP data to calculate costs would also only result in very small changes to the total costs and would have no impact on our judgment as to the volumes.

Comment:

It does not appear that EPA fully accounted for the impact of ethanol usage on the crude oil market and ultimately on retail gasoline prices in its analysis. In a 2019 study, Verleger used an econometric model to estimate the impacts of the RFS on crude oil and gasoline prices over the previous four years (2015-2018). He determined that by expanding fuel supplies, the RFS reduced the price of crude oil by an average of $6/barrel from 2015 to 2018. In turn, gasoline prices were reduced by an average of $0.22/gallon, the equivalent of $250 annually for a typical household. According to the study, the RFS was responsible for putting roughly $90 billion back into the pockets of U.S. consumers over the previous four years, increasing discretionary income and raising the nation's gross domestic product.

Response:

The commenter is correct that in EPA's cost analysis we did not account for any potential impact that increased ethanol supply resulting from the final RFS standards might have on world crude oil prices and therefore gasoline prices. While in theory an increase in ethanol supply might lead to a reduction in world crude oil prices and therefore a reduction in U.S. gasoline prices, it is not possible to quantify the impact with any degree of certainty but regardless, the magnitude of the potential impact cited by the commenter appears beyond reason.

Upon review, we determined that the Verleger study has significant methodological concerns that undermine its conclusion that the RFS program resulted in significant reductions in gasoline prices in 2015-2018 time period. As such, it is also inappropriate to extrapolate the results to the 2020-2022 time period covered by this rule.

The Verleger paper first makes a correlation using historical monthly data between crude oil inventories and crude oil prices between the years 2006 to 2013. His study attempts to account for the breakdown in OPEC control of the oil market which occurred in 2014, although this was odd since it was outside of the analysis period. His study concludes that an increase equivalent to 20% of the US ethanol consumption, or about 2.8 billion gallons, would cause a $6 per barrel decrease in crude oil prices. The fact that some sort of correlation in this case could exist is supported by some opinions on the crude oil market.[138] However, it is also useful to point out that the R-squared for the Verleger analysis is very low (the R-squared is 0.199, whereas 1.0 is a perfect correlation, and 0 is no correlation), which greatly reduces confidence in its potential validity. It is also useful to point out in any data analysis, correlation does not necessarily mean that there is causation, and in this case with such low correlation as revealed by the very low R-squared, there is even less confidence. Verleger then takes that questionable correlation and tries to connect it to potential impacts of corn ethanol supply by making the argument that increases in ethanol consumption would proportionally reduce gasoline demand, which in turn would proportionally reduce crude oil demand, which in turn would increase crude oil inventories, and which ultimately would drive down crude and gasoline prices. Each one of these steps brings with it increasing levels of uncertainty rendering the overall result specious at best.

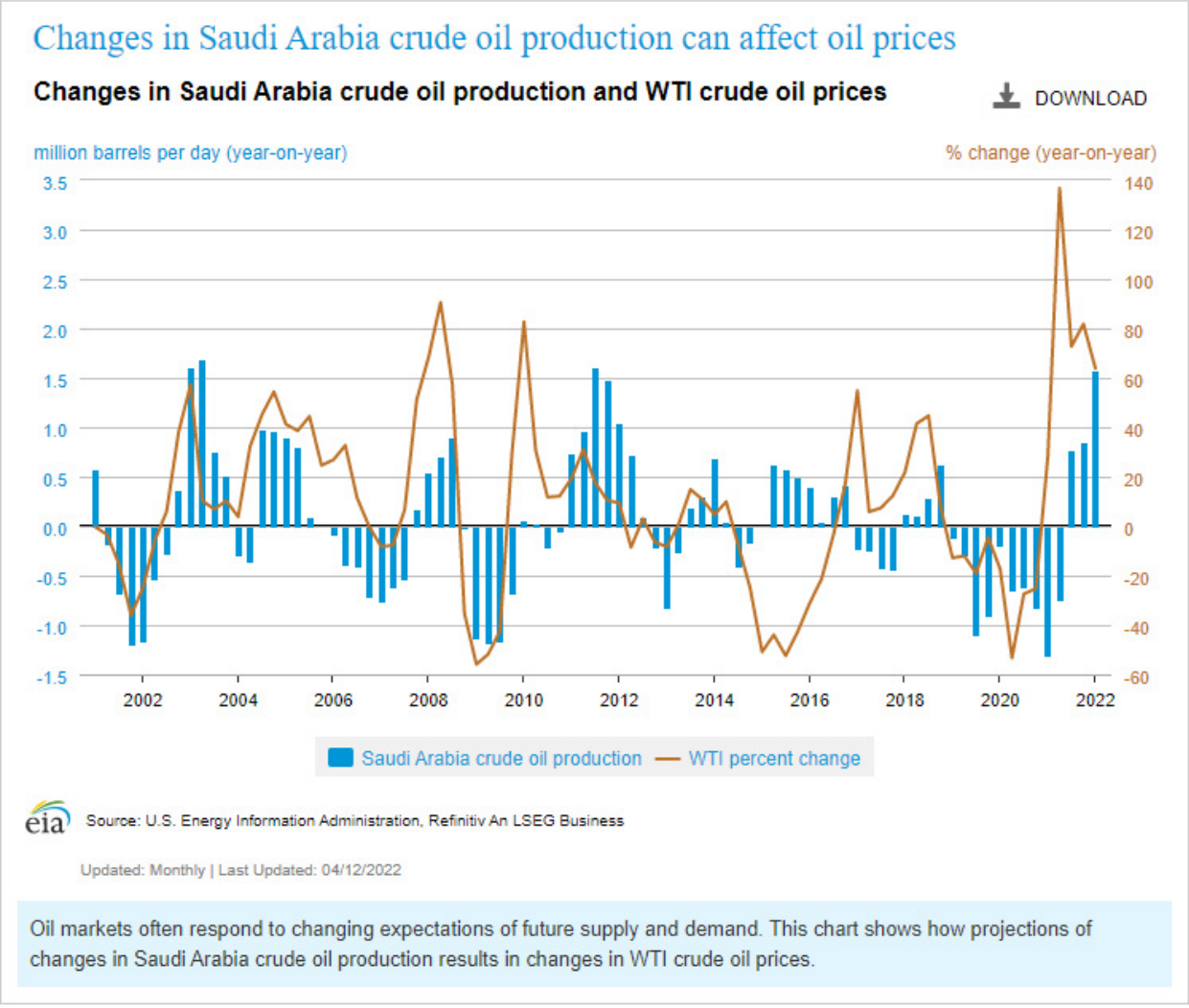
Were an impact as large as that estimated by Verleger to be real, one might expect to be able to see it in the historical data. So to provide a reality check on the Verleger results of the impact of corn ethanol volumes on gasoline prices, we instead performed a direct correlation corn ethanol supply and world crude oil prices to see if any correlation could be found, and if so, what the magnitude might be. Given the many confounding variables in the marketplace, the best chance to see a direct correlation between changing ethanol volumes and crude oil prices would be when ethanol volumes were changing by the largest amount. The largest and fastest increase in ethanol consumption in the U.S. occurred from 2006 to 2010 (see RIA Figure 1.7-1). During this time ethanol consumption increased by an average of 1.9 billion gallons per year. We regressed this increased ethanol volumes against crude oil prices and this led to two primary conclusions: 1) No correlation could be found—the R-squared was very low at 0.06; and 2) The result was counterintuitively slightly positive, which means that as ethanol volume increased, crude oil

[138] Palmer, Barclay; The Effect of Crude Inventories on the Oil Economy; Investopedia; August 31, 2021.

prices increased slightly rather than decreased by a significant margin as suggested by Verleger, further indicating the inability to discern such impacts in market data.

The lack of a correlation between increased ethanol consumption in the U.S. and decreased crude oil prices is to be expected. Even the entire U.S. ethanol consumption of roughly 14 billion gallons is simply too small compared to worldwide crude oil supply (on the order of 0.5% based on energy content) to be seen in the variability of the world crude price data. With such a small contribution to overall world energy supply, disproportionately large estimates of the magnitude reported by Verleger are highly improbable.

The problem of using any historical data in linking biofuels to impacts on crude oil prices is further revealed in an analysis of changes in Saudi Arabia crude oil production changes on crude oil prices conducted by the Energy Information Administration.[139]



[139] What drives crude oil prices: Supply OPEC; Energy and Financial Markets; Energy Information Administration; last updated April 12, 2022.

As shown and described by the figure and its accompanying text, Saudi Arabia "swings" their crude oil production/exports by 2.7 million barrels per day to affect crude oil prices. The 2.7 million barrels per day swing in Saudi Arabian crude oil production change correlates to 70 billion gallons per year of ethanol volume, thus dwarfing the changes in renewable fuels volume changes in the U.S. In addition, Saudi Arabian crude supply is just one of many crude oil supply and demand factors around the world that impact crude prices. Thus, the lack of a historical correlation between increased ethanol consumption in the U.S. and decreased crude oil prices is to be expected. While Verleger did account for one change in OPEC crude oil production volume in 2014, it ignored the 6 changes in Saudi Arabia (which is part of OPEC) crude oil production volume which occurred during the years of his analysis as shown in the above figure, and this likely significantly biased the analysis and could have contributed to the very low R-squared of his analysis. These observations challenge the credibility of Verleger's derivation of the impact of ethanol on crude oil and gasoline prices.

Regardless, the Verleger analysis assumes that the RFS program caused 20% of all U.S. ethanol use in 2015-2018, and are not directly applicable to this rulemaking action. As discussed in RIA Chapter 2.2, we have analyzed fuel cost impacts of increases in corn ethanol volumes in 2021 and 2022 of 1.294 and 1.682 billion gallons relative to a baseline of 2020. This volume change is much lower than that evaluated by Verleger. Furthermore, as discussed in RIA Chapter 2.2, we also acknowledge that the vast majority of this analyzed volume (all of the ethanol blended as E10) would happen in the absence of the final RFS standards given the favorable economics of E10 corn ethanol. Consequently, the omission of potential impacts of corn ethanol use on world crude oil prices and thus U.S. gasoline prices from our analysis is unlikely to materially impact the results.

Comment:

A commenter claimed that EPA under-estimated the cost of the RFS program by failing to consider what would happen in the absence of the RFS program. The commenter claimed that they submitted an expert study on previous annual rules that examined the economic effects of the RFS program by comparing the volumes in previous rules to a No-RFS baseline. This study found that the impact is large, both on consumers and producers.

Response:

We reviewed the study submitted by the commenter. Contrary to the commenter's claims, this study did not determine the quantities of renewable fuel that would be used in the absence of the RFS program (a No-RFS baseline). Instead, this study compares a scenario equivalent to the RFS standards for 2012 to a scenario with the proposed RFS volumes for 2019. Equating the RFS volumes in 2012 to a No-RFS baseline is problematic for several reasons. First, RFS volume requirements were in place in 2012. Second, the fuels marketplace has changed substantially since 2012. Factors such as the price of crude oil, the prices of renewable fuel feedstocks, and the status of renewable fuel production technology have changed significantly in the past 10 years. Further this study did not consider the cost of the RFS program. It did not estimate the cost of the RFS program – either for the proposed RFS volumes in 2019 or the proposed volumes for 2020-2022.

Instead, the study focused on the projected impact of the proposed RFS volumes for 2019 on refiners, particularly refiners in PADD 1. Even in this context, we have significant concerns with the analysis presented by Dr. Pirrong. EPA staff conducted a preliminary assessment of Dr. Pirrong's analysis. While this paper contained insufficient detail and explanation to allow us to conduct a more in-depth assessment, several aspects of the analysis are inconsistent with our understanding of the impact of the RFS program on fuels markets.[140] For example, the analysis appears to imply that the RFS program is responsible for the closure of a number of East Coast refineries, despite the fact that some of these refineries did not produce gasoline or diesel and thus were not impacted by the RFS program, while other refineries have subsequently re-opened. The study also states that an increase in the RIN price increases the price that consumers pay for fuel, despite numerous studies concluding that higher RIN prices have not increased the price consumers pay for gasoline blended with 10 percent ethanol. Finally, the estimated impact of the 2019 RFS standards on the price received by refiners in PADD 1 appears excessively high, and the estimated impact the 2019 RFS standards on the gross margins of refiners in PADD 1 appear to be unreasonably high.

In sum, the paper submitted by the commenter does not provide a No-RFS baseline against which the costs of the proposed volumes can be assessed, nor does it provide any estimate of the costs of the RFS program in any year.

The paper is also of limited relevance because it purports to analyze the proposed 2019 volumes. However, EPA did not reexamine the 2019 volumes, which were established in a separate, earlier rulemaking. This rulemaking establishes RFS volumes for 2020-2022.

Comment:

A commenter stated that increasing the advanced volume for 2022 with a corresponding decrease in the conventional volume for 2022 would significantly decrease the cost of the program. The commenter stated that EPA has an obligation to finalize this less costly option.

Response:

The commenter provides no evidence that increasing the advanced biofuel volume with corresponding decreases in the conventional volume would significantly decrease the cost of the program. The basis for the commenter's statement appears to be an expectation that a lower conventional biofuel volume would result in lower D6 RIN prices, and thus lower costs. However, as EPA discusses in greater detail in Preamble Section III, we do not expect that increasing the advanced biofuel volume with a corresponding decrease in the conventional biofuel volume (with no change in the total renewable fuel volume) would significantly impact the mix of biofuels used to meet the RFS volumes for 2022. The commenter acknowledges this. As discussed in RIA Chapter 9, the cost of the RFS program is dependent on the cost of the renewable fuels used to meet the required volumes relative to the petroleum fuels they displace. Thus, if the change suggested by the commenter would not impact the mix of biofuels used to meet the RFS volumes for 2022 it would not impact the cost of the program. As discussed further

[140] For more information on our understanding of the impact of the RFS program on fuel markets, see "Denial of Petitions for Rulemaking to Change the RFS Point of Obligation" EPA-420-R-17-008, November 2017.

in RTC Section 9.1.8, RINs are a cross subsidy between renewable fuels and petroleum-based fuels, and therefore RIN prices cannot be used to estimate the cost of the RFS program.

Comment:

One commenter attached an RNG presentation by the Coalition of Renewable Natural Gas (CRNG) that included cost information they had accumulated for upgrading landfill gas to pipeline quality for eventual downstream use. The estimated biogas upgrading cost ranged from $7 per million BTU to $23 per million BTU.

Response:

The cost information is generally consistent with our cost estimate for upgrading landfill biogas. The CRNG cost estimate for upgrading landfill gas for a landfill which produces 650 standard cubic feet per minute, which is about the same volume that we used in our cost analysis (600 scf/min), is $9.04 per million BTU. Our cost estimate for upgrading landfill gas is $6.70 per million BTU. However, we relied on OMB guidance for amortizing capital costs which assumes a before-tax 7% return on investment for estimating social costs. If we amortize our capital costs assuming a more conventional after-tax 10% return on investment generally used in the commercial sector, our biogas upgrading costs for a landfill producing 600 standard cubic foot per minute of biogas increases to $8.20 per million BTU, which is $0.84 per million BTU, or about 10% lower than that of CRNG. In the EPA report from which we obtained the biogas clean-up cost estimates, the authors estimate that the cost range is +/- 30% to +/-50%, thus, the cost difference of 10% is well within the range of error when estimating these costs.

9.1.2 Energy Security

Commenters that provided comment on this topic include but are not limited to: 0369, 0379, 0393, 0402, 0409, 0438, 0469, 0481, 0521, and 0568.

Comment:

Many commenters suggest that this rule will result in energy security benefits and improve the U.S.'s energy independence by requiring more use of renewable fuels in the U.S. transportation sector.

Response:

EPA agrees with the commenters that the increased use of renewable fuels from this RFS Annual Rule will increase the U.S.'s energy security and independence by reducing the U.S.'s petroleum imports. A reduction of U.S. petroleum imports reduces both financial and strategic risks caused by potential sudden disruptions in the supply of imported petroleum to the U.S., thus increasing the U.S.'s energy security. By reducing U.S. oil imports, this final rule will also modestly move the U.S. towards the goal of energy independence. Our analysis of energy security is presented in RIA Chapter 4.

Comment:

One commenter suggests that EPA has not estimated the benefits (i.e., reduced fuel costs/energy security) of increased ethanol use from the proposed RFS 2021-2022 volumes on crude oil prices and petroleum-based products (i.e., gasoline). This commenter cites a study by Verleger that shows that increased ethanol production in the U.S. over the time period from 2015-2018 reduced the price of crude oil by an average of $6/barrel.[141] In turn, U.S. gasoline prices were reduced by an average of $0.22/gallon, according to the Verleger study.

Response:

The Verleger study measures changes in annual savings of U.S. fuel consumption as a percentage of U.S. GDP to calculate energy security benefits from an increase in ethanol. EPA has concerns about the methodology employed in the Verleger study to estimate how increases in ethanol production influence gasoline prices, and thus, fuel savings from this final rule (see response to comment above on ethanol's impact on crude oil and, in turn, gasoline prices). Thus, we do not believe that the magnitude of the Verleger energy security estimates are accurate. In any case, in both methodologies, EPA's and Verleger's, greater use of ethanol results in energy security benefits to the U.S.

[141] Verleger, P. Jr., The Renewable Fuel Standard Program: Measuring the Impact on Crude Oil and Gasoline Prices.

Comment:

One commenter notes that EPA projects that this RFS Annual Rule could result in greater use of imported biodiesel (i.e., palm oil). This commenter suggests that importing foreign biodiesel to satisfy RFS mandates is problematic, since imports of biodiesel reduce the energy security position of the U.S. and have negative consequences for U.S. energy independence. The commenter also points out that EPA states in this Annual RFS rulemaking that it has "not separately assessed the energy security implications of renewable volumes which are expected to be imported." Another commenter notes that EPA recognizes that imported renewable fuels contribute to U.S. energy security in this RFS Annual rulemaking.

Response:

Since renewable fuels substitute for petroleum-derived conventional fuels, changes in renewable fuel volumes have an impact on U.S. petroleum consumption and imports. All else being constant, a change in U.S. petroleum consumption and imports will alter both the financial and strategic risks associated with sudden disruptions in global oil supply, thus influencing the U.S.'s energy security position. However, we are not performing a separate, additional quantification of the energy security benefits of imported renewable fuels for the reasons discussed below. We do, however, qualitatively consider certain energy security features of imported renewable fuels which may differ from imported petroleum fuels.

First, the change in U.S. imported renewable fuels is very small when compared with the U.S. oil import reductions as a result of the volume requirements of this Final Annual Rule. As a result, any additional or different energy security impacts than what EPA has already analyzed for this final rule are likely to be relatively small. As we explain in RIA Chapter 2, EPA projects a modest increase in U.S. imports of renewable fuels associated with the final volumes, including the supplemental volumes. To place the renewable fuel imports in context, the estimated cumulative change in U.S. imports of renewable fuels from 2021-2022 is 0.7 percent of the estimated cumulative change in U.S. oil import reductions. When considering only the 2020-2022 volumes and excluding the supplemental volumes, EPA estimates that there will be a decrease in cumulative renewable fuel imports, due to the projected decrease in imported sugarcane ethanol offsetting a small increase in imported biodiesel.

Second, imported renewable fuels have energy security risks that are somewhat different from imported petroleum fuels. On the one hand, imported renewable fuels may have supply disruptions as a result of weather-related events (i.e., flooding/droughts). However, imported renewable fuels have price shocks that are not likely to be strongly correlated with oil price shocks. Thus, blending renewable fuels to petroleum-based fuels can provide energy security benefits by reducing overall fuel price volatility. Finally, the overall impact of this final rule will result in lower U.S. imports of liquid transportation fuels (the combined total of both petroleum-based and renewable fuels) improving the U.S.'s energy independence. Beyond these qualitative observations, we are not aware of a robust methodology to quantify the energy security impacts of imported renewable fuels specifically (beyond the quantified impacts of displacing petroleum fuels already presented in the RIA).

9.1.3 Impacts of Standards on RIN Prices

Commenters that provided comment on this topic include but are not limited to: 0356, 0363, 0369, 0373, 0379, 0380, 0382, 0383, 0394, 0396, 0397, 0400, 0406, 0409, 0416, 0430, 0443, 0455, 0457, 0462, 0466, 0501, 0506, 0517, 0529, 0568, 0573, 0576, and 0577.

Many commenters that commented on the impact of the proposed RFS volumes on RIN prices also commented on the impact of RIN prices on fuel prices and refiners. Comments on these topics are covered in RTC Sections 9.1.4 and 9.1.8, respectively.

Comment:

Several commenters stated that EPA's proposed volumes would result in persistently high RIN prices. Some parties argued that RIN prices could reach historic highs if the proposed volumes were finalized. These parties generally argued that EPA should reduce the RFS volumes in the final rule to reduce RIN prices.

Response:

RIN prices are impacted by many different factors that we cannot project with confidence, such as crude oil prices and the price of agricultural commodities. These prices in turn depend on things like the weather, international trade actions, and geopolitical considerations. Thus, we are not able to confidently project RIN prices in future years or assess whether RIN prices will reach historic highs in the next year. Nor is such an assessment required by law.

We recognize that it is likely that the volumes we are finalizing in this rule will result in significant (e.g., greater than $0.10 per RIN) RIN prices through 2022 given that the marginal biofuels used for RFS compliance have significantly higher costs than the petroleum fuels they replace, as described in RIA Chapter 9. Higher RIN prices do provide greater incentives for the production and use of renewable fuels.

In establishing the volumes, we have considered the statutory factors as described in Preamble Section III and the RIA. We have not established the volumes with the intent to achieve any particular RIN prices.

Comment:

Several commenters stated that if EPA finalized RFS volumes that were below the E10 blendwall RIN prices would decrease significantly, benefiting refiners and reducing fuel prices. Other commenters similarly stated that finalizing volumes above the E10 blendwall (or above 9.7% of the gasoline pool) would result in high RIN prices.

Response:

We recognize that implied conventional biofuel volume has a significant impact on D6 RIN prices, with implied conventional biofuel volumes that are above the E10 blendwall generally

contributing to higher D6 RIN prices and implied conventional biofuel volumes below the E10 blendwall generally contributing to lower D6 RIN Prices. As discussed in more detail in RIA Chapter 9, we also recognize that the volumes we are finalizing in this rule are projected to increase fuel costs. We note, however, that the cost impacts we project are smaller than those estimated by the commenters. Further, because the RFS operates as a cross-subsidy, lower D6 RIN prices would reduce the cost of the RFS obligation on petroleum-based fuels but at the same time would increase the effective price of ethanol by reducing the value of the RIN generated when qualifying ethanol is produced. Lower D6 RIN prices alone (e.g. assuming the same total renewable fuel volume) would not reduce the cost of the volumes in this rule or the overall impact of this rule on fuel prices (including both gasoline and diesel), though it would likely shift some of the price impact from diesel fuel to gasoline. We respond to comments regarding the impacts of RIN prices on refiners in RTC Section 9.1.8.

Comment:

Multiple commenters stated that they are unaware of any evidence that Congress or EPA intended RIN prices to be low. These commenters generally stated that elevated RIN prices increase the fiscal incentive for obligated parties to secure and blend biofuels and motivate oil companies to diversify motor fuel markets with renewable fuels.

Response:

EPA is also unaware of any evidence that the Congresses that enacted EISA or EPAct intended RIN prices to be low. Even if such evidence existed, it would be of limited relevance, as the statutory text speaks directly to the factors that EPA must consider in determining the volumes in CAA section 211(o)(2)(B)(ii). These factors include a long list of economic and environmental considerations, but do not include RIN prices.

In any event, because many renewable fuels, including biodiesel, renewable diesel, and ethanol blended at levels above 10%, cost more to produce and use than the petroleum fuels they displace, some incentive is required to bring these fuels into the transportation fuel pool. Under the current RFS program RINs incentivize the blending of renewable fuels, and generally represent the marginal cost of blending additional volumes of renewable fuel. While EPA has considered these comments regarding the potential RIN price impacts associated with this rule, EPA has not established the volumes in an effort to achieve a pre-determined RIN price. Rather, the justification for the volumes established in this rule is based on the statutory factors and explained in Preamble Section III and the RIA.

Comment:

Multiple commenters stated that if EPA finalizes the same total renewable fuel volume for 2022 they could and should increase the advanced biofuel volume by 1.5 billion RINs. These parties generally claimed that this change would not impact renewable fuel use but would result in significantly lower D6 RIN prices.

Response:

We respond to this comment in RTC Section 6.3.3.

Comment:

A commenter stated that the proposed volumes would distort the RIN market, since insufficient D6 RINs will be generated to meet the implied conventional biofuel volume. In this case the commenter stated that the price of D6 RINs would approach the price of D4 RINs, increasing the price of D6 RINs with no appreciable impact on ethanol blending.

Response:

In previous years we have observed time periods when the price of D6 RINs was approximately equal to the price of D4 RINs. This is generally the case when the cost of the marginal gallon of conventional renewable fuel is equal to or higher than the cost of the marginal gallon of BBD. In these cases, excess volumes of BBD (beyond what is needed to satisfy the BBD and advanced biofuel volumes) are supplied to help meet the total renewable fuel volume. It is likely that these market circumstances will continue through 2022. We disagree that similar D4 and D6 RIN prices are a distortion of the RIN market; rather this is an expected response to a situation where BBD supplies the marginal gallon of renewable fuel to meet the total renewable fuel volume requirement. Higher RIN prices provide greater incentives for the blending of renewable fuels, including both ethanol and BBD. We discuss this further in RIA Chapter 9.

9.1.4 Impacts of Standards on Retail Fuel Prices

Commenters that provided comment on this topic include but are not limited to: 0347, 0356, 0367, 0373, 0396, 0404, 0406, 0416, 0424, 0430, 0443, 0452, 0462, 0481, 0485, 0494, 0501, 0506, 0517, 0521, and 0575.

Comment:

Multiple commenters stated that the proposed volumes would result in higher fuel prices. Some commenters provided estimates of the impact of the proposed volumes. These estimates generally ranged from $0.20 to $0.30 per gallon. Other commenters similarly stated that lower RFS volumes would result in lower fuel prices.

Response:

We have estimated the impact on fuel prices of the volumes we are finalizing in this rule in RIA Chapter 9.4.3. Our estimates of the impact of this rule on fuel prices are smaller than the potential price impacts estimated by the commenters. The commenters did not provide detail on how they derived their estimates of the impact of the proposed volumes on fuel prices, and this lack of supporting data and technical analysis makes it difficult for EPA to evaluate the numerical impacts they asserted. Nonetheless, we believe these estimates are based on the RFS obligations in the proposed rule and projected RIN prices in 2022. However, these price estimates do not include the subsidy that RINs provide to the renewable fuels that are blended into the vast majority of transportation fuel sold in the U.S. EPA's estimates of the impact of this rule on fuel prices are lower than those presented by the commenters. As discussed in RIA Chapter 9.4.3 retail fuel prices are impacted by many inter-related factors and are therefore very difficult to project. Based on the cost of the renewable fuel volumes we are finalizing in this rule (less the federal tax credits) relative to the 2020 baseline we project that on average gasoline and diesel fuel will increase by approximately $0.02 per gallon. If we assume that the cost of ethanol would be realized in the gasoline pool and the cost of biodiesel and renewable diesel (less federal tax credits) would be realized in the diesel pool, we project no impact on gasoline prices and an increase of approximately $0.07 per gallon of diesel. We also have provided estimates of the impact of RIN prices on various fuel blends for the RVOs we are finalizing in this rule. We estimate that the RIN price impacts on E10 and B5, the average renewable fuel blends sold in the U.S., are $0.01 per gallon in 2022 relative to the 2020 baseline and $0.01 and $0.05 respectively relative to the No RFS baseline.

Comment:

A commenter stated that if EPA were correct that the costs of RINs used for compliance are passed through to consumers, that would mean consumers will have to pay almost $75 billion to cover the costs of RINs that will be needed for compliance with the proposed 2020, 2021, and 2022 Total Renewable Fuel Volume Requirements. The commenter stated that based on the low end of the range shown in EPA's proposed percentage standards for 2022, the cost of RINs being passed through would mean that the RFS program is inflating fuel prices at the pump by more than 15 cents per gallon.

Another commenter stated that the RIN cost to obligated parties has ranged from $0.15 to $0.30 per gallon over the past year. This commenter cited industry experts that claimed that lower RFS volumes would reduce D6 RIN prices and fuel prices.

Response:

In estimating the total cost of RINs and the per gallon cost to obligated parties these commenters appear to have estimated the RIN price impact on the petroleum-based components of transportation fuel, but ignored the RIN price impact on the renewable fuels that are blended into transportation fuel. As discussed in the previous response, after accounting for the RIN price impact on both the petroleum-based and renewable portions of transportation fuel the estimated fuel price impacts are much smaller than claimed by the commenter (see RIA Chapter 9.4.3 for further detail).

Comment:

A commenter stated that they are unaware of any evidence to support the argument that elevated RIN prices increase gas prices. The commenter cited EIA statements that retail gasoline prices are mainly affected by crude oil prices and the level of gasoline supply relative to gasoline demand.

Another commenter cited a white paper by the Renewable Fuels Association that concluded that there was close to no relationship between RIN prices and gasoline prices.

Response:

Nearly all gasoline sold in the U.S. is E10 (gasoline with 10% ethanol). While we project that this rule is associated with an increase in the price of E10 (see RIA Chapter 9.4.3) the projected price increase for E10 is small, ranging from $0.00 to $0.01 depending on the volume and baseline assessed. This small price impact is likely too small to detect in a correlation of gasoline prices and RIN prices, as gasoline prices are much more influenced by factors such as crude oil prices and the supply of gasoline relative to the demand as the commenter notes. The expected impact on the cost to transport goods is similarly very small (less than 0.5%, see RIA Chapter 9.4.3.3).

Comment:

The proposed volumes would result in higher fuel prices, and those higher fuel prices would increase the price of all commodities that rely on refined products for distribution and delivery.

Response:

As discussed in the previous comment responses, we acknowledge that this rule will likely result in an increase in fuel prices and the cost to transport goods, but we expect these increases to be small (see RIA Chapter 9.4.3).

Comment:

Costs and fuel prices should be a bigger and more important consideration in establishing the RFS volumes. EPA's proposal contradicts Congress's directive to consider "the impact of the use of renewable fuels on the cost to consumers of transportation fuel and on the cost to transport goods," particularly in light of concerns over inflation and fuel prices. EPA fails to adequately explain how it weighted these factors and does not appear to have considered "the cost to transport goods" in the preamble at all.

Response:

EPA considered the cost of the volumes in this final rule, as well as the expected impact on fuel prices and the cost to transport goods. Our projections are presented in detail in RIA Chapter 9. The cost of this rule is small relative to overall annual costs of transportation fuel in the U.S., and the rule is not expected to have a significant impact on fuel prices, particularly for the most common finished fuels including E10, or the cost to transport goods. EPA has broad discretion in determining how to consider the various statutory factors when establishing the RFS volumes, and the statute does not require EPA to weigh costs more heavily than other factors. For a discussion of how we considered the statutory factors see Preamble Section III and the RIA.

EPA also considered costs, including the costs to transport goods, in the proposal. While we did not specifically detail our consideration of costs to transport goods in the preamble, we did so at length in the DRIA. We proposed the volumes based upon all the information contained in the record, not just the preamble.

Comment:

EPA makes an unsupported statement that RNG has a "relatively significant impact" on the price of gasoline and diesel fuel of $0.01 per gallon. While EPA's DRIA discusses D3 RIN prices generally and who may receive the value of the RIN compared to other biofuels, EPA does not cite to any specific analysis explaining this finding in the preamble discussions, making it difficult for the public to meaningfully comment on this issue. We understand EPA may be considering the cost of D3 RINs to meet the proposed volume compared to the volume of obligated fuels. Considering the cost of D3 RINs to meet the proposed volume may not be an appropriate methodology for assessing the cost of renewable fuel on consumers when obligated parties use a myriad of ways to comply with the RFS program that is not necessarily reflected in simply considering RIN prices. Higher gasoline and diesel prices since the proposed rule make RNG relatively more cost effective.

Response:

In the proposal, EPA explained in detail why we believed that a significant portion of the RIN value associated with cellulosic biogas was not necessarily redistributed within the transportation fuel pool, but rather may be kept outside of it, and consequently reflected a financial transfer from consumers of gasoline and diesel to other parties. Specifically, on page 49 of the DRIA, we stated:

> At the same time, the relatively high value of the CWC plus D5 RIN price, in conjunction with EPA's statutory obligation since 2010 to set the required volume of cellulosic biofuel at the volume expected to be produced each year, has resulted in generally high D3 RIN prices. These RIN prices are realized for all cellulosic RINs, even those generated for biofuels such as CNG/LNG derived from biogas that can often be produced at a cost that is competitive with the petroleum fuels they displace even without the RIN value. While some of this excess RIN value may be passed on to consumers who use CNG/LNG derived from biogas as transportation fuel in the form of lower cost fuel and/or longer term fixed-price fuel contracts, a significant portion of the RIN value may remain with the biofuel producer, the parties that dispense CNG/LNG derived from biogas, and any other parties involved in the generation of this type of cellulosic biofuel. Unlike other RIN costs that are generally transfered within the liquid fuel pool (e.g., from consumers of fuels with relatively low renewable fuel content such as E0 or B0 to consumers of fuels with relatively high renewable fuel content such as E85 or B20), much of the RIN value for CNG/LNG derived from biogas may be transferred from consumers who purchase gasoline and diesel fuel to parties outside of the liquid fuel pool (e.g., landfill owners).

EPA inadvertently did not explain the derivation of the $0.01 per gallon figure in the proposal, but it appears the commenter was able to determine that this estimates was based on the cost of the cellulosic (D3) obligation on gasoline and diesel. In any event, our proposed volumes did not hinge on that precise number (e.g., there is no mathematical connection between the final volumes and that number). Rather, in proposing the volumes, we balanced all the statutory factors, including the fact that cellulosic biogas used for RFS compliance could have significant impacts on gasoline and diesel prices. As such, we believe that the public had sufficient information to comment on the basis for EPA's proposal. In any event, this commenter was able to provide meaningful comments on this issue.

In the final rule, EPA has added additional detail to support our estimate that the cellulosic biofuel volume requirement (which is projected to be satisfied almost entirely by CNG/LNG derived from biogas[142]) will increase fuel prices by approximately $0.01 per gallon relative to fuel prices in the absence of the RFS program (the No RFS baseline). This detail can be found in RIA Chapters 1.9.2 and 9.4.3. Unlike with liquid cellulosic biofuels, this price impact is not offset through the blending of renewable fuels into gasoline or diesel, since CNG/LNG cannot be blended into gasoline or diesel fuel.

We disagree with the commenter that considering the D3 RIN price impacts is not an appropriate way to estimate fuel price impacts. The cellulosic RVO applies equally to all parties that produce or import gasoline and diesel. EPA has also concluded that the cost of acquiring RINs is the same for all obligated parties, whether these parties acquire RINs by purchasing and blending renewable fuels with attached RINs or whether they purchase separated RINs.[143] As such, consideration of RIN price impacts is a reasonable way of assessing fuel price impacts.

While higher gasoline and diesel prices may make CNG/LNG derived from biogas relatively

[142] Commenters often use the term renewable natural gas or RNG to refer to CNG/LNG derived from biogas.
[143] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

more cost effective when compared to gasoline and diesel, these higher prices do not eliminate or reduce the RIN price impact on gasoline and diesel fuel. These are two different things (i.e., (1) the social costs of CNG/LNG relative to gasoline and diesel and (2) the RIN price impacts associated with CNG/LNG on gasoline and diesel), and we assess them separately in RIA Chapter 9. In addition, we note that because CNG/LNG derived from biogas is generally used in vehicles that operate exclusively on CNG/LNG, it is more appropriate to compare the cost of CNG/LNG derived from biogas to the cost of natural gas rather than the cost of gasoline or diesel.

Comment:

A commenter stated that the RFS has succeeded because Congress, in designing the program, recognized that the most effective way to get American motorists to consume more low-carbon biofuels is to make biofuel blends less expensive than the petroleum-based fuels they are designed to displace. The RFS was designed to reward companies that blend biofuel because those companies can use the value of the RINs associated with those blends to lower their costs of goods sold, and noted that these incentives apply to both refiners that do their own blending, as well as wholesalers and retailers that do their own blending.

Another commenter stated that higher-ethanol blends must be priced below the point of E10 parity on an energy-equivalent basis to be widely competitive. In practice, however, this relative pricing has not been achieved. The RFS program provides a mechanism to redress this relative-pricing problem and spur greater conversion from E10 to higher-ethanol blends. More demanding RFS standards would reduce the supply of RINs and thereby raise their price. Because RINs function as a discount, or coupon, on transportation fuel, the higher the ethanol blend, the greater the RIN-based discount to the consumer. Consequently, higher RFS standards lower the prices of higher-ethanol blends.

Response:

The RFS program operates as a cross subsidy between petroleum-based fuels and qualifying renewable fuels. The program effectively subsides the price of renewable fuels through the value of the RINs that are generated when qualifying renewable fuels are produced. The value of the RIN allows fuels that contain greater proportions of renewable fuel to be sold at lower prices than would otherwise be economically viable. The estimated effect of the RFS program on various fuel blends can be found in RIA Chapter 9.4.3.2.

While the RFS program has been effective in reducing the price of fuel blends containing renewable fuels, and in doing so increasing the demand for renewable fuels, its ability to increase demand for renewable fuels is not without limit. This is particularly true for higher level ethanol blends, which face a number of challenges to greater use including issues related to poorer economics, infrastructure compatibility, consumer acceptance, and competitive pricing. For a further discussion of these issues see RTC Section 5.4 and RIA Chapters 5.5 and 6.4.

Comment:

Non-obligated position holders at the terminal rack who blend ethanol use the value of their RINs to significantly subsidize gasoline prices at retail fueling facilities they operate. This gives these large, vertically integrated multistate retailers the ability to set retail prices far below their retail competitors. Most retailers are not vertically integrated in a way that would allow them to effectively compete against such heavily subsidized gasoline prices. The vast majority of retailers must enter into supply agreements with the major refiners. Non-blending refiners don't use RIN values to subsidize retail gasoline prices, but instead pass it down as an added cost that the retailer must pay. This results in a highly uneven and unfair playing field for the majority of retailers who are not vertically integrated from the terminal rack down to the retail pump.

Response:

EPA examined the relevant data on this issue in the context of our consideration of small refinery exemptions. We determined that the RFS program does not advantage vertically integrated retailers over smaller retailers. For a further discussion of this topic see "June 2022 Denial of Petitions for RFS Small Refinery Exemptions" (EPA-420-R-22-011, June 2022).

Comment:

EPA's proposal cannot affect gas prices in 2021 at all. As for 2022, EPA's expectation that its proposal would slightly decrease gasoline prices is sound and well-supported by its evidence.

Response:

Because we are finalizing the RFS volumes in 2022, this rule will not impact gasoline prices in 2021. However, in RIA Chapter 9 we have discussed the costs and fuel price impacts of the 2021 volumes relative to the 2020 volumes. We believe that this analysis provides useful information to the reader on the costs and fuel price impacts of the renewable fuel used in 2021 relative to 2020 despite the fact that this rule cannot impact costs or fuel prices in 2021. We discuss our use of the 2020 baseline further in RIA Chapter 2.

As discussed in Preamble Section III, higher (or lower) RFS requirements could impact fuel prices prospectively, including in 2022. The RIA finds slight increases in gasoline prices associated with the volumes based on the social costs of renewable fuels relative to gasoline and diesel. This is different from the proposal, where we found a slight decrease in gasoline prices. As we explain in RIA Chapter 9, this is largely due to significant increases in corn prices since the proposal.

Comment:

Ethanol is currently more expensive than gasoline, so not only is the RFS bad environmental policy, but the requirement to blend ethanol into our fuel supply is also contributing to higher gas prices.

Response:

According to data from USDA[144] and EIA[145] ethanol is currently cheaper than gasoline on a volumetric basis, though typically not on an energy equivalent basis. While ethanol contains less energy than gasoline on a per gallon basis, reducing miles per gallon, it also contains valuable properties, such as a very high octane rating when bended with gasoline at low levels such as in E10.

Our cost assessment, presented in RIA Chapter 9, suggests that this rule is associated with a small increase to the social cost of gasoline in 2021 and 2022 relative to the 2020 baseline. However, given that the vast majority of gasoline is consumed as E10 and the RFS cross-subsidy between the renewable and fossil content of that fuel, the impact on the retail price of gasoline is expected to be small, roughly $0.00 to $0.01 depending on the year and baseline used. We acknowledge that there are greater impacts on the price of E0 (petroleum gasoline with no ethanol blended); however, this rule is also associated with reduced prices for E15 and E85.

[144] USDA Daily Ethanol Report, April 12, 2022.
[145] EIA Today in Energy, April 12, 2022.

9.1.5 Price and Supply of Agricultural Commodities and Farm Income

Commenters that provided comment on this topic include but are not limited to: 0355, 0378, 0402, 0433, 0438, 0445, 0449, 0451, 0458, 0471, 0481, 0493, 0497, 0505, 0521, and 0575.

Comment:

One commenter suggested that the proposed cuts for 2020 and 2021 would reduce corn demand by 1.05 billion bushels, which is expected to cause a drop in commodity prices. However, there are no underlying references for this figure or explanation of how it was determined.

Response:

As we explain in RIA Chapters 7.3 and 7.4, when compared to a baseline of 2020 actual consumption, the 2021-22 volumes set forth in this rule are associated with increased corn demand and commodity prices. When compared with a no-RFS baseline, since 2020 and 2021 are now historical years, we do not expect the 2020-2021 standards to affect biofuel use or consequently biofuel-related corn demand during those years. Unfortunately we are unable to comment further without additional detail on the sources of the commenter's figures.

Comment:

A commenter stated that corn surpluses have remained net-positive for many years, despite increasing use for ethanol. This is thanks largely to increasing per-acre yields and crop-substitution, trends that will continue to mitigate supply constraints with additional expansion of ethanol volumes. One commenter noted that Iowa farmers produced the highest corn crop on record in 2021 and produced a record amount of biofuel. Another commenter raised concerns about the RFS requirements causing expansion of corn planting and displacement of other crops.

Response:

As we explain in RIA Chapters 5 and 7, we believe there will be sufficient corn to produce the biofuels associated with this final rule. In addition, as we explain in RIA Chapters 2 and 5, we expect that a significant amount of corn ethanol produced in the U.S. will continue to be exported for use internationally. Thus, the supply of corn is not a constraining factor in achieving the final volumes.

Corn surplus levels are a result of two factors, the rate of use of corn, which is a function of biofuel demand among other uses, and the production rate, which is largely a function of planted acres, yields, and the weather. Per-acre yields have increased steadily over time with improvements in plant breeding, optimized chemical use, and technological advancements in the equipment used to plant and harvest to allow tighter row spacing (for example). Weather adds a degree of unpredictability to surpluses, despite best planting and harvesting practices. See RIA Chapter 7.4 for additional discussion on the relationship between corn stocks and prices.

The decision to plant corn on acres currently planted to other crops (e.g., wheat, soy) is primarily a function of expected revenue per acre. However, there are other factors that must be considered, such as soil type and optimizing year-on-year crop rotation patterns. We have additional discussion of the association between this RFS rule and crop planting in RIA Chapters 3.3 through 3.5 and RTC Section 9.2.

Comment:

Several commenters stated that EPA under-estimated food price impacts and must use updated soy oil prices in the analysis. One commenter requested additional explanation of figures in RIA Table 7.4-1 and stated that in general the RIA doesn't sufficiently explain how EPA balanced the statutory factors covered in Chapter 7. They cite a study by Advanced Economic Solutions (AES), showing proposed volumes would increase food prices by $11 billion, which is more than three times higher than what's shown by EPA. One commenter suggested EPA needs to consider the recent rise in general price inflation when considering the impact of the RVO on commodities. Another commenter states that the very rapid increase in biofuel-related vegetable oil demand over the past two years could cause price spikes in a way that earlier biofuel expansions haven't, and suggests EPA should use its statutory authority to consider price and supply of edible oils when setting the standards.

Meanwhile, numerous commenters stated that only a tiny fraction of food price inflation is related to biofuel. Some cited a 2020 Purdue University study that found a negligible effect of biofuel production and policy on food prices during periods from 2004-2016. One commenter noted that 2021 volumes will not impact food prices because 2021 is over, and the impact of 2022 volumes on food prices will be small, citing the Purdue study.

Response:

We have updated our estimates of the food price impacts of this rule using more recent price projections from USDA's WASDE. This attempts to capture the recent inflation of commodity prices.

While we did not find a copy of the AES study in the submitted materials, it appears that the $11 billion figure is based on the entire price increase for soybean oil from 2019/2020 to 2021/2022, potentially with an additional increase in 2021/2022 to account for the increased use of soybean oil for biodiesel and renewable diesel production that we projected would occur in association with the proposed volume. This methodology effectively attributes the entire change in soy oil price during 2020-2022 to biofuel demand, which we do not believe is the proper approach.

As we explain in RIA Chapter 7.4, the steep price increase in 2020-2021 is a result of many factors, most notably weather-related events impacting the harvest of soybeans in South America and palm oil in Malaysia. This is consistent with points made in the Purdue study cited by commenters. In this rule we have used a published estimate of soybean oil price impact per billion gallons of biofuel. The application of this factor is shown in the center column of Table 7.4-1, where we multiply the factor of $0.16/lb per billion gallons of biofuel by 0.224 billion gallons (224 million) to get $0.04/lb increase for 2021 and by 0.949 billion gallons to get

$0.15/lb for 2022. In this way we are attempting to isolate the price impact due to increased biofuel production versus the many other factors that impact vegetable oil prices. For more detail on our projection of the impact of this rule on food prices see RIA Chapter 7.5.

The commenter who claimed that recent rapid increases in biofuel-related vegetable oil demand would cause price spikes in a way that earlier biofuel expansions have not failed to provide supporting analyses. This commenter did not explain why EPA's methodology failed to account for the extent of the increases during the timeframe for this rule or suggest a more appropriate alternative methodology. To the contrary, EPA's methodology does directly account for the extent of the increase as we multiply the scaling factors for soybean oil by the quantity of the biofuel increase.

We agree with the commenters asserting that food price impacts will be small, consistent with the Purdue study. We also agree that when the 2021 volumes are considered relative to a no-RFS baseline, this rule will have no impact on food prices, since 2021 has already passed.

We note, moreover, food price impacts are better viewed as a transfer, rather than a social cost. That is, while we project higher prices for consumers of food, those high prices also mean increased revenues for rural communities that produce the food.

The statute doesn't give us any particular thresholds or targets in assessing the factors discussed in RIA Chapter 7. We believe we have appropriately considered food prices impacts, as well as the price and supply of edible oils, in the context of all of the statutory factors in establishing the standards.

9.1.6 Rural Economies

Commenters that provided comment on this topic include but are not limited to: 0393, 0402, 0438, 0447, 0458, 0469, and 0510.

Comment:

Commenters cited a 2020 Purdue University study[146] that found the RFS program increased farm incomes by over $3 billion over the 2004-2016 time period. Ethanol production and related facilities are largely rural operations, which support rural jobs and economic growth. Higher RFS standards support increased sales and manufacture of farm equipment (e.g., tractors and combines). Analysis by LMC International[147] indicates biomass-based diesel industry supports $17 billion in economic impact, much of which is in rural areas. Increases in volumes will support further impact. Consistent and growing RVOs help farmers maintain and improve their lands and cause obligated parties to make infrastructure investments. One commenter stated that higher RVOs and RIN prices do not help farmers or renewable fuel producers.

Response:

We agree with the general conclusions of the Purdue University and LMC studies, namely that higher biofuel production directionally benefits rural economies. However, there is significant uncertainty in what proportion of biofuel use is caused by the *RFS standards* in any given calendar year. In many cases, significant biofuel use would occur for economic reasons, regardless of the RFS program. We further discuss this issue in RIA Chapter 2.

The commenter claiming that higher RVOs and RIN prices do not help farmers or renewable fuel producers did not offer references to publications or other supporting analysis as a basis for this position. While we recognize that higher renewable fuel volume requirements are likely to have a limited impact on ethanol consumption in the near term, higher RVOs increase demand for biofuel, particularly for non-ethanol biofuels. Much of these biofuels are made from crop-based feedstocks, and accordingly contribute to revenue for farmers of those crops. We further discuss the impacts of the RFS on rural economic development and job creation in the section immediately below and RIA Chapter 7. Higher RIN prices provide a subsidy for renewable fuels, as discussed in RIA Chapter 9.4.3.

[146] Taheripour, F., Baumes, H., & Tyner, W. E. (2020). Impacts of the U.S. Renewable Fuel Standard on Commodity and Food Prices. https://www.gtap.agecon.purdue.edu/resources/download/10238.pdf.
[147] The Economic Impact of the Biodiesel Industry on the U.S. Economy. LMC International. August 2019. https://www.biodiesel.org/docs/default-source/federal-files/lmc_economic-impacts-of-biodiesel_august-2019.pdf?sfvrsn=ce27766b_2

9.1.7 Jobs and Profitability of Biofuel Producers

Commenters that provided comment on this topic include but are not limited to: 0392, 0442, 0458, 0459, 0469, 0471, 0473, 0485, and 0510.

Comment:

Numerous commenters support the proposed volumes on the basis that biofuels support American agriculture and create good-paying jobs. One soybean processor with biodiesel-related activity on-site counts themselves as a significant employer in their rural area, and states that fluctuations in biodiesel demand will affect employee work hours. Multiple commenters cited analysis by LMC International[147] indicating that the BBD industry supports over 65,000 jobs and $2.5B in wages, largely in rural areas, and those commenters expect increases in volumes will support job and wage growth. One commenter points out that consistent and growing RVOs help maintain rural jobs that can't be outsourced, and notes that increasing BBD standards can help mitigate job loss at biodiesel facilities related to renewable diesel expansion. The Coalition for Renewable Natural Gas states that EPA made the improper assumption that additional biogas projects will not result in employment, and present data and analysis illustrating this.

Response:

We generally agree that increasing renewable fuel volumes support jobs related to biofuel production and the production of underlying feedstocks. However, there are many drivers of biofuel use and production, so not all economic impacts of biofuels can be directly attributed to the RFS or to the 2020-2022 RVOs in particular. Furthermore, while the comments on employment may provide insights into the impacts of biofuels and related industries, they do not provide a complete picture of the impact of a change in biofuel use on employment throughout the whole U.S. economy or even the agricultural sector.

As we explain in RIA Chapter 2 and RTC Sections 4 and 6, we are projecting relatively stable biodiesel production, with a slight increase in 2022 relative to 2021. Thus, we do not expect significant job losses in the biodiesel sector due to renewable diesel expansion. In any event, as we explain in RIA Chapter 10 and RTC Section 6, we expect the advanced biofuel and total renewable fuel standards, not the BBD standard, to drive BBD use in 2022. Thus, we do not expect that increasing the BBD standard will lead to increased biodiesel use or production.

For the final rulemaking we have updated our discussion of employment in RIA Chapter 7 to include job impacts of renewable natural gas projects.

9.1.8 Impact of the Standards on Refiners

Commenters that provided comment on this topic include but are not limited to: 0356, 0361, 0363, 0369, 0373, 0379, 0380, 0382, 0383, 0384, 0387, 0393, 0394, 0405, 0406, 0409, 0416, 0422, 0426, 0443, 0446, 0455, 0456, 0457, 0466, 0481, 0494, 0506, 0529, 0568, 0573, 0573, 0576, and 0577.

Comment:

Several commenters stated that the RFS program advantages large integrated refiners over small and/or merchant refiners, and that if the RFS volumes were not reduced they would cause some refineries to close. These commenters generally stated that these advantages increased as RIN prices increased and claimed these advantages were due to the ability for refiners that blend renewable fuels to acquire RINs at a lower the lower cost than refiners that purchase separated RINs, the ability for refiners and non-obligated blenders to use the value of the RIN to discount the price of blended fuel, or both.

Response:

These commenters are reprising the same arguments that they have made for several years on EPA annual rulemakings. However, commenters failed to present new concrete data, analyses, or other new information that warrant EPA reaching a different conclusion. As we explained in our 2017 Point of Obligation Denial, EPA has conducted a detailed technical analysis and does not agree with these claims. Since then, EPA has regularly reviewed the available fuels market and RIN price data. This data continues to support our conclusions that all parties have the same cost to acquire RINs and that RIN costs and the RIN value are generally passed through to consumers. Therefore, the RFS program does not provide an advantage or disadvantage to any refiner, nor does it advantage non-obligated blenders over refiners. For our most recent assessment of the impact of the RFS program on refiners, and specifically on small refiners, see the June 2022 Denial of Petitions for RFS Small Refinery Exemptions.

Comment:

Multiple commenters stated that the proposed volumes would require the use of carryover RINs depleting an already low RIN bank and would result in high and volatile RIN prices. This would threaten the viability of some refiners, and would result in refinery closures. The commenters generally cited small and merchant refiners inability to recover the cost of RINs as the reason high RIN costs would result in refinery closures, with one commenter citing the 2011 DOE study. Refinery closures would result in the loss of many jobs, and even more indirect job losses. Some of these commenters noted that refiners are now spending more on RIN costs than all other operating costs, including wages.

Response:

As we explain in Preamble Section III, the proposed volumes are not intended to draw down the carryover RIN bank, but can be achieved by actual biofuel use. Notably, we have set the 2020-21

volumes at those actually used, which will preserve the size of the RIN bank for 2022 compliance. We also project that that the 2022 standards, including the supplemental standard, can be met by actual biofuel use in 2022.

We recognize that because the implied conventional renewable fuel volume we are finalizing for 2022 is greater than the E10 blendwall, and because renewable fuels are generally more expensive than the petroleum fuels they displace, that D6 RIN prices are unlikely to fall to levels observed in the early years of the RFS program (less than $0.10 per RIN). We also recognize that there are significant job impacts when refineries close. However, RIN prices similar to or even higher than current RIN prices have been shown not to negatively impact refiners, including small and merchant refiners. This is because refiners recover the cost of acquiring RINs (whether they are acquired by blending renewable fuels or purchasing separated RINs) in the sales price for the petroleum-based fuels they sell. EPA has regularly reviewed the available fuels market and RIN price data, and this data continues to support our conclusions on RIN cost passthrough. For our most recent assessment of the impact of the RFS program on refiners, and specifically on small refiners, see the June 2022 SRE Denial.[148] In light of this we have determined that the final volumes are not likely to result in refinery closures.

Comment:

Multiple commenters stated that EPA's statements that refiners can pass through the cost of RINs are unfounded. Some commenters claimed that non-obligated blenders, such as large retail fuel marketers, are profiting on RIN sales at the expense of independent merchant refiners that do not and cannot blend renewable fuels.

Specifically, a commenter cited a statement from Wells Fargo Equity Research that "It is well known merchant refiners struggle to recover elevated RINs costs while others benefit, particularly blenders and retail." The commenter also cited statements by Casey's General Store, Murphy USA, and Marathon, indicating RIN revenue had increased recently and was contributing to profits. The commenter stated that RINs cannot contribute to earnings – which according to the commenter are profits – if they value of the RIN is passed through to consumers.

Response:

The statement the commenter cited from Wells Fargo Equity Research is unsupported by the available data. Further, the quotes the commenter cited by blenders (e.g., Casey's General Store, Murphy USA, and Marathon) related to increased RIN revenue contributing to earnings are not in conflict with EPA's findings on RIN passthrough. Parties that acquire more RINs than they need for compliance sell these RINs to other parties and realize revenue through the sale of these RINs. The revenue they realize necessarily increase when RIN prices increase. However, since their costs to acquire the RINs rise by the same amount when RIN prices rise, there is no impact on profits. Thus, this revenue is not the same as profits. If RIN revenue is passed through to consumers, then higher RIN prices increase both the cost to acquiring RINs and the revenue for

[148] "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

RIN sales. The concept of RIN passthrough is not in conflict with higher RIN prices resulting in higher earnings without increasing profits.

We also note that blenders themselves have directly stated that higher RIN prices do not impact their profits. For example, in an earnings conference call Andrew Clyde, president, CEO & Director of Murphy USA stated:

> …the reality is RINs and RIN prices are immaterial to our business. Historically, and you can look back over the last 3 years annual results, we've made $0.02 to $0.03 per gallon on product supply and wholesale net of RINs. And so during the quarter on the average, we generated about the equivalent of $0.07 a gallon per RIN, but net of the negative spot to rack margins of $0.04, we netted a little bit over $0.03, and some of that was due to butane blending and other things that we benefited. So call it sort of $0.03 net of the supply margin net of RINs. And we're going to see that whether RINs are at a about or they're at $0.10. If RINs are high, the refinery gate price is high and like it was in this quarter, our refinery gate spot to rack margin is negative. So you're spot on. It really doesn't matter what the RIN prices are.[149]

Comment:

A commenter stated that EPA misinterpreted academic literature on RIN cost passthrough. The commenter claimed that an unbiased review of the literature reveals that most studies analyzing RINs pass through do not conclude RINs are completely passed through, and recognizes that pass-through varies regionally, with the East Coast market regularly exhibiting a lack of pass-through. To support these statements the commenter cited papers by Pouliot, Smith, and Stock (2017) and Burkhardt (2019).

Finally, the commenter states that EPA also fails to recognize that RIN costs at recent levels can add such a significant amount to the overall cost of production ($0.15 - $0.30 per gallon) that it can shift the supply curve for fuels and make certain classes of refiners – merchant and small refiners – the marginal refiner, and become the exclusive contributor to whether they can remain financially viable.

Response:

EPA addressed the academic literature on RIN cost passthrough in the June 2022 SRE Denial.[150] Importantly, we determined that while RIN costs increase the price of petroleum-based fuels and blendstocks, these price increases are generally off-set by the discount on blended fuels enabled by the sale of RINs associated with the renewable portion of the blended fuel. Thus, the impact on the price of blended transportation fuel is much smaller than the $0.15 - $0.30 estimated by the commenters.

As discussed in RIA Chapter 9.4.3 retail fuel prices are impacted by many inter-related factors and are therefore very difficult to project. Based on the cost of the renewable fuel volumes we

[149] Murphy USA Q1 2021 Earnings Call Transcript. April 29, 2021.
[150] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

are finalizing in this rule (less the federal tax credits) relative to the 2020 baseline we project that on average gasoline and diesel fuel will increase by approximately $0.02 per gallon. If we assume that the cost of ethanol would be realized in the gasoline pool and the cost of biodiesel and renewable diesel (less federal tax credits) would be realized in the diesel pool, we project no impact on gasoline prices and an increase of approximately $0.07 per gallon of diesel. We also have provided estimates of the impact of RIN prices on various fuel blends for the RVOs we are finalizing in this rule. We estimate that the RIN price impacts on E10 and B5, the average renewable fuel blends sold in the U.S., are $0.01 per gallon in 2022 relative to the 2020 baseline and $0.01 and $0.05 respectively relative to the No RFS baseline.

Specifically, EPA has considered the Pouliot et al. 2017 study and identified several concerns with the methodology. EPA also finds the 2019 Burkhardt paper cited in the comments to be largely consistent and supportive of the conclusions EPA has reached with respect to RIN cost passthrough. These studies, and other published work that examined RIN passthrough and the impact RINs on refiners and fuel prices are discussed in greater detail in the June 2022 SRE Denial.[151]

Comment:

A commenter stated that the RFS was designed to reward companies that blend biofuel because those companies can use the value of the RINs associated with those blends to lower their costs of goods sold. The competitive nature of the retail fuels market compels retailers to pass through cost savings to consumers in order to maintain and increase their market share. The cost savings enabled by the RIN are necessarily also passed through to consumers. In their efforts to provide the most competitively priced fuel to their customers, many members buy and blend biofuels into their fuel supply when the blending economics allow them to do so. Even those that do not blend themselves frequently purchase pre-blended biofuels and pass along the associated savings to their customers.

Another commenter agreed with EPA's conclusions on RIN cost passthrough, noting that the API also has supported EPA's conclusions.

Response:

These comments are consistent with EPA's characterization of RIN passthrough. Parties that acquire RINs by blending renewable fuels use the revenue from RIN sales to lower the cost of the blended fuel they sell. Parties that purchase pre-blended fuel do so at a discount enabled by the RIN value realized by the fuel blender. In both cases, the competitive nature of the fuels market ensures that the RIN value is generally passed through to consumers in the price of

[151] See Section III of Appendix B, "June 2022 Denial of Petitions for RFS Small Refinery Exemptions: Appendices," EPA-420-R-22-011A, June 2022.

blended fuels.[152] In this way the RIN value can incentivize greater use of renewable fuel in the transportation pool, including those volumes we are finalizing for 2022.

Comment:

Multiple commenters stated that the high cost of purchasing RINs is preventing refiners from investing in new capital projects, including renewable fuel production. Some commenters noted that refinery investment in capital projects increase employment, and conversely any reduction in capital projects decreases employment.

Response:

As discussed in the previous responses, we have concluded that refiners recover the cost of acquiring RINs (whether they are acquired by blending renewable fuels or purchasing separated RINs) in the sales price of the petroleum-based fuels they sell. Thus, the RFS program does not impact the ability for refineries to invest in new capital projects, including capital projects that would enable the production of renewable fuels.

Comment:

Smaller merchant refiners lack pricing power due to their small size and the fact that they are obligated parties while many of their competitors are not. These parties have to give up some of the RIN value when selling blended fuels, and cannot increase the price of unblended fuels to recover their compliance costs.

Response:

EPA's conclusions on RIN passthrough are not dependent on refiners being able to retain the RIN value when selling blended fuel or being able to increase the price of unblended fuels above the market rate to recover compliance costs. Instead, because all obligated parties have the same cost to acquire RINs, small merchant refiners recover their compliance costs when they sell unblended fuels at the market price. Similarly, all parties, whether smaller merchant refiners, larger integrated refiners, or unobligated blenders, must discount blended fuels by the value of the RIN to be able to offer these fuels at a competitive price given the competitive nature of the RIN market. These concepts are discussed in greater detail in the recent June 2022 SRE Denial.

Comment:

Non-obligated blenders are holding on to RINs, rather than selling them to obligated parties. This can cause RIN shortages and drive up RIN prices. One commenter cited comments from Casey's General Store where they acknowledge holding RINs when RIN prices are rising.

[152] EPA has found that the RIN value is passed through in the price of most blended fuels, such as E10 and B5. Some fuels, such as E85, do not appear to reflect the full value of the RIN. This is likely because these fuels represent a very small portion of the transportation fuel pool. Because few retailers offer E85, the retail price for E85 may not reflect competitive pricing.

Response:

We recognize that individual RIN holders may make decisions to sell or hold RINs based on their expectations of future RIN prices. However, individual parties generally do not hold sufficient RINs such that their decision to hold RINs results in RIN shortages or significantly impacts RIN prices. We recognize that some parties may choose to hold RINs if they believe the RIN price will increase in the future. While this may be profitable for these parties if RIN prices increase, it also has the potential to result in losses if RIN prices decrease. Speculating on the RIN market in this way carries inherent risk given the potential for RIN prices to increase or decrease, and the fact that RINs have a relatively short useful life (e.g., they can only be used to demonstrate compliance for the year in which they are generated, or the following year in a limited quantity). We are not aware of concrete evidence demonstrating that speculation in the RIN market is appreciably impacting RIN prices.

Comment:

The late rulemaking has costs and consequences to the industry. Obligated parties must develop compliance plans that include quantifying number of RINs needed, RIN acquisition strategy, decisions on whether to carry over a deficit, and how to manage any banked RINs. In the absence of any proposed standards, companies are left to "guess" at what the standards might be. This can lead to either significant under or over purchase of RINs. Obligated parties cannot pass through incremental RIN prices retroactively.

Response:

We recognize that finalizing RFS standards after the statutory deadlines may impact obligated parties. In establishing RFS volume for 2020-2022 we have balanced the burden on obligated parties of a retroactive standard with the broader goal of the RFS program to increase renewable fuel use. See Preamble Sections II and III for a further discussion of our considerations for retroactive and late rules.

We do not agree with the commenter, however, that the late and retroactive nature of this rulemaking means that obligated parties could not pass through their RIN costs. Even if it were true that passthrough was somewhat incomplete (a proposition for which we have not seen data to support), that by itself would not overcome our judgment as to the final volumes, which are based on careful and comprehensive balancing of benefits and burdens, as explained in the preamble. The commenter, however, did not provide any concrete data or associated analyses to support their claims obligated parties in general or any specific obligated party did not or could not pass through RIN costs for the 2020-2022 compliance years due to the lateness of this rulemaking.

Moreover, upon consideration of this comment, EPA chose to conduct its own quantitative analysis into this issue. We found substantial evidence that obligated parties were able to reasonably anticipate the costs of compliance for the 2021-22 standards in advance of this final rule. To assess the ability for obligated parties to reasonably anticipate the cost of compliance for 2021 and 2022 we considered estimates of the aggregate RVO costs that were published by OPIS

in 2021 and 2022. We compared the RVO costs estimated by OPIS at that time to the RVO costs calculated for December 2021 and January 2022 using the actual RIN prices from these months and the percentage standards we are finalizing in this rule for 2021 and 2022. We chose one month from each year (2021 and 2022) to check whether the reported and calculated RVO costs were similar in both 2021 and 2022. Our calculated RVO costs using the percentage standards we are finalizing in this rule were very close to the RVO costs reported by OPIS, indicating that the market had anticipated the percent standards we are finalizing in this rule for 2021 and 2022 and was operating accordingly.[153] Thus, available market data indicates that obligated parties were able to anticipate the 2021-2022 percent standards we are finalizing in this rule based on the actual volumes and pass through RIN costs, and therefore are not adversely impacted by the timing of this rule.

We acknowledge that our decision to revise the 2020 standards may have affected market expectations engendered by the original 2020 rule. We address this issue specifically in Preamble Section III.C and RTC Section 6.1.

Comment:

A commenter stated that refiners are currently facing increased debt that was necessary to survive during the COVID pandemic. EPA's proposed volumes would result in high and volatile RIN prices, which would put a number of refineries at risk. The commenter cited 10 refineries that have fully or partially closed since 2019.

Response:

As discussed further in Preamble Section III, we recognize that refiners were significantly impacted by the COVID pandemic. However, as discussed in the previous responses in this section we have determined that refiners are able to recover the cost of the RINs they need for compliance through the sales price of the petroleum-based fuels and blendstocks they sell. Refiners therefore are not negatively impacted by higher RIN prices.

With respect to the refinery closures cited by the commenter, the commenter neither claims nor provides concrete evidence that these closures were due to the RFS obligations. Notably four of the ten refineries cited have been or are in the process of being converted to renewable fuel production facilities,[154] while at least two other facilities are reported to be considering renewable fuel production.[155] One other refinery has since restarted production. Other refineries cite reasons unrelated to the RFS, such as a decrease in demand due to the COVID pandemic or storm damage to the refinery as the reasons for the refinery closures. The closures of these refineries does not provide evidence that RFS obligations or any associated "high and volatile"

[153] The difference between our calculated RVO costs and the RVO costs reported by OPIS did not differ by more than 4% ($0.006 per gallon of gasoline and diesel) for any of the days we assessed. See "Comparison of OPIS reported RVO cost and EPA calculated RVO cost," available in the docket.
[154] Holly Frontier Cheyenne, Marathon Dickinson, Marathon Martinez, and Phillips Rodeo (see Bryan, Tom. Renewable Diesel's Rising Tide. Biodiesel Magazine. January 12, 2021).
[155] Shell Convent (see Mosbrucker, Kristen. Without a buyer, Shell may convert shuttered Convent refinery into alternative fuel facility. The Advocate. October 14, 2021) and Phillips 66 Belle Chasse (see Seba, Erwin. Top U.S. refiner evaluating idle Phillips 66 plant for renewable fuel – Sources. Reuters. January 26, 2022).

RIN prices have resulted in refinery closures in the past, or they would result in refinery closures in the future.

Comment:

A commenter stated that AFPM's arguments that some refiners may have to reduce production or that there may be insufficient RINs are misleading. This commenter cited multiple articles referencing high profits from refining due to demand for refined products that is increasing faster than supply and claimed that it would not make sense for refiners to reduce production in a highly profitable market.

Response:

Refining profits are currently high, following a period of very low refinery margins caused by the significant decrease in demand due to the COVID pandemic.[156] While we do not believe that the RFS program generally or RIN prices specifically impact refinery margins given that all refineries recover the costs of RINs, the current high demand relative to the supply of refined products suggests that it is unlikely that refineries currently in operation will shut down in 2022.

[156] Xu, Chunzi and Powell, Barbara. Sizzling Fuel Demand Sends Winter-Time Margins to Five-Year High. Bloomberg. February 2, 2022.

9.2 Environmental Impacts and Considerations

9.2.1 GHG Impacts

Commenters that provided comment on this topic include but are not limited to: 0355, 0369, 0378, 0381, 0393, 0402, 0421, 0438, 0443, 0458, 0469, 0471, 0481, 0485, 0494, 0510, 0521, and 0561.

Comment:

Several commenters state that increasing the advanced biofuel standard while decreasing the conventional standard will increase GHG benefits of this rulemaking.

Response:

See RTC Section 6.3.3 for further response to comments which request a shift of volumes from the implied conventional standard to the advanced standard. Below we address the asserted climate implications of such a change.

As discussed in RTC Section 6.3.3 and Preamble Section III.E, we expect a significant amount of advanced biofuel to be used to backfill for missing conventional renewable fuels in 2022. Consequently, raising the 2022 advanced standard while lowering the conventional standard by a proportional amount is not likely to result in additional use of advanced biofuels or consequently additional GHG benefits. To the extent that a higher advanced standard results in increased use of advanced biofuels, applying EPA's existing lifecycle GHG assessments of affected fuels would result in estimates showing reductions in GHG emissions. However, as discussed in RIA Chapter 3.2, estimating the greenhouse gas impacts of biofuel use remains uncertain, particularly when consumption of multiple renewable fuels is affected at the same time, and particularly for biofuels produced from feedstocks which are produced on agricultural lands.

In any case, EPA is required to consider a range of factors when determining appropriate volume standards, and, as discussed in in further detail in RTC Section 6.3.3 and Preamble Section III, we believe the volumes we are finalizing are appropriate based on our review of the statutory factors.

Comment:

One commenter asserts that "[e]very 100 million gallons of biomass-based diesel added to the RVO is estimated to reduce [GHG] emissions by over 600,000 MT annually" and states that growing advanced and biomass-based diesel volumes is necessary to support reducing emissions from the heavy-duty trucking, freight, and aviation sectors.

Response:

It is unclear where the asserted GHG emissions impact statistic of increasing the biomass-based diesel (BBD) standard comes from. For comparison, EPA's existing analysis from the RFS2

rulemaking of the lifecycle emissions of soybean oil biodiesel would translate into roughly 500,000 tonnes of CO2e reduction per 100 million gallons of annual biodiesel consumption, when compared to the 2005 diesel baseline and accounting for 30 years of ongoing biodiesel production and use. However, as discussed in RTC Section 6.3.2, we believe that the advanced biofuel and total renewable fuel volumes will drive BBD use. Thus, a higher BBD volume is unlikely to result in increased biodiesel use or potential associated GHG emissions reductions. We also note that, as the commenter advocates for, the biomass-based diesel and advanced volumes increase in 2022 in the final rule.

Comment:

EPA received a number of comments on the assumptions and greenhouse gas emissions results of the illustrative scenario presented in DRIA Chapter 3.2. Several commenters stated that the analyses in the illustrative scenario likely overstate the initial pulse of GHG emissions from land use change (LUC) in the year 2021 when compared with now-available data for that year, and thus underestimate the GHG benefits of the rule. Another commenter suggested that the illustrative scenario may have overestimated the GHG benefits of corn ethanol due to the assumption that levels of ethanol consumption remain constant for 30 years; the commenter stated that this assumption is unrealistic because future adoption of electric vehicles (EVs) will reduce future ethanol consumption below levels assumed persistent in the illustrative scenario.

Response:

RIA Chapter 3.2.2 covers the illustrative scenario for GHG emissions. As stated in that chapter, the scenario "is not EPA's assessment of the likely greenhouse gas impacts of this rulemaking." It is not meant to be a comprehensive, quantitative analysis of GHG impacts of this rulemaking taking into account updated data and analysis. As we explain in RIA Chapter 3.2.2, the statute does not require us to perform any quantitative analysis of GHG impacts.

Instead, the scenario is illustrative of what quantified GHG impacts would be if assessed using EPA's existing lifecycle analysis for individual feedstocks and fuels, applied to the difference between the estimated renewable fuel volumes likely to be used to meet the standards set in this rule and the actual volumes of biofuels consumed in 2020. As discussed in RIA Chapter 3.2, EPA is not updating its biofuel lifecycle analysis methodology in this action. EPA recognizes limitations of applying existing analyses of individual feedstocks to the combined volume standards set by this rulemaking. The illustrative scenario should be interpreted within the context of the assumptions and limitations of applying EPA's existing lifecycle analyses for individual fuels and feedstocks to the analyzed volumes. These limitations include those discussed in the RIA and highlighted by commenters, including but not limited to: 1) that EPA's existing lifecycle analyses of crop-based biofuels are dependent on the assumption that biofuel consumption levels remain steady at the assessed volumes for thirty years, even though future consumption levels are inherently uncertain; and 2) that the analyses used do not account for recent (2020 and later) land use data. Nevertheless, we continue to believe that including this scenario provides a useful illustration of the GHG impacts of the assessed volumes based on EPA's existing lifecycle assessments of the fuels that are likely to be impacted by these standards. We also note that, although we have not conducted an independent assessment of the

2021 data referenced by the commenter for purposes of this rule, it is not possible to infer from historical data alone whether model estimates of biofuel-induced land use change emissions are over- or under-estimated as they require comparison with a counterfactual scenario.

Although we have not revised the methodologies and data underlying the illustrative scenario as suggested by these commenters (with the exception of addressing a calculation error noted below), we have carefully reviewed their comments and considered them qualitatively in our evaluation of climate change. We note that we received various comments suggesting that the analyses which were used in the illustrative scenario were either over- or under-estimates of the GHG impacts of renewable fuels. For fuels evaluated in the illustrative scenario which are produced from feedstocks with agricultural land use requirements, EPA's existing methodology produces a range of possible land use change GHG emissions impacts.[157] Many of the emissions reduction statistics cited by commenters fall within the uncertainty range in EPA's existing analyses resulting from the assessed uncertainty in land use change emissions. While the quantified impacts in the illustrative scenario presented in this rule are calculated using mean land use change emissions values, we have qualitatively considered broader uncertainty in the GHG impacts of renewable fuels in our evaluation of the climate impacts of this rule. We discuss this issue further in RIA Chapter 3.2.1. This broader uncertainty is also illustrated in the range of impacts cited by commenters and in the range of estimated land use change impacts under EPA's existing methodology.

Comment:

One commenter stated that "EPA's own draft RIA found that proposed 2022 volumes would increase, rather than decrease, GHG emissions."

Response:

It is unclear what the commenter is referring to. The illustrative scenario shows future GHG emissions reductions associated with the assessed biofuel volumes, given the assumption that biofuel production continues for 30 years. This was true for the illustrative scenario contained in the DRIA as well.

Comment:

One commenter stated that the illustrative scenario underestimates the GHG benefits of renewable natural gas (RNG) because it makes the simplifying assumption that all RNG is produced from landfills, which may have lower emissions benefits than RNG produced from other waste feedstocks and processes. They additionally pointed out a calculation error in the emissions reductions attributable to volumes of landfill biogas CNG evaluated in the illustrative scenario. Finally, this commenter expressed their support for using the interim estimates of the social cost of GHGs in the illustrative GHG scenario, but stated that EPA should consider using

[157] EPA (2010). Renewable fuel standard program (RFS2) Regulatory Impact Analysis. Washington, DC, Environmental Protection Agency Office of Transportation and Air Quality. (EPA-420-R-10-006). Section 2.4.4.2.8 (Uncertainty Assessment for International Land Conversion GHG Emissions Impacts).

lower discount rates in the monetization of climate benefits because the effects of climate change are intergenerational in nature.

Response:

As discussed in RIA Chapter 3.2.2, the illustrative scenario relies solely on EPA's existing analyses of lifecycle GHG emissions of different biofuels. In the illustrative scenario, landfill biogas is used as a representative biogas source because EPA does not have an existing quantitative estimate for the GHG impacts of RNG produced using other waste digesters. As noted above, the scenario is only meant to illustrate the potential GHG impacts associated with this rulemaking, given the assumptions described in the RIA. It is not to comprehensively quantify the GHG impacts associated with every biofuel that may be used to comply with this rulemaking.

The commenter correctly identified a calculation error in the illustrative scenario which caused the emissions reductions from landfill biogas CNG volumes to be assessed as 20 percent reductions when compared to the 2005 diesel baseline, rather than 80 percent reductions as intended. This error has been corrected in the illustrative GHG scenario in this final rule.

As discussed in RIA Chapter 3.2.2.3.1, the illustrative scenario is monetized using the social cost of greenhouse gas estimates and discount rates presented in the Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 ("February 2021 TSD").[158] These discount rates are all less than the social rate of return on capital (7 percent under current OMB Circular A-4 guidance), and include a range of sensitivities in order to account for discount rate uncertainty and the intergenerational context of climate change impacts. As a member of the interagency working group involved in the development of the February 2021 TSD, the EPA agrees that the interim SC-GHG estimates, including the discount rate sensitivities published in the February 2021 TSD, represent the most appropriate estimate of the SC-GHG until revised estimates have been developed reflecting the latest, peer-reviewed science. Moreover, as noted above, the monetized values are not meant to represent the likely impacts of this rule, but rather only the monetization of an illustrative scenario. We think the range of discount rates we applied represent a reasonable range for purposes of an illustrative analysis.

Comment:

Various commenters voiced their concerns about either positive or negative perceived GHG and climate impacts of biofuels, sharing multiple studies and statistics in support of their positions. A number of commenters voiced support for an update to EPA's existing biofuel greenhouse gas lifecycle analyses. These commenters also highlight various assumptions within EPA's existing lifecycle analyses and recommend modifications or alternative approaches.

[158] Interagency Working Group on Social Cost of Greenhouse Gases (IWG). 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. February. United States Government. Available at: https://www.whitehouse.gov/briefing-room/blog/2021/02/26/a-return-to-science-evidence-based-estimates-of-the-benefits-of-reducing-climate-pollution/.

Multiple commenters cited a recent paper that examined land use change in the U.S. and determined that corn ethanol production resulted in greater GHG emissions than gasoline.[159] Another commenter stated that the results of this paper lie far outside the credible range of carbon intensity values as determined by numerous studies by governmental bodies and academics and referenced other work alleging flaws and shortcomings of this paper.

One commenter referenced a number of studies on the GHG emissions associated with corn starch ethanol that have been published since EPA's 2010 analysis, arguing that these emissions estimates have declined over time as models have undergone refinements. The commenter highlighted land use change emissions as the primary category of emissions for which estimates from more recent studies differ from the central estimate in EPA's 2010 analysis, noting that, for other categories, EPA's 2010 estimates agree reasonably well with the more recent literature. The comment argued that advancements in model assumptions and data have led to substantial decreases in estimated land use change GHG impacts of corn ethanol, and that EPA should consider approaches of evaluating the climate impacts of this rule that take into account the best available science, in lieu of conducting extensive new modeling. The commenter suggests as an example approach a systematic review of the literature and derivation of a central quantitative emissions intensity estimate therefrom. The commenter further expressed support for a central emissions intensity estimate of roughly 51 gCO2e/MJ of corn starch ethanol. The comment recognized uncertainty in estimates of land use change emissions and referenced studies finding that this uncertainty is dominated by a lack of knowledge about one particular modeling parameter – crop yield elasticity with respect to price.

One commenter pointed to several areas in EPA's existing analyses where they say assumptions may lead to underestimates of the GHG emissions reductions of replacing petroleum-based gasoline with cornstarch-based ethanol. These areas include treatment of corn stover's and distillers grains' displacement of other agricultural commodities in animal feed markets, the potential for soil carbon sequestration on farmland growing corn, assumptions about flexibility of cattle stocking rates, consideration of distillers corn oil biodiesel in the assessment of cornstarch-ethanol, and representation of heretofore announced nationally determined contributions (NDCs) under the Paris Climate Accords. The commenter states that EPA's existing lifecycle analyses underestimate the methane flaring emissions and emissions associated with recovery of unconventional petroleum deposits (e.g., tar sands) in the gasoline baseline to which corn starch ethanol is compared.

Other commenters pointed to potential reductions in lifecycle GHG emissions of biodiesel and renewable diesel through changes to supply chains and incorporating renewable energy into fuel production processes, citing Argonne National Lab's GREET model.[160]

Several commenters were supportive of EPA initiating public engagement on potential updates to biofuel GHG assessment methodologies, including through a workshop. Finally, one

[159] Tyler J. Lark, Nathan P. Hendricks, Aaron Smith, Nicholas Pates, Seth A. Spawn-Lee, Matthew Bougie, Eric G. Booth, Christopher J. Kucharik & Holly K. Gibbs. *Environmental Outcomes of the US Renewable Fuel Standard.* Proceedings of the National Academy of Sciences of the United States of America (2022)
[160] Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET). Argonne National Laboratory, DOE. https://greet.es.anl.gov

commenter voiced support for the RFS program, stating that use of biofuels help to mitigate climate change-driven hazards that affect farmers and food security.

Response:

EPA appreciates comments addressing methodologies of assessing the GHG and climate impacts of renewable fuels. We agree that there is a need to update the modeling used to assess the greenhouse gas impacts of renewable fuels used under the renewable fuels program. We are considering such updates in separate proceedings. On February 28 and March 1, 2022, EPA held a workshop focused on assessment of the GHG impacts of biofuels in order to initiate a public process for reviewing the best available data and GHG assessment methods. However, we disagree that the comments or the current literature indicate that the illustrative GHG scenario is an unreasonable illustration of the potential GHG impacts of this rule.

We note that comments highlight studies pointing in different directions – both higher and lower than the mean estimates from EPA's 2010 RFS2 analyses. EPA's recent workshop included presentations by researchers at USDA, DOE, and various academic institutions in the United States and Europe. These speakers outlined a number of different models that have been used to assess the GHG impacts of renewable fuels, a wide range of published emissions intensity estimates, and highlighted persistent uncertainty in producing such estimates.[161]

One commenter discussed at length a recently published literature review on the GHG intensity of corn starch ethanol and suggested that the central estimate from this study is a more appropriate estimate than EPA's 2010 analysis for assessing the GHG impacts increasing volumes of corn ethanol.[162] EPA appreciates the submitted comments on this study, but we believe the science on the most appropriate method of producing GHG intensity estimates for use in analyses of the renewable fuel program remain unsettled and require further examination. We note that a response published to the Scully et al. 2021 study questions some of the methods and assumptions used to arrive at the commenter's suggested central estimate,[163] and that a study cited by the commenter as evidence of a downward trend in GHG intensity estimates over time in fact questions both the assumptions made by a number of the reviewed studies, and other assumptions left unexamined by the literature, which resulted in the observed downward trend.[164] This commenter also highlighted the importance of land use change emissions in overall GHG intensity estimates and how updated assumptions about yield elasticities led to substantial reductions in emissions intensity estimates in some studies, but even for this one parameter, EPA recognizes that there is a wide range of estimates in the literature and no clear agreement on the most appropriate values to use for biofuel modeling.[165]

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[161] The workshop presentations and comments are available in Docket ID No. EPA-HQ-OAR-2021-0921.
[162] Scully, M. J., et al. (2021). "Carbon intensity of corn ethanol in the United States: state of the science." Environmental Research Letters 16(4).
[163] Spawn-Lee, S. A., et al. (2021). "Comment on 'Carbon Intensity of corn ethanol in the United States: state of the science'." Environmental Research Letters 16(11).
[164] Malins, C., et al. (2020). "How robust are reductions in modeled estimates from GTAP-BIO of the indirect land use change induced by conventional biofuels?" Journal of Cleaner Production 258.
[165] Malins, C., et al. (2020). "How robust are reductions in modeled estimates from GTAP-BIO of the indirect land use change induced by conventional biofuels?" Journal of Cleaner Production 258.

Several commenters highlight a number of studies and assumptions that may point to lower GHG intensity estimates for biofuels. However, as discussed above, other studies point to estimates and assumptions that could increase GHG intensity estimates. We note that, as speakers presented during EPA's biofuel GHG workshop, the uncertainty surrounding estimates of land use change emissions remains substantial and may outweigh the effect of updating the assumptions highlighted by the commenters.

We reiterate that we agree with commenters that the modeling of GHG impacts of biofuels needs to be updated, but significant uncertainty remains and the process for updating needs to be done thoroughly and carefully. Thus, we believe it would be inappropriate to update EPA's biofuel GHG assessment methodology based on a subset of the of studies, or without additional public input on the science and data integral to such analysis. In order to evaluate the climate impacts of this rule, we have considered the remaining uncertainty in assessments of the GHG impacts of biofuels, as discussed in RIA Chapter 3.2, and have carefully reviewed and qualitatively considered the submitted comments addressing the assessment of GHG impacts of biofuels.

EPA appreciates comments and analyses submitted addressing the GHG and climate impacts of biofuels. However, requests for updating biofuel lifecycle greenhouse gas results under the RFS program are beyond the scope of this rulemaking. As noted in Chapter 3.2 of the RIA, EPA held a workshop on the GHG impacts of land-based biofuels on February 28 and March 1, 2022 and will continue to engage with stakeholders outside of this specific rulemaking action on how best to improve future assessments of the GHG impacts of biofuels.

Comment:

Several commenters submitted comments about estimating landfill emissions for lifecycle GHG analysis of fuels produced from separated municipal solid waste.

Response:

We appreciate the comments on landfill GHG emissions associated with fuels produced from separated municipal solid waste (MSW), and we intend to consider this input as we evaluate new fuel pathway petitions, submitted pursuant to 40 CFR 80.1416 and considered in separate administrative proceedings, that include the use of separated MSW feedstock.

9.2.2 Air Quality

Commenters that provided comment on this topic include but are not limited to: 0402, 0438, 0485, and 0521.

Comments:

One commenter argued that since the RFS was adopted in 2005, as ethanol consumption has more than tripled, there have been substantial reductions in ambient concentrations of criteria pollutants. They also argue that the trends strongly suggest that increased use of ethanol, which led to a simultaneous reduction in the use of aromatics and olefins, has played an important role in combating air pollution. They cite a study by the U. S. Department of Energy that found that CO emissions were lower for 15% ethanol blends (E15) than ethanol-free gasoline (E0), while nitrogen oxide (NOx) and non-methane hydrocarbon (NMHC) emissions were not significantly different.[166] They also cite a 2016 literature review which concluded ethanol is advantageous for both short-and long-term NOx emissions, and noted that "many studies have shown the beneficial effects of ethanol blending on fuel [particulate matter] emissions."[167] Finally, they state that, the forthcoming results of an emissions testing study by the University of California-Riverside will show that replacing E10 with E15 results in statistically significant reductions in the emissions of particulate matter, carbon monoxide, NMHC, total hydrocarbons (THC), and other harmful emissions. This study will be submitted to EPA when it becomes available.

Another commenter argued that disadvantaged communities are disproportionately affected by the negative impacts of petroleum-based fuels on both air quality and GHG emissions. They argue that because renewable fuels displace petroleum fuels, the RFS is playing a direct role in improving the air quality in these communities.

This commenter also argues that ethanol reduces economic and social costs related to health and environment, and displaces the most harmful compounds from gasoline aromatic hydrocarbon additives (i.e., benzene, toluene, ethylbenzene, xylene – or BTEX).[168] They also argue that increasing the ethanol volume in fuel has a positive impact on tailpipe emissions of toxins, reducing particulates and carbon monoxide. They also point out that aromatic hydrocarbons are precursors to the formation of secondary organic aerosols (SOA), which in turn are a major contributor to particulate matter emissions (PM 2.5). They state that, according to EPA's review for the 2020 Anti-backsliding Study, ethanol does not form SOA directly or affect SOA formation.[169] Furthermore, they indicate that EPA's data shows that aromatics' share of gasoline volume dropped between 2000 and 2016, and that EPA's data demonstrates the air quality and human health benefits of increased ethanol blending in gasoline by replacing harmful aromatics with clean octane from ethanol. Finally, they argue that lowering the volume of petroleum in the

[166] West, B.H., C. S. Sluder, K.E. Knoll, J.E. Orban, J. Feng, Intermediate Ethanol Blends Catalyst Durability Program, February 2012, ORNL/TM-2011/234,http://info.ornl.gov/sites/publications/files/Pub31271.pdf.
[167] Sobhani, S., Air Pollution from Gasoline Powered Vehicles and the Potential Benefits of Ethanol Blending, October 2016, http://energyfuturecoalition.org/wp-content/uploads/2016/12/final_clean-fuelsBOOK.pdf
[168] Environmental and Energy Study Institute. Ethanol and Air Quality – Separating Fact from Fiction. October 12, 2018. https://www.eesi.org/articles/view/ethanol-and-air-quality-separating-fact-from-fiction
[169] U.S. Environmental Protection Agency, Clean Air Act Section 211 (v)(1) Anti-backsliding Study, (2020) Appendix A, Page 61. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ZBY1.pdf

domestic gasoline pool can reduce health issues related to PM and other emission-based pollutants, which can be accomplished by increasing octane with higher ethanol blends and replacing more hydrocarbon aromatics with ethanol.

Another commenter also argues that EPA's analysis in the DRIA overlooks the air quality benefits of ethanol-blended fuels. They state that EPA should acknowledge the benefits of ethanol-blended fuel in reducing emissions of potent air toxics such as benzene and 1,3 butadiene, as well as particulate matter (PM) and carbon monoxide.[170] They also cite a new study finding substantial cold start emissions reductions associated with increased ethanol blending and the dilution of aromatics in the final blend. They attached a document summarizing these findings.

Response:

In the final rule, EPA continues to find that the air quality impacts associated with this rule are likely minimal. Since the volume changes in this rule are quite small relative to the total consumption of transportation fuel in the U.S., we do not anticipate significant air quality impacts associated with this rule. We note, moreover, that the commenters generally focused on the air quality benefits of increased ethanol use. As we explain further in RIA Chapter 2, while many of our assessments in this rule use a baseline of actual biofuel use in 2020 and therefore reflect large changes in ethanol volumes, the vast majority of those changes are due to rising gasoline demand and use of ethanol as E10, not due to this rulemaking. Given these facts, even were EPA to fully credit the assertions made by the commenters about the air quality benefits of particular biofuels, that would not persuade us to change our judgment as to the final volumes.

EPA also disagrees with the conclusions reached by these commenters for an additional, independent reason. While use of biofuels can potentially lead to reduced emissions for some air pollutants, these commenters failed to adequately acknowledge that the use of biofuels also can potentially lead to increased emissions for other air pollutants. Rather, it appears that the commenters selectively cherry-picked studies and individual results from studies favorable to biofuels, while ignoring unfavorable results. In some cases, commenters also relied upon work that was still undergoing the peer review process and had not been published. As such, EPA finds the commenters' conclusions regarding air quality to be of limited persuasive value.

EPA's assessment of the air quality impacts of this rule is contained in RIA Chapter 3.1. This assessment is based on the MOVES3 emissions model. The MOVES model is a state-of-the-science emission modeling system that estimates emissions for mobile sources, and it reflects the agency's latest data and modeling on biofuel impacts on vehicle emissions.[171] It is supported by EPA's own analyses and comprehensive assessment of the literature. This includes a 2018 review of the range of published studies on the effects of fuel properties, including ethanol, on

[170] See Growth Energy Comments on Proposed Anti-Backsliding Determination for Renewable Fuels and Air Quality, Docket Item No. EPA-HQ-OAR-2020-0240-0012.
[171] https://www.epa.gov/moves/latest-version-motor-vehicle-emission-simulator-moves

emissions.[172] Since then, to EPA's knowledge, no new significant research has been published that warrants reconsideration of these estimates.

MOVES was also used in EPA's 2020 "anti-backsliding study" (ABS), required under Section 211(v)(1) of the Clean Air Act. This study provides the most recent Agency assessment of ethanol impacts on vehicle emissions and air quality.[173] The study examined the impacts on air quality from required renewable fuel volumes as a result of changes in vehicle and engine emissions due to the RFS program. Specifically, the study compared two scenarios for calendar year 2016: one with actual air quality impacts of 2016 ethanol and biodiesel volumes from renewable fuel usage (the "with Renewable Fuel Standard (RFS)" scenario) versus another with ethanol and biodiesel air quality that would have resulted in 2016 if renewable fuel usage approximated 2005 levels (the "pre-RFS" scenario).[174] While this study evaluated scenarios with much larger ethanol volume changes that those being finalized in this rule, the results can be used to draw inferences regarding the direction of the emission impacts discussed by the commenters.

Compared to the "pre-RFS" scenario, the 2016 "with-RFS" scenario increased ozone concentrations (eight-hour maximum average) across the Eastern United States and in some areas in the Western United States, with some decreases in localized areas (Figure 8.9a). In the 2016 "with-RFS" scenario, concentrations of PM2.5 were relatively unchanged in most areas, with increases in some areas and decreases in some localized areas. The 2016 "with-RFS" scenario increased concentrations of NO2 in some urban areas. The 2016 "with-RFS" scenario decreased concentrations of CO across the Eastern United States and in some areas in the Western United States, with larger decreases in some areas. Compared to the "pre-RFS" scenario, the 2016 "with-RFS" scenario increased concentrations of acetaldehyde across much of the Eastern United States and some areas in the Western United States, and resulted in increases in formaldehyde concentrations. Compared to the "pre-RFS" scenario, the 2016 "with-RFS" scenario decreased concentrations of benzene and 1,3-butadiene concentrations were relatively unchanged.

EPA's conclusions in the anti-backsliding study are also consistent with our earlier work on the impacts of biofuels on air quality. As part of the RFS2 rulemaking in 2010, EPA conducted a detailed assessment of the emissions and air quality impacts associated with an increase in production, distribution, as well as end use of the renewable fuel volumes sufficient to meet the RFS2 (statutory) volumes, including assumed volumes of biodiesel and ethanol blends.[175] This

[172] EPA. 2018. Agency Response to Request for Correction of Information: Petition #17001, Concerning the EPAct/V2/E-89 Fuel Effects Study and the Motor Vehicle Emissions Simulator (MOVES2014) Developed by the USEPA Office of Transportation and Air Quality. Available at https://www.epa.gov/sites/default/files/2018-09/documents/ethanol-related_request_for_correction_combined_aug_31_2018.pdf.
[173] EPA. 2020. Clean Air Act Section 211(v)(1) Anti-backsliding Study. Report No. EPA-420-R-20-008. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100ZBY1.pdf
[174] It is important to note that the anti-backsliding study was not required to be a full lifecycle assessment, but rather a detailed assessment of the changes in emissions and air quality at the end use stage of the lifecycle. There are also upstream emission and air quality impacts from the production of renewable fuels and their feedstocks that vary from those of petroleum fuel production that were not taken into consideration as part of the anti-backsliding study.
[175] See 75 FR 14803-08 (March 26, 2010) and Chapter 3.4 of the RFS2 Regulatory Impact Analysis (EPA-420-R-10-006).

assessment also indicated both increases and decreases in ambient pollutant levels with increased use of ethanol. The RFS2 RIA indicated that the impact of increased biofuels (as assumed to meet the RFS2 volumes) on PM and some air toxics emissions at the tailpipe was generally favorable compared to petroleum fuels, but the impact on VOCs, NO_x, and other air toxics is generally detrimental.[176] The RFS2 RIA also indicated that the upstream impacts on emissions from production and distribution of biofuel (including biodiesel) are generally detrimental compared to petroleum fuel.[177] Taking tailpipe, upstream, and refueling emissions into account, the net impact on emissions from RFS2 volumes of renewable fuels was increases in the pollutants that contribute to both ambient concentrations of ozone and particulate matter as well as some air toxics. The air quality impacts, however, were highly variable from region to region and more detailed information is available in Section 3.4 of the RFS2 RIA.

More recently, the 2018 Second Triennial Report to Congress summarized existing literature on emissions and air quality impacts. The report did not identify any new information that contradicted previous conclusions. It also noted the magnitude, timing, and location of emissions changes can have complex effects on the atmospheric concentrations of criteria pollutants (e.g., ozone (O_3) and $PM_{2.5}$) and air toxics, the deposition of these compounds, and subsequent impacts on human and ecosystem health. The Third Biofuels Report to Congress will further synthesize information on this topic.

EPA acknowledges certain new studies referred to by the commenters. We will carefully review the research referenced by one commenter finding substantial cold start emissions reductions associated with increased ethanol blending and the dilution of aromatics in the final blend, when that work is peer reviewed and formally published. We will also review the forthcoming results of an emissions testing study by the University of California-Riverside on impacts of replacing E10 with E15. However, since this research was not provided to EPA during the comment period, we were not able to evaluate it for purposes of this rulemaking. In any event, even if we were to agree with the commenters' characterization of the research, we expect only limited amounts of E15 to be used through 2022 as described in RIA Chapters 2 and 5.5, and accordingly any air quality impacts are also expected to be limited.

[176] U.S. EPA. February 2010. RFS2 Regulatory Impact Analysis. EPA-420-R-10-006. Table 3.2-7 and 3.2-8.
[177] U.S. EPA. February 2010. RFS2 Regulatory Impact Analysis. EPA-420-R-10-006. Table 3.2-2 and 3.2-3.

9.2.3 Water Quality and Quantity

Commenters that provided comment on this topic include but are not limited to: 0378, 0463, 0464, 0469, 0481, 0485, 0521, and 0578.

Comment:

Some commenters suggested that soil and water quality benefit from biofuels production because sustainable agricultural production practices are utilized by feedstock and biofuel producers. One commenter suggested that the additional farm revenue generated by the sale of crops for biofuel production enables farmers to utilize or expand the use of sustainable agricultural production practices and, in that way, the RFS benefits soil and water quality.

Response:

EPA acknowledges that the negative impacts of biofuel production to water and soil quality can be mitigated during feedstock production when agricultural best management practices are widely employed, and we encourage their use.[178] However, such practices are not universally used. The RFS program also does not mandate or provide incentives that would influence or expand their use. In general, as we explain in RIA Chapter 3.4, an increase in cropland acreage would generally be expected to lead to more negative soil and water quality impacts. Additionally, it is difficult for EPA to assess the commenters' claims that soil and water quality benefit from biofuels production, as the commenters did not provide data or analyses or cite to studies in support of this assertion.

Comment:

Several commenters raised general concerns about water quality and quantity impacts due to the expansion of crops that could be used to produce biofuels.

Response:

We address water quality and water quantity impacts associated with the renewable fuel volumes in RIA Chapters 3.4 and 3.5. In addition, we note that EPA has previously recognized the potential impacts on water use and water quality from row crops, especially corn and soy. These impacts were assessed in the RFS2 rule and the 2011 First Triennial Report to Congress, which qualitatively assessed both potential impacts and opportunities for mitigation.[179] The 2018 Second Triennial Report to Congress found more evidence of negative environmental impacts associated with land use change and biofuel production than there was in 2011.[180] However, the magnitude of the effect from biofuels was still unknown and had not been quantified to date. Furthermore, the 2018 Second Triennial Report to Congress found that the scientific literature continues to support the conclusion from the 2011 First Triennial Report that biofuel production

[178] U.S. EPA. June 2018. Biofuels and the Environment: Second Triennial Report to Congress. EPA/600/R-18/195.
[179] U.S. EPA. December 2011. Biofuels and the Environment: First Triennial Report to Congress. EPA/600/R-10/183F.
[180] U.S. EPA. June 2018. Biofuels and the Environment: Second Triennial Report to Congress. EPA/600/R-18/195.

and use can be achieved with minimal environmental impacts if existing conservation and best management practices for production are widely employed. EPA supports the growing adoption of mitigation techniques such as no till farming and better control of fertilizer usage, and notes that further technical information on this complicated set of issues would be helpful.

Comment:

One commenter stated that the RFS program and a higher BBD standard protects water quality and enhances compliance with the Clean Water Act by increasing the amount of used cooking oil, grease, and fats collected by renderers at food service establishments such as restaurants. The commenter suggested that increasing the collection of cooking oil, grease, and fats at restaurants and other business establishments would reduce the amount of cooking oil, grease, and fats channeled into sewer systems and water treatment plants.

Response:

EPA acknowledges that fats, oils, and greases (FOG) that are improperly disposed of can cause municipal water systems to malfunction and lead to public health and environmental problems. However, EPA has not conducted an analysis of the degree to which the recycling of used cooking oils and greases associated with this rule may mitigate the potential adverse impacts on water quality and sewer system maintenance costs. No supporting analysis was submitted with the comment.

As we explain in RIA Chapters 2 and 5.2, the market used significant quantities of BBD derived from FOG to satisfy the renewable fuel standards for 2020-21, and we expect somewhat higher quantities to be used in 2022. We do not believe, however, that setting a higher BBD standard would increase the use of BBD derived from FOG in 2022 or increase any water quality benefits associated with BBD use. Rather, the advanced biofuel and total renewable fuel standards are expected to drive BBD use in 2022. In addition, the marginal biofuel used to comply with those standards is expected to be renewable diesel derived from soybean oil, not BBD derived from FOG.

Comment:

One commenter suggested that, since EPA cannot quantify the land use changes directly attributable to the RFS program, consideration of the potential impacts is improper without also considering the studies that indicate the renewable fuel standards do not cause adverse habitat or wetlands impacts. EPA should acknowledge that there is no established causal link between land use changes and the proposed standards. This commenter also asserted that the studies EPA relied on were based on inaccurate data.

Response:

EPA does acknowledge in RIA Chapters 3.3 through 3.5 that, while it is likely that an increase in biofuel production from crops would have negative impacts on water and soil quality, there is substantial uncertainty in whether and to what extent the RFS program drives those increases and

land use changes. Moreover, EPA has considered a wide range of studies as part of the Triennial Biofuels Report to Congress and as part of this rulemaking process, including the studies submitted by the commenter. EPA recognizes that the causal relationship between the finalized standards and land use changes is an area that would benefit from further research and analysis.

The commenter alleging that the studies EPA considered were based on inaccurate data brings up known and acknowledged concerns with the use of the CDL, but these are somewhat misguided and inaccurate with the current science and with our use of the data product. The accuracy of the CDL is not a single entity, but rather varies by land cover class and through time. For the consolidated classes in Lark et al. 2015, Wright et al. 2017, and Lark et al. 2020, the producer and user accuracy for cropland is 95-99% for every year from 2008-2016, and 82-99% for non-cropland over the same period (Table 3, Lark et al. 2021). The Dunn et al. (2017) study referenced highlights the importance of using multiple datasets to assess historical effects of the RFS Program. However, Dunn et al. (2017) confuse error with bias, and thus mislead the readers with their results. As long as the error in the CDL is random, the estimate from the central tendency of the CDL is considered robust. So long as it is just as likely to mistakenly assign a pixel as conversion from grass to corn as corn to grass the estimate across millions of pixels is accurate on average. That does not mean that selectively choosing one field or pixel as an example will always be right, but that the population of pixels will be accurate on average. Dunn et al. do not report or even mention bias, only assess 20 counties in 3 states, and selectively discuss those results.

Furthermore, they state, "Secondly, estimates of converted hectares derived from NAIP (Fig. 2(b)) are significantly lower than CDL estimates (Fig. 2(a))." This is misleading at best. Close inspection of Figure 2b reveals that, for the 20 counties examined, the land use change from the NAIP was actually higher for 14 of the 20 counties. However, because the estimate from the NAIP was much lower for two counties (i.e., Stutsman and McIntosh), the total from the NAIP is actually lower.

Given these methodological concerns, EPA does not find this study persuasive.

Comment:

Some commenters submitted a very recent study (2022 Lark Study)[181] that purportedly measures the environmental impacts of the RFS program. One commenter submitted a draft of the study to EPA during the comment period. Other commenters submitted the final version of the study eight days after the comment period for the Proposed Rule closed.

The commenters assert this study is related directly to the Proposed Rule and calls into question EPA conclusions regarding environmental benefits of the RFS program. This study discusses numerous environmental impacts purportedly associated with the RFS program, including for example the impacts on water quality from increased demand of corn-based ethanol. In this vein, this study discusses the additional use of nitrogen-based fertilizer required for increased corn production that leaches into groundwater causing contamination. It also discusses the increased

[181] Tyler L. Lark et al., "Environmental outcomes of the US Renewable Fuel Standard," PNAS 119, 2022, available at https://doi.org/10.1073/pnas.2101084119.

use of phosphorus-based fertilizers that runoff through erosion and cause surface water degradation, including downstream impacts like eutrophication and harmful algal blooms.

Response:

EPA has considered this study. Though we are generally not required to consider comments submitted after the close of the comment period, we have discretion to consider updated data and analysis as we deem appropriate. Given the study's purported relevance to this rulemaking, we have chosen to consider the study in this final rule.

The 2022 Lark Study supports the conclusions we reach in RIA Chapters 3.3 through 3.5. Namely, the RIA concludes that increases in the production of biofuels made from crops likely lead to increases in land used for agriculture globally and in the U.S. In turn, an increase in cropland acreage is generally expected to lead to more negative environmental impacts, including potential impacts on soil and water quality, water quantity, ecosystems, wildlife habitat, and conversion of wetlands. To the extent that we use the actual use of biofuels in 2020 as the baseline for analysis, the volumes in this rule are associated with increased production of biofuels from crops and the potential for adverse environmental impacts.

However, as we explain in RIA Chapter 2, there are significant uncertainties associated with projecting the *causal* impacts of this rulemaking on biofuel use and production. Consequently, there are even greater uncertainties in determining the causal impacts of this rule on crop production and the downstream environmental impacts, as we explain in RIA Chapters 3.3 through 3.5. We do not expect any such causal impacts for 2020-21 since those volumes are retroactive, while the 2022 volumes could have some impact largely due to their potential ability to incent greater production of biofuels and their underlying crop-based feedstocks.

With respect to corn ethanol specifically, the impact of this rulemaking on corn ethanol use is expected to be limited, as we explain in RIA Chapters 2 and 5.5. It is also unclear whether this rulemaking will drive any increases in corn ethanol production at all. Thus, there are significant uncertainties in determining to what extent and even whether this rulemaking causes downstream environmental impacts associated corn ethanol production.

The 2022 Lark Study does not persuade us otherwise. Notably, the study does not analyze the impacts of this rulemaking or even the use of renewable fuels during the timeframe for this rule (2020-2022). Rather the study addresses the implementation of the RFS program from 2008-2016. But even for those years, the study simply assumed that the RFS is the cause of all of the historical increases in ethanol production and thereby attributed all of the downstream environmental impacts of ethanol production to the RFS program. However, that assumption is incorrect as it ignores the other factors have contributed to the increase in corn ethanol use and production over time, of which the RFS was only one factor, which we discuss in RIA Chapter 1. Indeed, the authors of the study recognize this problem, stating that "other factors including changes in fuel blending economics that favored 10% ethanol as an octane source in gasoline (E10) may also have contributed [to the increase in ethanol production]."[182] However, the authors did not go on to assess the extent to which the RFS program as opposed to these other

[182] *Id*. at 2.

factors contributed to increases in ethanol production or associated environmental impacts. Thus, while the impacts from agricultural practices such as fertilizer use on water and soil quality are observable and measurable, the degree to which those impacts can be causally attributed to the RFS program or this RFS rule is unclear.

9.2.4 Ecosystems, Wildlife Habitat, and Conversion of Wetlands

Commenters that provided comment on this topic include but are not limited to: 0459, 0469, 0481, 0486, and 0521.

Comment:

Several commenters raised general concerns about ecosystem health, the loss of habitats, and impacts to wildlife and biodiversity due to the expansion of crops that could be used to produce biofuels. For example, several commenters expressed concerns about habitat loss and biodiversity degradation due to increased crop production, especially the production of corn and soy. Many of these commenters also raised concerns regarding deforestation in the United States and in South America and Southeast Asia, driven by increases in demand for palm and soy oils (i.e., food-based oils).

A few commenters mentioned potential impacts on threatened or endangered species as part of a general list of environmental impacts, such as biodiversity and habitat loss, that commenters linked to the RFS program, specifically corn, palm oil, and soy oil production.

Another commenter argued that attributing environmental impacts to the RFS program, as opposed to other factors, was difficult.

Response:

EPA acknowledges the commenters' concerns regarding the potential impacts of crop expansion on ecosystem health, habitat loss, wildlife and biodiversity, and threatened and endangered species. We agree that increases in crop production may be associated with increased pressure to convert grasslands and wetlands into cropland, and, therefore, also increased pressure on wildlife habitats. We also recognize that habitat loss and landscape simplification are detrimental to environmental health with potential for acute impacts in environmentally sensitive areas. We also agree that attributing environmental impacts to the RFS program or this rule, as opposed to other factors, is difficult. We discuss our assessment of the potential impacts on conversion of wetlands, ecosystems, and wildlife habitats associated with this rule in RIA Chapter 3.3. We discuss the potential impacts on threatened and endangered species in RTC Section 9.2.5.

Comment:

Some commenters suggested that wetlands, ecosystems, and wildlife habitat are harmed more by the production of certain renewable fuels than others. In one instance, a commenter asserted that RNG has greater environmental benefits than other renewable fuels because it is produced from waste products. Another commenter asserted the RFS program has had no impact on wetlands, wildlife, or ecosystems and that Proposed Rule would similarly have no impacts.

Response:

EPA acknowledges that some biofuels may have greater impacts on wetlands, ecosystems, and wildlife habitat, as described in RIA Chapter 3.3. We agree with the commenter that biofuels made from crops are more likely to have adverse impacts than biofuels made from waste products. While EPA believes the impacts on wetlands, wildlife, and ecosystems from the RFS program are an area for further research, and precise attribution of such impacts to the RFS program is subject to substantial uncertainties, we cannot definitively conclude that this rule has no impact on wetlands, wildlife, or ecosystems. The commenter failed to provide concrete data or analysis demonstrating that this rule has no such impacts.

Comment:

Some commenters submitted a very recent study[183] on the environmental impacts the RFS program has had. This study was published eight days after the comment period for the Proposed Rule closed. The commenters assert this study is related directly to the Proposed Rule and calls into question EPA conclusions regarding environmental benefits of the RFS program.

Response:

We address this comment in 9.2.3.

[183] Tyler L. Lark et al., "Environmental outcomes of the US Renewable Fuel Standard," PNAS 119, 2022, available at https://doi.org/10.1073/pnas.2101084119.

9.2.5 Endangered Species Act

Commenters that provided comment on this topic include but are not limited to: 0458, 0462, 0469, 0485, 0521, 0527, and 0570.

Comment:

We received comments suggesting that EPA had an obligation to consult on this rulemaking under the Endangered Species Act section 7. Some commenters suggested that EPA cannot finalize this rule until ESA consultation with the Services (U.S. Fish & Wildlife Service and National Marine Fisheries Service) is complete. Some commenters suggested that EPA modifying previously finalized volumes once consultation is complete could cause uncertainty for the program. Others suggested that consultation with the Services on ESA obligations should not delay the rule, particularly for certain renewable fuel types or certain years. Others suggested that EPA should instead make a "no effects" finding for the action given that a significant portion of the rule is in the past and cannot affect renewable fuel use in those years.

Response:

EPA has determined that it is appropriate to conduct ESA consultation regarding this rule. Our consultation with the Services remains ongoing, and the fact that some years covered by the rule have already passed may affect the outcome of this consultation, but we do not believe this means we do not need to consult in this circumstance. We have provided a memo to the docket indicating why it is appropriate to finalize this action prior to the completion of consultation pursuant to ESA section 7(d).[184] We note that, were we to revisit the rule later to consider changes based upon the outcome of ESA consultation, we would do so via a rulemaking process, thus giving stakeholders the opportunity to comment on any proposed volume or other changes at that time. We believe that any uncertainty that would be caused by later potential changes to the rule related to the outcome of ESA consultation would be outweighed by the uncertainty of delaying this already overdue rulemaking.

[184] June 1, 2022 Memorandum to the Docket: RFS 2020-2022 Annual Rule Endangered Species Act Obligations.

9.3 Comparison of Costs and Benefits

Commenters that provided comment on this topic include but are not limited to: 0481.

Comment:

One commenter stated that the GHG benefits of setting conventional volumes above the limit imposed by the E10 blendwall are outweighed by negative impacts on other environmental and economic factors. The commenter states that setting conventional volumes above the E10 blendwall limit will have negative impacts on refiners and refinery jobs, energy security, ecosystems, and water quality, while the GHG benefits of additional corn ethanol will be modest.

Response:

As discussed in RTC Section 6.3.3 and Preamble Section III.E, setting the total renewable fuel volume such that the implied conventional biofuel volume is above the E10 blendwall does not require the use of corn ethanol to meet the entirety of the implied conventional volume. As we explain in RIA Chapter 5.5 and RTC Section 5, we expect the market to use E10 along with limited volumes of E15 and E85 to achieve a poolwide ethanol concentration of 10.30% in 2022. We also expect a significant amount of advanced biofuel, together with lesser volumes of conventional renewable diesel, to be used to meet the implied conventional renewable fuel volume in 2022.

Individual statutory factors discussed by the commenter are addressed in the RIA and elsewhere in this document, including but not limited to the GHG impacts of corn ethanol use (RIA Section 9.2.1), energy security (RIA Section 9.1.2), jobs impacts (RIA Section 9.1.7), the impact of standards on refiners (section 9.1.8), and other environmental impacts such as on ecosystems (RIA Section 9.2.4) and water quality (RIA Section 9.2.3). For responses to comments on the analyses of those specific factors, we refer to the RIA and the above sections.

EPA evaluated a range of factors, as required by statute, when determining the appropriate volume standards set in this rulemaking, including but not limited to environmental and economic factors discussed by the commenter. We note that the statute does not require EPA to weigh these factors in isolation, but rather to weigh all of the statutory factors. As discussed in Preamble Section III.H, EPA considered all of the assessed impacts and found the final volumes to be appropriate.

10. Biointermediates

10.1 General Comments on Biointermediates

Commenters that provided comment on this topic include but are not limited to: 0348, 0377, 0385, 0392, 0395, 0399, 0402, 0407, 0411, 0422, 0423, 0429, 0431, 0442, 0444, 0462, 0468, 0469, 0470, 0484, 0485, 0490, 0495, 0503, 0510, 0514, 0532, 0544, 0545, 0556, and 0569.

Comment:

Many commenters expressed general support for EPA finalizing a biointermediates program.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

One commenter generally supported the biointermediates proposal but noted that EPA should provide for an additional opportunity for public comment if it deviates from its proposal.

Response:

We appreciate the commenter's support for the proposed biointermediates provisions. We are finalizing provisions either as proposed or that are a logical outgrowth of provisions that were proposed. The public thus had an opportunity to comment on the biointermediates program being finalized in this rulemaking.

Comment:

One commenter did not take a position on biointermediates but supported maximizing feedstock diversity and pathways to guarantee future availability of fuels with the lowest carbon intensity possible.

Response:

This comment is outside the scope of the biointermediates program we are finalizing in this rulemaking.

10.2 Implementation Date

Commenters that provided comment on this topic include but are not limited to: 0423, 0431, 0468, 0476, 0490, 0511, 0516, 0532, and 0569.

Comment:

Several commenters encouraged EPA to implement the biointermediates portion of the proposed rule as soon as possible.

Response:

We acknowledge that commenters desire to finalize the biointermediates portion of the proposed rule as quickly as possible and, as discussed in Preamble Section VII.C.2, we will begin implementation 60 days after publication of the final rule in the Federal Register.

Comment:

One commenter stated that the implementation of the biointermediate provisions within 60 days of rule finalization is too short. The commenter suggested that biointermediate producers capable to produce biointermediate in 2022 would need to ensure compliance and registration of both the biointermediate and renewable fuel producers and as such would need more time come into compliance to produce biointermediate and renewable fuel under the biointermediates program rule by the end of 2022.

Response:

We acknowledge that it will take time for biointermediate producers and renewable fuel producers to develop, submit, and have accepted required registration materials as well as come into compliance with the other provisions of the biointermediates program. However, by implementing the program as soon as possible, we are allowing those biointermediate producers and renewable fuel producers that can meet the regulatory provisions of the biointermediates program an opportunity to begin producing qualifying biointermediates and renewable fuels as soon as practical. Based on our experience implementing the RFS program, the longer we delay the implementation date of the biointermediates program, the longer it will take for us to accept registrations thereby delaying the generation of any RINs from renewable fuels produced from biointermediates. We note that it is not required that biointermediate producers be ready and registered to participate in the program within 60 days of the issuance of the final rule; biointermediate producers may register under the RFS program at any point after the implementation date.

Comment:

One commenter suggested that there be a nine-month window for market participants to register and comply with the biointermediate provisions when finalized. The commenter noted that such a window is necessary to align the numerous provisions that will enable the program to function,

including the QAP plan creation, submission and approval, biointermediate user/producer registration, engineering review updates, and RIN generation.

Alternatively, this commenter suggested that registrations could be granted retroactively for any registrations submitted prior to a specified date, allowing producers to maintain compliance while all the registration and compliance systems are built out and put into effect. Producers and buyers of biointermediates would complete the items needed for compliance once the appropriate systems were made available.

Response:

While we appreciate the commenters' concerns that it will take biointermediate producers and renewable fuel producers time to prepare, submit, and have accepted registration submissions as well as work with QAP auditors to develop QAP plans to verify the production, distribution, and use of biointermediates, we do not believe it appropriate to allow for the generation of RINs from biointermediates before EPA has accepted registration submissions and QAP auditors have EPA-approved QAP plans in place. Based on our experience reviewing registration submissions under the RFS program, initial registration submissions often require revisions and further refinement before they meet all applicable regulatory requirements. If we were to allow renewable fuel producers to generate RINs for renewable fuels produced from biointermediates that have not yet been registered, we believe it would be very likely that the fuels produced would not actually meet the applicable regulatory requirements and any RINs generated would be invalid. This could result in a significant number of invalid RINs which would already be in the marketplace. Affected parties would then have to retire or replace these RINs, which could result in liquidity issues in the RIN market as well as discourage the future use of biointermediates to produce renewable fuels.

We believe our approach of accepting registrations as soon as practical (i.e., on the effective date of the final rule, 60 days after publication in the Federal Register) is a better approach to resolving the commenter's concerns because we will begin to review and accept registrations and QAP plans as soon as those submissions are ready, which could result in the generation of RINs from renewable fuels produced from biointermediates sooner than the nine-month period suggested by the commenter without the added risk of the generation of invalid RINs. We anticipate that appropriate systems for the acceptance of registrations and QAP plans will be in place by the effective date of the rule.

10.3 Definition of Biointermediate

10.3.1 General Approach to Defining Biointermediates

Commenters that provided comment on this topic include but are not limited to: 0375, 0399, 0401, 0403, 0407, 0431, 0432, 0448, 0476, 0483, 0490, 0495, 0506, 0511, 0513, 0516, 0521, 0569, and 0572.

Comment:

Several commenters support EPA's proposal to only include specific biointermediates are including in the biointermediates program by specifying those biointermediates in the definition of biointermediates.

Response:

We acknowledge and appreciate commenters support and believe this approach is the most appropriate for reasons discussed in Preamble Section VII.C.3.

Comment:

Several commenters suggested that EPA should define biointermediates broadly, as proposed in the REGS rule.

Two commenters suggested that the proposed list of biointermediates is too narrow and could deter innovation. The commenters further suggested that if EPA moves forward with its proposed approach to defining biointermediates, then EPA should set up a streamlined approval process that does not require notice-and-comment rulemaking.

Two commenters suggested that EPA provide an administrative process to approve biointermediates not included in the final rulemaking. Commenters argued that EPA should be diligent about expanding the list of feedstocks and approving new process technologies and biointermediate opportunities.

Two commenters suggests that EPA finalize a provision for adding additional biointermediates through a petition process. Two commenters suggested EPA consider an alternative means other than adding new biointermediates via rulemaking to streamline the process.

Two commenters stated that EPA should allow any material that meets the proposed definition of "Biointermediate" to qualify without EPA needing to conduct a new formal rulemaking to add the product to a narrow list of approved biointermediates.

Response:

As discussed in Preamble Section VII.C.3, based on comments received on the proposed biointermediates program in REGS and new information that has become available since that

time, we no longer believe that the broad approach to defining a biointermediate allows us to have sufficient oversight of the program and to ensure that renewable fuels that generate RINs meet the applicable statutory and regulatory requirements. Each biointermediate has particular compliance and enforcement considerations. We are confident that the biointermediates provisions we are finalizing in this rulemaking are sufficient to govern the use of the particular biointermediates we are currently allowing into the program. Commenters failed to specify how these provisions could address our implementation and oversight concerns for any and all future potential biointermediates.

Oversight and compliance for the biointermediates program is achieved through regulatory requirements including, but not limited to, registration, product transfer documents, and recordkeeping. Adding new biointermediates that may necessitate additional or different registration and other compliance oversight requirements should be accomplished through revising the relevant regulations through notice-and-comment rulemaking. Given the information provided in the comments, we believe that adding new biointermediates will likely require a rulemaking to add biointermediate specific requirements.

Commenters failed to explain which biointermediates would be deterred by EPA's approach and how EPA's approach to defining biointermediates would deter innovation. As discussed in Preamble Section VII.C.3, we will have ample opportunities to add new biointermediates to the program along with any other necessary regulatory changes on a regular basis.

Comment:

Three commenters suggested that EPA utilize the registration process under 40 CFR part 80 to allow biointermediates into the program. Two commenters suggested that EPA consider going back to what one commenter proposed years ago -- utilizing the part 80 registration process as a case-by-case approach to addressing the unique situations that may present additional concerns or barriers that are not yet availed. In the end the big picture should evaluate the carbon index score of the feedstock, facility, and fuel, which might argue for a different result rather than the current proposal.

Another commenter noted that rather than specifying a particular list of approved biointermediates, consistent with EPA's practice of including conditions on approval of a petition submitted pursuant to the Efficient Producer Petition Process (EP3), it could require as part of the registration approval process particular conditions applicable both to the biointermediate producer and the renewable fuel producer to address any such concerns. The commenter also noted if the Agency is concerned that the previously-proposed definition may be too broad and inadvertently encompass substances that it does not intend to regulate as biointermediates, it could clarify these issues with producers as questions arise (e.g., encourage the industry to inquire and then to inform a producer it need not register as a biointermediate producer).

Response:

We disagree with the commenters' suggestion that the registration process under 40 CFR part 80 should be used to allow biointermediates into the program. First and foremost, as explained in Preamble Section VII.A, the existing regulations under subpart M, including the regulations governing facility registration, apply only to a single renewable fuel production facility. The approach suggested by the commenters would leave biointermediate producers outside of the regulatory structure. That is, attempting to address biointermediate production facilities via registration of renewable fuel production facilities would not provide EPA with sufficient oversight or enforcement capabilities with regard to the actual biointermediate production from renewable biomass. Additionally, this case-by-case evaluation for biointermediates at registration would not be practically feasible for the EPA to implement. We also note that the EPA Efficient Producer Petition Process only applies to a single facility and is used to established facility-specific pathways consistent with the regulatory provisions at 40 CFR 80.1416.[185] The Efficient Producer Petition Process was never intended as a mechanism to allow the production of renewable fuels are more than one facility. Furthermore, as discussed in Preamble Section VII.C.3, we are finalizing our approach to defining biointermediates due to the specific compliance challenges each biointermediate poses, which may require associated regulatory revisions in order to ensure compliance with the statutory and regulatory requirements for renewable fuels. Registration alone cannot adequately address all the concerns with a new biointermediate, given potential necessary changes to registration and recordkeeping and the commenter fails to explain how the 40 CFR part 80 registration process could address these concerns.

The establishment of a carbon index score for any feedstock, facility, or fuel under the RFS program is beyond the scope of this rulemaking.

Comment:

One commenter, while agreeing with EPA's general approach to specifically defining what is and is not a biointermediate, suggested that EPA modify paragraph (6) of the proposed biointermediates definition to exclude from the definition of a biointermediate those feedstocks listed in a pending pathway petition submitted to EPA prior to the effective date of the final rule. The commenter noted that this change was needed to ensure equitable treatment and fair notice.

Response:

We disagree with the commenter's suggestion to exempt from paragraph (6) of the biointermediate definition those feedstocks included in pathway petitions submitted to EPA prior to the effective date of the rule. As discussed in Preamble Section VII.D.2, we are not modifying our treatment of feedstocks and biointermediates in existing (already approved) facility-specific pathways because each situation has unique lifecycle considerations that EPA must evaluate on a case-by-case basis. Furthermore, we intend to evaluate previously submitted pathway petitions as

[185] For more information regarding the EPA Efficient Producer Petition Process, see our website at: https://www.epa.gov/renewable-fuel-standard-program/how-prepare-efficient-producer-petition-under-renewable-fuel.

they were submitted to EPA at the time. This is necessary to ensure that we are accurately evaluating the lifecycle GHG impacts of proposed facility-specific pathways based on the information before us. Also as discussed in Preamble Section VII.D.2, should a pathway petitioner wish to include biointermediates as part of a facility-specific pathway, the petitioner must submit a new pathway petition that includes information related to any biointermediate that the pathway intends to cover. Therefore, the exemption as suggested by the commenter would be superfluous because we are requiring that petitioners resubmit their pathway petition if they want to use biointermediates.

Comment:

One commenter believes that, as written, EPA's proposal lacks clarity on whether certain byproducts of vegetable oil production and biodiesel production would be considered biogenic waste fats, oils, or greases (FOG) or biointermediates. The commenter proposes that EPA include language in its final rule specifying that for a byproduct of an industrial process to be considered a biointermediate, the industrial process must be conducted with the intent of producing a renewable fuel. The commenter proposes that EPA include language in its final rule specifying that merely a byproduct of an industrial process is not considered a biointermediate, unless the primary intent of the industrial process is to produce a renewable fuel.

Response:

We agree with the commenter's assessment that byproducts from production processes (industrial or otherwise) that were not generated for the purpose of producing renewable fuel should not be subject to the biointermediate provisions of the RFS program. To clarify this point, we are finalizing modifications to the proposed definition of biointermediate that states that a biointermediate is "any feedstock material that is intended for use to produce renewable fuel…." In the situation where an industrial process results in a byproduct that could potentially be used as a biointermediate but the party intends the byproduct to be used for non-RFS commercial/industrial uses, the byproduct would not be considered a biointermediate even if it met every other element of the biointermediates definition because the party that produced it through an industrial process did not intend the product to be used to produce a renewable fuel. However, a purported lack of intent for a byproduct to be used as a biointermediate to produce a renewable fuel does not allow a renewable fuel producer or its feedstock suppliers to avoid the biointermediate requirements for a byproduct that is in fact used as a biointermediate.

Comment:

One commenter offered a proposed definition for a biointermediate: A biointermediate should be a substance derived from Table 1 approved feedstock that is specifically converted through an intentional chemical process that is produced at a facility other than the biofuel production facility. A substance that is derived from a Table 1 feedstock that undergoes only a physical change or separation at a facility other than the biofuel production facility should not be considered a biointermediate and should instead be treated the same as a Table 1 feedstock.

Response:

We do not agree with the commenter's suggested definition because where intentional chemical conversion of a feedstock listed in Table 1 to 40 CFR 80.1426 into a different product occurs is not the only relevant consideration in determining whether renewable fuel production is occurring at one versus two facilities. We chose not to rely on the chemical/physical/mechanical process change distinction as suggested by the commenter because such a distinction is difficult to implement and does not address the specific concerns we have with allowing the production of a renewable fuel across multiple facilities.

While the use of a chemical conversion process at a separate facility implicates whether a biointermediate was used to produce a fuel under an EPA-approved process, the proposal and Preamble Section VII highlight concerns with regard to the multiple-generation of RINs from biointermediates, ensuring that the biointermediate was produced from qualifying renewable biomass, and ensuring that a biointermediate is not combined with non-qualifying renewable biomass during transfer. In each of these cases, whether the biointermediate was produced via a chemical or mechanical process is irrelevant. Adopting the commenter's suggested definition would reduce our ability to oversee the program and renewable fuel producers' ability to ensure that their renewable fuel was produced consistent with CAA and EPA requirements for renewable fuels under the RFS program. We proposed, and are finalizing, an approach under which substantial alteration, whether chemical or mechanical, of the listed feedstocks in Table 1 to 40 CFR 80.1426 is only permissible if parties comply with the biointermediates provisions. We are also finalizing, with modifications relative to proposal, a list of form changes at 40 CFR 80.1460(k)(2) that do not constitute substantial alteration.

We also note that the commenter's suggested definition would significantly expand the scope of the narrow biointermediates definition that we proposed and are finalizing with modifications in this action. For reasons discussed in Preamble Section VII.C.3, our narrow definition of biointermediate is the best approach to allowing biointermediates into the program while maintaining effective oversight.

Comment:

One commenter would like to confirm that the proposed biointermediates definition would not prevent fuels which are registered under the RFS as renewable heating oil from being used as biointermediates. Heating oil specifications allow for the fuel to be processed less than on-road fuels while still meeting heating oil requirements. If it undergoes further processing, the heating oil could become an on-road fuel. Therefore, the definition needs to be clarified to not unintentionally cause compliance or optionality issues for qualifying material that can be either heating oil or a biointermediate. The proposed addition of biointermediates to third party engineering review requirements should not constrain facilities for the heating oil biointermediates, or other types, as well. Third party engineers should be able to identify multiple uses for the biointermediate material in the report and not be required to write in a restriction in a co-product's use.

Response:

We acknowledge that in some cases, a product that is a biointermediate (i.e., feedstock material used to produce a renewable fuel if all other aspects of the biointermediate definition are met) may also be a renewable fuel under an EPA-approved pathway for which a party could generate RINs. As suggested by the commenter, we are finalizing modifications to the proposed definition of biointermediates to clarify that only those products that are intended for use to produce a renewable fuel are subject to the biointermediates requirements, while products that have RINs generated on them as a renewable fuel are subject to the requirements that apply for renewable fuels and RIN generation. This clarification is relevant to cases where a potential biointermediate (e.g., biocrude) could also be heating oil (e.g., a renewable fuel) as described by the commenter. In any case where a product already has a RIN generated for the batch as a renewable fuel, it cannot be a biointermediate.

Comment:

One commenter supported a focused approach for what qualifies as a biointermediate as opposed to the broad definitions previously proposed. The commenter believes that in order for a biointermediate commodity market to function, producers, including the commenter, require clarity on what feedstock qualifies and what does not qualify as a biointermediate.

Response:

We acknowledge and appreciate the commenters' support.

10.3.2 Biocrude

Commenters that provided comment on this topic include but are not limited to: 0352, 0377, 0385, 0395, 0423, 0434, 0454, 0468, and 0478.

Comment:

Several commenters supported the inclusion of biocrude as a biointermediate under the proposal. Commenters noted that the economics of renewable cellulosic biomass feedstock logistics dictate the densification of renewable biomass into biocrude at one location close to the source of the renewable biomass. The biocrude must then be transported to a second location where the biocrude is processed into finished transportation fuels. This bifurcated production methodology is essential if renewable fuel production facilities are to reach significant volumes of cellulosic biofuels.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

Commenter supported the proposed definition of biocrude. Specifically, commenter supported inclusion of any renewable biomass for the production of biocrude and the pyrolysis process as parts of the proposed biocrude definition. Commenter also supported reference to the definition of refinery as defined in 40 CFR 1090.80.

Response:

We acknowledge and appreciate the commenters' support. As the commenter notes, it was not our intention to limit the production of biocrude to any particular type of renewable biomass. However, we note that the biocrude and renewable fuel produced from the biocrude must be produced from renewable biomass that is part of an EPA-approved pathway, and that biocrude producers and renewable fuel producers that use biocrude must meet all applicable regulatory requirements for the renewable biomass used to produce the biocrude.

Comment:

Two commenters suggested that the definition of biocrude should be modified to include other processes identified in an approved pathway. For example, they stated that the product produced from hydrotreating of a feedstock which occurs at a separate location from renewable fuel production, should be included in the definition of biocrude.

Another commenter suggested removing the restrictions ("through gasification or pyrolysis") from the definition of biocrude, when there are several explicit additional approved pathways in Table 1 of 40 CFR 80.1426 which produce a biocrude intermediate. Alternatively, the

commenter suggests expanding the definition of biocrude to include hydrothermal liquefaction, catalytic pyrolysis, and hydroprocessing at biointermediate facilities.

Similarly, another commenter suggested that the definition allow for thermal, chemical, and biological processes generally, since this would help develop further innovation.

Response:

We agree with commenters' suggestion to allow for the use of additional processes to produce biocrude, consistent with the processes EPA has approved for use under existing pathways. We are thus finalizing language in the biocrude definition that states that biocrude can be produced from either a process identified in row M of Table 1 to 40 CFR 80.1426 (e.g., pyrolysis or gasification), or a process identified in an approved pathway under 40 CFR 80.1416. We believe this approach is appropriate because it was not our intent in the proposal to strictly limit how biocrude was made; however, we did want to tie it to the particular types of processes to ensure that processes used to produce biocrude fell under an EPA-approved pathway. We are thus allowing biocrude to be produced using any process allowed under either row M or an approved pathway under 40 CFR 80.1416, so long as that biocrude is used to produce renewable fuel at a refinery as defined in 40 CFR 1090.80.

We also note that we are not allowing biointermediates to be newly introduced under existing facility-specific pathways if the pathway does not already specifically address the lifecycle considerations of the production of the renewable fuel across both a biointermediate and renewable fuel production facility. As discussed in Preamble Section VII.D.2, facilities with approved facility-specific pathways under 40 CFR 80.1416 must submit revised pathway petitions to EPA including the proposed use of a biointermediate and have EPA approve that pathway petition before newly introducing a biointermediate.

Comment:

One commenter suggested the definition for biocrude allow for solid biointermediates in addition to liquid, stating that there may be circumstances where a solid biointermediate is preferred in the production of renewable fuels.

Response:

Based on our understanding of the biointermediates that parties intend to use under EPA approved pathways, we believe that qualifying biocrude would be a liquid. A solid biointermediate would have different considerations in pumping, processing, and transport which may lead it to benefit from a separate classification. We have thus defined biocrude to be a liquid, which is consistent with the general understanding of the term. Solid products of biomass processing typically go by other names, such as biochar.[186]

[186] For a discussion of the typical uses of biochar and biocrude, see Domermuth, D. H., June 2012: Pyrolytic Conversion of Biomass to Biochar, Biocrude, and Electricity. Presented at 2012 ASEE Annual Conference & Exposition, San Antonio, Texas. http://dx.doi.org/10.18260/1-2--21849.

While it is theoretically possible for solid products of biomass processing to potentially classify as a separate type of biointermediate, the commenter did not provide sufficient information, such as a specific application for the biointermediate, for us to assess its inclusion here Therefore, in this rulemaking, we are finalizing the biocrude definition to be a liquid.

Comment:

One commenter asked for the definition of biocrude to include Fischer-Tropsch synthesis, since it can be used to produce biocrude.

Response:

We are not amending the definition of biocrude to explicitly include Fischer-Tropsch synthesis because we do not currently have a pathway that includes Fisher-Tropsch synthesis as a process to produce renewable fuel from renewable biomass feedstock. However, recognizing that we may approve such pathways in the future, we are finalizing modifications to the proposed definition of biocrude to be produced from gasification or a process identified in row M under Table 1 to 40 CFR 80.1426 or in an approved pathway under 40 CFR 80.1416 that uses biocrude as a biointermediate. We are taking this approach because, as discussed in Preamble Section VII.C.3, we want to limit the processes are used to produce biocrude to those under an EPA-approved pathway, while at the same time creating a definition of biocrude that allows for processes included under any new pathways that may be approved in the future. We believe allowing for a process from an approved pathway under 40 CFR 80.1416 addresses the commenter's concern of allowing Fischer-Tropsch synthesis to produce biocrude.

Comment:

Two commenters asked if EPA could include hydrothermal liquefaction in its definition of biocrude. The commenter stated that this also directly impacts the proposed definition of biointermediate. The commenter further stated that pyrolysis is broadly defined as thermal decomposition of a material in the absence of oxygen, and that hydrothermal liquefaction (HTL) is broadly defined as thermochemical conversion of biomass into liquid fuels by processing in a hot, pressurized water environment for sufficient time to break down the solid biopolymeric structure to mainly liquid components, a liquid fuel known as biocrude. The commenter stated that biocrude is similar to petroleum crude and can be upgraded to the whole distillate range of petroleum derived fuel products. The commenter stated that both processes involve reaction of biomass at elevated temperatures in the absence of oxygen to produce a renewable liquid intermediate useful for further processing.

Response:

We agree with commenter's assessment that hydrothermal liquefaction, which involves heating in the absence of oxygen to break down molecules, is a type of catalytic pyrolysis. Since catalytic pyrolysis and upgrading is an acceptable process under row M of Table 1 to 40 CFR 80.1426 and a process under that row can be used to produce biocrude, hydrothermal liquefaction is an acceptable process to produce biocrude. That is, hydrothermal liquefaction is

implicitly included in the definition of biocrude and therefore, we do not believe modification to the proposed definition as suggested by the commenter is needed.

10.3.3 FFA Feedstock

Commenters that provided comment on this topic include but are not limited to: 0401, 0431, 0442, 0458, 0476, 0487, 0510, 0514, and 0544.

Comment:

Two commenters urged EPA to define a biointermediate as a material that has been through chemical alteration at a facility other than the renewable fuel production facility. Only FFAs derived from acidulated soap stocks and other chemically altered FFAs such as acid oils would be biointermediates. Other FFAs, like those from fractionation, should not be biointermediates since they are generated from a physical separation process and do not undergo intentional chemical alteration.

Commenters further stated that FFAs derived from qualified feedstocks listed in Table 1 in 80.1426 that do not come from chemical alteration should qualify for RIN generation and not be considered a biointermediate even if processed at a different facility. The commenters gave as an example free fatty acids produced as a fatty acid distillate (FAD), which they said is produced by a change to the physical form of the feedstock fed into it and is not a substantial change nor a chemical change. Based on this, the commenters argue that FAD should not be classified as a biointermediate

One commenter noted that the proposed rule expressly includes free fatty acids (FFAs) that are a mere byproduct of the oil refining process with no other useful purpose. The commenter believes that while FFAs must undergo some processing, i.e. separation from triglycerides, before they may be converted into renewable fuel, this should not create a "proto-renewable" fuel. By way of further example, the commenter mentioned three types of materials that could be sold as renewable feedstocks: FFA and soapstock from vegetable oil refining for food production, waste oil skimmed from wastewater, and vegetable oils used in industrial applications. The commenter states that each of these materials is a waste or byproduct of another industrial or food process and would normally be disposed of and that each also undergoes some level of processing, either for its initial industrial purpose or to separate usable parts of the byproduct or waste for potential sale as a renewable feedstock. The commenter noted that the list is not intended to be an exclusive list of activities that suffer from the lack of clarity in the current proposal.

Response:

We disagree with commenters' assertion that FFA feedstocks created from a physical separation process, such as FAD, should not be treated as a biointermediate. As discussed in Preamble Section VII.C.3, we designed the biointermediates program and the requirements therein to allow renewable fuel production facilities to produce renewable fuel from feedstocks that have been substantially altered from the original renewable biomass at a different facility. The concerns we have highlighted with regard to biointermediates and ensuring that renewable fuels are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements and that RINs not be generated multiple times, e.g., for a volume claimed as a biointermediate and as a renewable fuel, apply equally to FFAs that are created from physical

separation versus chemical processes. Commenters fail to explain why a physically separated FFA should be treated differently from a chemical separated FFA or why a physically separated FFA would not carry the same risks of being produced from non-qualifying feedstocks or being contaminated with non-qualifying feedstocks during transport. Commenters also fail to explain how the distinction between whether an FFA feedstock was created via physical or chemical process ensures that the FFA feedstock was produced under an EPA-approved pathway.

We are finalizing a biointermediates program designed to ensure that biointermediates are produced from qualifying feedstocks under EPA-approved pathways. We did not propose and are not finalizing a distinction over whether FFA feedstocks were produced via a physical or chemical process because such a distinction is irrelevant with regard to the areas of concern identified in the proposal and in this final action. FFA feedstocks created from non-qualifying feedstocks are non-compliant regardless of whether the FFA feedstock was made through a physical or chemical process. Similarly, during transport, physically separated FFAs could be adulterated with non-qualifying feedstocks in the same way that chemically created FFAs could be.

We also believe that the commenters' suggestion to distinguish between FFA feedstocks that are produced from physical and chemical processes would result in significant difficulty in implementing and overseeing the program as well as significant confusion on the part of regulated parties over which set of regulatory requirements apply. Parties may also misinterpret what constitutes a physical process versus a chemical process, for example if FAD are produced before a feedstock is fully dried and some fraction of FAD result from transesterification, and this could result in the misclassification of FFA feedstocks and result in the generation of invalid RINs. These are two of the reasons we did not propose such a distinction. Furthermore, because the FFA feedstocks from physical versus chemical separation are indistinguishable, parties throughout the distribution chain would likely distribute FFA feedstocks fungibly regardless of whether the FFA feedstocks were produced chemically or physically, which would violate the transfer limits discussed in Preamble Section VII.C.4 resulting in the invalid generation of RINs. Finally, third-party auditors would not be able to effectively ensure that any FFA feedstock was created via a physical or chemical process and would thus not be able to effectively determine or verify that any FFA feedstock met its applicable regulatory requirements.

Comment:

Several commenters stated that the FFA feedstock definition requiring 80% FFA is too high. The commenters either suggested lowering the FFA cutoff from 80% to either 50% or 60%, asked EPA to determine a scientific basis for a threshold, or suggested allowing the renewable fuel producer to determine the most appropriate method.

One of the commenters explicitly agreed with the exclusion of FFA from palm oil in the definition of FFA feedstock, and other commenters retained this exclusion in their suggested definition of biointermediates.

One commenter disagreed with those that may believe that the 80% set for FFA is too high as there can be impurities in FFA and will end up excluding feedstocks. The commenter requested

prior to setting the percentage that the Agency determine a scientific basis for doing so as there is currently no consensus specification for FFA. At a minimum, they asked, the Agency lower the percentage as to not exclude feedstocks.

Response:

As explained in Preamble Section VII.C.3.b, we have lowered the FFA content requirement within the FFA definition from 80% to 50%. We agree with commenters' assertion that impurities in FFA feedstock may cause the exclusion of feedstocks that we did not intend to exclude from our proposed definition. The cutoff in the FFA feedstock definition was intended to ensure the inclusion of FFA streams and exclude streams that only include a minor fraction of FFAs., such as used cooking oil which is already a renewable biomass feedstock. Fifty percent was chosen since it is the lowest threshold that ensures that FFA is the largest component produced and it is much higher than the free fatty acid content in typical used cooking oils,[187] so it is unlikely to inadvertently misclassify other streams.

The commenters did not suggest a scientific basis to decide the weight fraction of FFA necessary for something to be considered FFA feedstock.

Comment:

One commenter suggested that EPA remove the separation requirement in the proposed definition of FFA feedstock and stated that this edit is important as it pertains to waste FOG, where the separation from renewable biomass and/or triglycerides is unnecessary in their biofuel process.

Response:

We have removed the separation requirement from the definition of FFA feedstock consistent with the commenter's suggestion. We made this change to the proposed definition of FFA feedstock to avoid inadvertently excluding substances consisting mostly of FFAs but which are produced from renewable biomass in a manner that does not involve separation from renewable biomass. We did not intend to only allow for FFA feedstocks that were produced from separation.

Comment:

One commenter agrees that the approved feedstocks from Table 1 that are pre-processed at a separate facility are NOT biointermediates. The commenter further requested the allowance of standard industry processes, such as bleaching and deodorizing (amongst others) to NOT disallow feedstocks that have been treated with these processes from being used in a previously approved pathway.

[187] An example of typical cooking oil FFA content is described in Thoai, D. N., Hang, P. T. L., Lan, D. T. 2019: Pre-treatment of waste cooking oil with high free fatty acids content for biodiesel production: An optimization study via response surface methodology. Viet. J. Chem. 57 (5) pp. 568-573 https://doi.org/10.1002/vjch.201900072

One commenter requested that EPA clarify whether renewable biomass oils that undergo treatment at a third-party location remain eligible for RIN generation. The commenter points to the preamble and proposed regulations as evidence that EPA does not intend for the oils separated from FFA feedstock to be treated as a biointermediate specifically pointing to paragraph (6) of the proposed definition. The commenter also noted that they did not believe that EPA would propose an initial list of biointermediates that includes FFA feedstock but omits the original renewable biomass oils from which such FFAs are extracted, if EPA considered the oils post-treatment to be biointermediates, and that logic follows then that this omission is intentional because EPA does not consider such post-treatment oils to be biointermediates.

Response:

As discussed in Preamble Section VII.C.2, our proposed approach is not intended to affect pre-processing steps for feedstocks in Table 1 that do not substantially alter the feedstock. We describe in the regulations at 40 CFR 80.1460(k)(2) the pre-processing changes that do not qualify as substantially alteration of the feedstock. Standard industry processes that separate out impurities, such as bleaching through adsorption and deodorizing through distillation, do not reclassify the bulk feedstock as a biointermediate. We are finalizing with modifications language at 40 CFR 80.1460(k)(2) clarifying that bleaching through adsorption and deodorizing through distillation are processes that do not constitute substantial alteration.

Comment:

One commenter agrees with the proposal that FFA feedstock must not include any free fatty acids from the refining of crude palm oil.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

One commenter noted that a specific test method was not included in the definition of free fatty acids and stated that EPA should specify that the producer may select the test best suited to their feedstock or that a standard Total Fatty Acid test should be used.

Response:

As discussed in Preamble Section VII.C.3.b, we are accommodating a number of test methods that could be used to measure FFA content and have added a requirement for biointermediate produces to submit at registration a description of the method that they will use to determine FFA concentration.

10.3.4 Undenatured Ethanol

Commenters that provided comment on this topic include but are not limited to: 0392, 0402, 0403, 0408, 0429, 0468, 0491, 0511, 0516, and 0532.

Comment:

Multiple commenters support inclusion of undenatured ethanol in definition of biointermediate.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

Several commenters stated that given additional US Department of Treasury, Alcohol and Tobacco Tax and Trade Bureau's (TTB) regulations, they opposed additional biointermediate requirements (e.g. transfer limits, reporting, registration, segregation, QAP) for undenatured ethanol. They state that removing the additional biointermediate requirements could allow for greater utilization of ethanol in applications such as sustainable aviation fuel.

One commenter added that for transfers of undenatured ethanol, the EPA could require records under 27 CFR Part 19 and Part 27 for transfers of undenatured ethanol from domestic producers and importers, respectively, and require, consistent with those regulations, that undenatured ethanol only be transferred in bond to a registered distilled spirits plant.

One commenter states that the TTB regulations substantially limit the universe of parties that can send and receive undenatured alcohol and has some of the most stringent penalties in commerce. The commenter that the registrations, strict transfer guidelines, bonding, recordkeeping and reporting requirements within the TTB system should address any concerns of the EPA around movement of undenatured ethanol to renewable fuel production facilities.

One commenter encourages EPA to consider how streamlining the biointermediate rule, by taking into account existing TTB regulations for undenatured ethanol, could advance renewable fuel consumption by efficiently utilizing and repurposing existing ethanol capacity for aviation.

Response:

We disagree with the commenter's suggestion that TTB regulatory requirements could serve as a substitute for the biointermediates provisions. TTB regulatory programs are not designed to ensure that Clean Air Act requirements under the RFS program are met. While we leverage the TTB denaturing requirements to ensure that denatured fuel ethanol is used as transportation fuel, the TTB regulatory program does not address whether the ethanol was produced from qualifying renewable biomass or under an EPA-approved pathway. TTB regulatory requirements also are not designed to address whether a volume of ethanol (undenatured or denatured) was properly accounted for in RIN generation. In addition, these requirements only apply to domestic

undenatured ethanol. Thus, we continue to believe that the transfer limits for biointermediates, including for undenatured ethanol, are a necessary component of the program.

Comment:

One commenter stated that given lack of ethanol RIN fraud and the additional TTB regulations, they opposed additional requirements (e.g. transfer limits, reporting, registration, segregation, QAP) for undenatured ethanol should only be used when the historical evidence demonstrates a meaningful gap.

Response:

We disagree and believe the more reasonable approach is to take proactive steps to prevent invalid RIN generation. If invalid RINs are generated due to a program that is inadequate to ensure compliance with the applicable statutory and regulatory requirements, this could result in a significant number of invalid RINs which would already be in the marketplace. Affected parties would then have to retire or replace these RINs, which could result in liquidity issues in the RIN market as well as discourage the future use of biointermediates to produce renewable fuels. We believe the additional biointermediate requirements are necessary to ensure renewable fuel is produced from renewable biomass under an approved pathway, and thus to proactively address any potential invalid RIN generation or RIN fraud.

Comment:

Commenter suggests the 95% ethanol requirement be added to the definition of undenatured ethanol.

Response:

We disagree with the commenter's suggestion that we add a concentration limit to the definition of undenatured ethanol, and the commenter failed to provide an explanation for why such a limitation is needed. We are not finalizing a specific concentration cutoff for undenatured ethanol because there could be various levels of water in the biointermediate which will likely be removed when the undenatured ethanol is converted to renewable fuel. Imposing such a limit would unnecessarily exclude some undenatured ethanol (e.g. those undenatured ethanol that have only 94 percent ethanol content) and would require us to specify methods for parties to determine ethanol content when such ethanol content information provides limited value.

Comment:

Commenter suggested that EPA clarify that any undenatured ethanol intended to be denatured and sold as fuel is not a biointermediate.

Response:

We did not propose and are not finalizing a requirement that undenatured ethanol intended to be denatured and sold as fuel be treated as a biointermediate. That is, undenatured ethanol intended to be denatured and sold as fuel is not subject to the biointermediate-specific requirements we are promulgating in this rulemaking.

Comment:

Two commenters suggested that the same regulatory treatment and requirements should apply to foreign undenatured ethanol used as a biointermediate and foreign undenatured ethanol later used as a fuel up until the point that these supply chains diverge.

One commenter requested clarification on the proposed classification of undenatured ethanol as a biointermediate when being used as a feedstock for other fuel production, and not to undenatured ethanol intended to be denatured for gasoline blending. They requested further clarification for importation of undenatured ethanol at U.S. ports when the product would be designated a biointermediate, and not designated for denaturing and blending into gasoline.

Response:

We understand the commenters are asking that undenatured ethanol be differentiated at the point of import. We developed this program to differentiate at the biointermediate production facility the ethanol intended to be used as a biointermediate and ethanol intended for fuel usage, for the reasons discussed in the Preamble Section VII.C.6. In this action, it is not our intent to change previous pathways or the regulatory requirements for foreign ethanol that is denatured after it is imported. Due to concerns related to the complexity of biointermediates, the additional requirements for biointermediates are necessary to ensure renewable fuel is produced form renewable biomass under an approved pathway. If we were to require the same requirements for undenatured ethanol used as a biointermediate and undenatured ethanol later used as a fuel, it would be necessary for additional requirements to be placed on undenatured ethanol later used as a fuel, which would go against our intent to not change previous pathways. Given this, we are requiring different requirements for undenatured ethanol used as a biointermediate and undenatured ethanol later used as a fuel.

Under the biointermediates program, because of the batch segregation requirements under 40 CFR 80.1478(g)(2), imported undenatured ethanol intended to be used as a biointermediate must be segregated from the point that the batch of biointermediate is produced to the point where the batch of biointermediate is received at the renewable fuel production facility. However, as discussed in RTC Section 10.4.2, we are providing more flexibility for the commingling of batches of biointermediates of the same type (e.g., undenatured ethanol).

Comment:

Two commenters asked for clarification that a biointermediate producer can also be a renewable fuel producer. One of those commenters stated that they believe no ethanol producer would be willing to just be a biointermediate producer.

Response:

We did not propose and are not finalizing a restriction precluding a renewable fuel producer from also being a biointermediate producer. A renewable fuel producer may also produce a biointermediate as long as they comply with all regulatory requirements for biointermediates.

10.3.5 Additional Biointermediates for Inclusion

Commenters that provided comment on this topic include but are not limited to: 0348, 0357, 0375, 0385, 0389, 0390, 0392, 0395, 0417, 0431, 0432, 0435, 0437, 0444, 0448, 0454, 0468, 0476, 0484, 0485, 0495, 0511, 0513, 0515, 0516, 0521, 0530, 0532, 0544, 0551, 0562, 0564, 0569, and 0572.

Comment:

Several commenters suggested that EPA should add biogas (sometimes referred to as biomethane or renewable natural gas in comments) as a biointermediate and reflect the potential for increased renewable gasoline volumes when it sets future RVOs. Commenters suggested a variety of fuels could be produced from biogas used as a biointermediate including: methanol, sustainable aviation fuel, renewable gasoline, biosyncrude, and renewable hydrogen.

One commenter noted that biogas producers have generated RINs for many years without an allegation of fraud and that biogas currently cannot be sold for use as a transportation fuel without participating in the RFS QAP. The commenter suggests that biogas producers would have little difficulty in participating in the mandatory RFS QAP participation requirement, which would help limit and prevent opportunities to generate fraudulent RINs.

One commenter noted biogas is currently made from qualifying renewable biomass through landfills, agricultural digesters, and wastewater treatment plants for use as a renewable CNG/LNG and this would continue to be true if biogas were used as a biointermediate.

Several commenters noted that biogas used as a biointermediate would need to be exempted from EPA's proposed batch segregation requirements and transfer limits due to its fungible nature in common carrier pipelines. These commenters argue that mandatory RFS QAP participation will provide sufficient oversite for the tracking of biogas injected into a common carrier pipeline.

Several commenters suggested that EPA should replace the proposed segregation and transfer limits with a book and claim provision for biogas used as a biointermediates, which will likely be in the form of RNG.

One commenter explained that were biogas to be allowed as a biointermediate, the producer of biogas being used as a biointermediate would certify the volume of treated biogas injected into the common commercial pipeline on behalf of the renewable fuel producer; then the renewable fuel producer would certify the volume of treated biogas purchased from the biogas producer and the net amount of conventional natural gas converted by the renewable gasoline producer into renewable fuel; and finally the renewable fuel producer would determine the volume of renewable fuel for RIN generation by dividing the amount of biogas claimed by the net amount of natural gas converted into renewable and multiplying the result by the total renewable fuel output of the facility.

One commenter suggests EPA provide flexibility under the new biointermediates regulations to consider specific circumstances where RNG would be an appropriate biointermediate. There are many RNG pathways that can generate fuels for use in hard to decarbonize sectors such as hydrogen production, methanol production, and DME production.

Two commenters suggested that, as an alternative to making biogas a biointermediate, EPA could approve more pathways with biogas as a feedstock, leveraging EPA's existing book and claim approach for biogas injected into a pipeline.

Two commenters requested clarification on treatment of biogas (renewable natural gas) under the proposed regulations for biointermediates, by either (1) confirming that biogas will be treated as a feedstock outside the biointermediate framework, consistent with its treatment for CNG/LNG production; or (2) adding biogas to the list of approved biointermediates.

One commenter noted that while the proposed rule also includes a proposal to establish a biointermediates pathway, they were concerned that EPA's proposal does not address the use of upgraded biogas (RNG) transported via pipeline to produce renewable fuels other than compressed natural gas ("CNG") or liquified natural gas ("LNG"), despite the fact that numerous emerging companies and technologies are poised to utilize this low-carbon and renewable feedstock. They encouraged EPA to act swiftly to permit the shipment of RNG via pipeline to produce additional renewable fuel categories such as Sustainable Aviation Fuel (SAF), Renewable Gasoline and bio-methanol. They stated that failure to do so could significantly curtail the development of these critical low-carbon fuels, in contradiction of this Administration's policy goals focused specifically on mitigating hard-to-decarbonize industries like aviation. They state that EPA already permits the use of biogas transmitted via pipeline to produce CNG and LNG, specifically citing that 40 C.F.R. 40 CFR 80.1426(f)(11)(ii) permits the production of CNG or LNG from biogas "introduced into a commercial distribution system.". They state that as proposed, 40 CFR 40 CFR 80.1460(k)(2) could be interpreted as a barrier to various innovative business models now being pursued. They recommend EPA resolve this concern in at least two ways: by (1) simply extending its current treatment of biogas to additional renewable fuel types, or (2) adding biogas to the delineated list of biointermediates.

One commenter stated the proposed rule does not include biogas to other renewable fuels (Renewable Gasoline, Sustainable Aviation Fuel, methanol, and hydrogen) as a part of that proposed pathway which is being used today. The commenter proposed a specific biointermediate pathway for biogas and suggested compliance procedures that would enable EPA oversight of RIN generation. The commenter believes the net effect would diversify renewable fuels under the RFS, incentivize growth in biogas production, and enable the cellulosic category to achieve the original statutory ambitions. This commenter noted a number of companies are developing facilities that produce transportation fuels from natural gas, rather than crude oil. This enables the use of RNG to replace conventional natural gas and produce Renewable Gasoline, Sustainable Aviation Fuel, methanol and hydrogen at significant scale. For example, 1 billion cubic feet per day of natural gas (or RNG) feedstock can produce 93,000 barrels per day of gasoline (or Renewable Gasoline). The commenter believes it is critical that the Biointermediates rule is finalized to enable RIN generation for renewable fuels derived from biogas. The commenter believes the same value proposition afforded by D3 RINs must exist

whether that biogas is sold for use in a CNG vehicle or sold for use in the production of the other renewable fuels discussed above. Both end up as transportation fuel, but the latter requires a provision for biointermediates. This opportunity tackles three critical objectives: incentivize methane capture, facilitate growth of the cellulosic category, and significantly decarbonize the transportation industry. The commenter disagreed with limiting biointermediates to only those explicitly laid out in the text, and it does not include treatment of biogas/RNG as a biointermediate. The commenter urged EPA to include a biointermediate pathway for biogas.

Three commenters suggested that the segregation requirement would be infeasible for RNG that is transported by pipeline, even for dedicated pipelines. They recommended an exemption for pipeline quality biogas from the biointermediate segregation requirements. One commenter said this would make it impossible to offtake biogas from commercial pipelines on a book-and-claim basis since biogas used for producing CNG/LNG is comingled with traditional natural gas in those pipelines.

One commenter stated that EPA should clearly define what is a “biointermediate” and when these provisions are implicated so that they do not impose undue burdens on renewable biomass suppliers or delay or confuse the approval of new pathways, such as RNG to hydrogen. On the other hand, the commenter noted RNG should not be excluded from potentially being a feedstock to produce other renewable fuels, such as renewable gasoline where the renewable biomass is separated yard waste or municipal solid waste. The commenter stated that although the biointermediates provisions should not preclude parties from seeking specific pathways for the feedstock, the definition of “renewable fuel” in 40 C.F.R. 80.1401 may be broader than those fuels for which EPA has approved generation of RINs. The commenter recommended clarification that the biointermediate “is not a fuel type as described in either Table 1 to 80.1426, or in an approved pathway pursuant to 80.1416” or, as fuels that do not meet the definition of renewable fuels cannot generate RINs. The commenter stated that EPA appears to be mostly concerned with double counting of RINs, and that EPA could simply require that the biointermediate not have generated any RINs under the RFS program. Commenter further noted that paragraph (4) of the definition of biointermediate should be altered to state that the biointermediate is made from the feedstock “listed."

One commenter noted that Congress identified biogas as a type of advanced biofuel. In 2014, EPA finalized pathways for CNG, LNG and renewable electricity from biogas. The commenter further stated that recognizing biogas had to be treated to become pipeline quality to be used as transportation fuel, EPA included provisions and has issued guidance that allows for a “book-and-claim” process to allow CNG/LNG producers to take pipeline-quality biogas from commercial pipelines. RINs can then be generated, once all the paperwork and requirements EPA established are met. The commenter believes this process could be built upon to allow pipeline-quality biogas (i.e., RNG) to be designated for other uses, such as feedstock for the production of other renewable fuels, including renewable gasoline, hydrogen, and jet fuel/sustainable aviation fuel. Such an approach could help facilitate production of these fuels, opening up the market.

One commenter asked EPA to clarify whether proposed 40 CFR 80.1460(k)(2) is meant to prohibit transporting biogas to produce renewable fuel. Under a strict reading of that subsection,

even transporting biogas via pipeline to produce CNG or LNG might be prohibited (as it could be interpreted to involve the processing of renewable biomass at more than one facility), thereby creating a conflict within Subpart M. Commenter suggested that EPA clarify that the proposed 40 CFR 80.1460(k)(2) prohibition is not meant to extend to feedstocks listed in Table 1 of 40 CFR 80.1426, including biogas. If the prohibition extends to biogas, commenter asserts that this will delay utilization of SAF. Commenter recommends EPA resolve this concern by (1) extending its current treatment of biogas to additional renewable fuel types, or (2) adding biogas to the delineated list of biointermediates under paragraph (5) of the biointermediates definition.

Commenter urged EPA to continue allowing biogas to be bought and sold on a book-and-claim basis, even if it is designated as a biointermediate.

One commenter requested clarification with respect to treatment of biogas under the proposed regulations for biointermediates, by either (1) confirming that biogas will be treated as a feedstock outside the biointermediate framework, consistent with its treatment for CNG/LNG production; or (2) adding biogas to the list of approved biointermediates.

This commenter argues the Agency treats biogas like a feedstock in its approved pathways for renewable CNG, LNG, and renewable electricity (see 40 CFR 80.1426, Tbl. 1, Pathways Q and R). They believe this framework should also apply to biogas used to produce other types of fuel, including sustainable aviation fuel ("SAF"). Under these pathways, EPA allows biogas produced from municipal solid waste or animal waste to be processed to pipeline quality for injection into commercial gas pipelines to be extracted, on a book-and-claim basis, by producers at another location to make CNG/LNG. SAF producers using biogas like a feedstock should be permitted to do the same. The commenter believes this approach may be a better fit for the treatment of biogas than addressing biogas in the biointermediates framework. The existing book-and-claim treatment of biogas is inconsistent with certain of the proposed biointermediate rule, such as the requirements for batch segregation of biointermediates or the issuance of product transfer documents. Therefore, inclusion of biogas under biointermediates would be in contradiction to treatment under existing pathways and create conflicting documentation requirements for biogas used as a feedstock in renewable fuel production. Alternatively, if biogas is treated as a biointermediate, the commenter recommended the following changes to the biointermediates proposal: 1) Add biogas to the "short list" of initial biointermediates appearing in subsection (5) of EPA's proposed definition; 2) Exempt biogas from the biointermediate segregation requirements proposed at 40 C.F.R. 1476(g)(2), which are infeasible in a common carrier pipeline system and unnecessary to ensure proper tracking and accountability for fuels produced from biogas when participating in an EPA-approved QAP; 3) Duplicate existing biogas book and claim requirements when biogas is used as a biointermediate; 4) Promote biogas development by allowing producers the opportunity to sell to interested buyers without restriction, regardless of whether they intend to use biogas as a biointermediate or to produce CNG and LNG.

Response:

As discussed in Preamble Section VII.C.3.c, we acknowledge that multiple opportunities exist for RNG to be used as a biointermediate. However, also as noted by commenters (e.g., biogas already being listed as a feedstock in Table 1 and the segregation requirement not being suitable

for pipeline distribution), the proposed biointermediate provisions are currently not appropriate for biogas used as a biointermediate, especially when that biogas or RNG is distributed via commercial pipeline. Since the segregation of biogas cannot be done through commercial pipelines, other requirements would be necessary to ensure renewable fuel is appropriately produced from renewable biogas that is obtained from commercial pipelines. To allow for production of renewable fuel from biointermediates in a timely manner, we are finalizing biointermediate provisions that can apply broadly to many biointermediates. Given the particular concerns around biogas, we intend to address the use of biogas as a biointermediate when we address issues related to the use of biogas to make renewable electricity (so-called "eRINs") in a future action.

Comment:

One commenter believes EPA should compile a pre-determined list of eligible feedstocks to avoid an unnecessary rulemaking for the determination of a biointermediate feedstock. They commented doing so would make for a more efficient RFS program and further increase biofuel production without the hurdle of an additional rulemaking process. As EPA compiles such a list of pre-qualified feedstocks, the commenter recommended consideration of feedstocks approved in other jurisdictions. For example, Directive (EU) 2018/2001 (Annex IX) includes a list of feedstocks that the EU has adopted to promote the production of biogas for transport and advanced biofuels.

Response:

The commenter fails to explain what items should be included on such a feedstock list, how it is differentiated from the list of eligible feedstocks listed in Table 1 to 40 CFR 80.1426 or the list of biointermediates included in the definition of biointermediate at 80.1401, and how such a list would make for a more efficient RFS program. Table 1 to 40 CFR 80.1426 already contains the list of which feedstocks are eligible to produce biointermediates under the RFS program, and the biointermediates provisions lists those biointermediates permissible in the RFS program. The approval of new pathways for feedstocks not currently falling under an EPA-approved pathway is outside the scope of this rulemaking. We will continue to consider additional feedstocks that other regulatory bodies have approved under their respective programs (e.g., CARB) through the normal pathway approval processes.

Comment:

One commenter suggested that any product transfer document reporting for RNG occur on an aggregate basis (i.e., the renewable biomass was at least 75% cellulosic), rather than requiring the conveyance of information regarding the portion of the feedstock, or biointermediate, as cellulosic material versus non-cellulosic material.

Response:

We are not including biogas as a biointermediate in this action. We will address any PTD requirements for transfers of biogas used as a biointermediate in a future action.

Comment:

EPA should consider adding ammonia as a biointermediate.

Response:

The commenter did not provide the information requested in the proposed rule (86 FR 72468) when requesting the addition of a new biointermediate. For example, the commenter did not specify from what renewable biomass ammonia might be produced or under what current or future EPA-approved pathway ammonia could be used. We do not have sufficient information to determine whether and how ammonia would fit into the biointermediates program we are finalizing in this action and are therefore declining to add ammonia to the list of biointermediates at this time.

Comment:

Five commenters suggested that EPA should consider adding biomass-based or cellulosic sugars to allow for more efficient transfer of sugars to facilities that will turn them into renewable fuels. One commenter noted that RIN generation is key to viability of cellulosic sugars as a feedstock and that a more flexible program could avoid methane losses. Commenters highlighted that these biomass-based sugars could come from a variety of sources including from crops such as corn, sugarcane, and sugar beets, as well as cellulosic sugars from next generation feedstocks like wood waste, bagasse, corn stover and other agriculture residues. Commenters note that biomass-based sugars are currently available in the market.

In the alternative, two commenters suggested that EPA could clarify that biomass-based sugars are already qualified feedstocks under the current program. Commenters note that sugars from current crops (e.g., dextrose from corn, sucrose from sugar cane and sugar beets) are transported today in commerce at large volumes and can also be transported to biofuel production facilities to produce renewable fuels and that such distribution networks may apply to cellulosic sugars in the future. Commenter suggests that this raises the question over whether EPA would even deem cellulosic sugars a biointermediate under the proposed rules. The commenter argued further that EPA has already approved pathways for the conversion of corn starch, sugarcane and cellulosic components into renewable fuels and asked why cellulosic sugars are different. Alternatively, both commenters suggest that it would be appropriate to include cellulosic sugars as a biointermediate.

One commenter stated that a potential for fraud of this biointermediate might be passing off non-cellulosic sugars and cellulosic-based sugars, though this can be mitigated since the cellulosic-based sugars, which are likely to be produced through pyrolysis, would contain more anhydrous sugars than non-cellulosic based sugars, which would likely originate from enzymatic hydrolysis.

One commenter suggested that if EPA believes adding cellulosic sugars as a biointermediate without additional restrictions would make implementation of the rule too broad or burdensome, then they suggest adding only cellulosic sugar co-produced with biocrude by pyrolysis. They

recommended a definition of "a water soluble, carbohydrate-rich liquid or solid biointermediate produced from the polysaccharide fraction of renewable lignocellulosic biomass through pyrolysis at a biointermediate production facility". The commenter said that cellulosic sugars can be produced from pyrolysis of lignocellulosic biomass and separated from biocrude.

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify a s renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters provided all this information for cellulosic sugars.

We agree with the commenter that the risk of fraud by passing non-cellulosic based sugars and cellulosic based sugars is low due to the concentration of anhydrous sugars, which can be effectively tested. with approving biomass-based sugars We agree with the commenter that the risk of fraud is low given the economics of producing synthetic glycerin. The information provided by commenters about how the potential risks of RIN fraud can be effectively mitigated give us confidence that the requirements we are finalizing today are sufficient to ensure that renewable fuels produced from biomass-based sugars will be consistent with CAA and regulatory requirements, and that we can provide adequate oversight of the production, transfer, and use of biomass-based sugars and associated renewable fuels. Given that these concerns have been addressed, we have added biomass-based sugars to the list of biointermediates

Comment:

One commenter noted that biogas used as a biointermediate to produce renewable gasoline could result in a production capacity of 337MM renewable gasoline gallons per year from 118,000,000 MMBtu of biogas used as a biointermediate by 2026 and 1.3 billion gallons per year of renewable gasoline from 355,000,000 MMBtu of biogas feedstock by 2029.

Response:

We appreciate the information around the scale that biogas can be used as a biointermediate. Information such as this will be useful when evaluating the impact of including biogas used as a biointermediate when we address it in a future action, as discussed in Preamble Section VII.C.3.c.

Comment:

One commenter asked EPA to include as part of the definition of biointermediates certain pre-processing steps for pre- and post-consumer solid and liquid food wastes that enhance the feedstock biochemical characteristics and, in turn, create an intermediate product for the production of biogas. The commenter pointed to their company-specific process that creates an

engineered bio-slurry, out of food wastes. By including this specific process in the definition of biointermediate, the commenter notes that this would incentivize the required diversion and pre-processing of food waste and, by extension, the production of biogas captured from anaerobic digesters.

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify as renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters did not address all aspects of what we requested, including the potential for fraud when using engineered bio-slurry as a biointermediate, which, as mentioned in the proposal, was a primary concern for approving additional biointermediates.

The definition of biointermediate does not include a list of pre- or post-processing steps, so it is unclear how the commenter intended us to add those to the definition of biointermediates, beyond the inclusion of engineered bio-slurry as a biointermediate.

Comment:

Several commenters asked for inclusion of biointermediates such that hydrogen that is not derived from renewable biomass can be used to upgrade low energy content compounds derived from combustion of biomass (such as CO2).

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify as renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters did not address all aspects of what we requested, including the potential for fraud when using CO2 as a biointermediate, which, as mentioned in the proposal, was a primary concern for approving additional biointermediates.

Comment:

One commenter suggested additional biogas pathways which might involve biointermediates, including producing liquid fuels from hydrogen that is either produced from biomethane or renewable electricity produced from biogas and the use of that same hydrogen in transportation vehicles as well. The commenter added that there are billions of gallons that can be obtained in the short term from the above pathways. To enable these pathways, this commenter specifically

recommended adding renewable electricity, biogas, and renewable hydrogen as a biointermediate, defining renewable hydrogen as "biomass-derived hydrogen, or biomass-derived pipeline quality hydrogen, that is compressed or liquified for use as, or biointermediate for the production of transportation fuel that meets the definition of renewable fuel." The commenter included that hydrogen should have an energy equivalence value of 77,000 Btu LHV per gallon RIN and recommended changes to 40 CFR 80.1426(f)(10), 40 CFR 80.1426(f)(11), 40 CFR 80.1429(b)(5), 40 CFR 80.1450, and 40 CFR 80.1454 for renewable electricity and renewable hydrogen.

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify as renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenter did not address all aspects of what we requested, including the potential for fraud, which, as mentioned in the proposal, was a primary concern.

Many of our concerns about renewable hydrogen and renewable electricity are similar to those of biogas (discussed in the first response of this subsection) since the renewable hydrogen or renewable electricity would involve the use of biogas transported on a common carrier pipeline as a feedstock. Because of this, we have concerns about the double-counting of the biogas and the generation of invalid or fraudulent RINs. We intend to address the use of biogas as a biointermediate, which would include the use of biogas to produce renewable hydrogen, when we address issues related to the use of biogas to make renewable electricity (so-called "eRINs") in a future action.

Comment:

One commenter suggested broadening the definition of biointermediates to include other alcohols, such as methanol, in addition to undenatured ethanol alcohol feedstock. Two other commenters recommended adding a new category for alcohols, including methanol, n-butanol and isobutanol, since they can be utilized for conversion to hydrocarbons. One commenter also recommended "Byproducts of biofuel production that are transferred to another facility for blending into a finished fuel" be added to allow for byproducts such as gasoline blendstocks produced through hydrotreating, which have to be transferred to a different facility, to be allowed to generate RINs.

Response:

We are not adding alcohols (including methanol, n-butanol, or isobutanol, which were mentioned by commenters) to the list of biointermediates because we believe those products are more appropriately treated as renewable fuels under the existing regulatory requirements. In the case of butanol (including n-butanol and isobutanol), we have already approved pathways for the use

of butanol as a renewable fuel and we did not propose and are not finalizing to amend the treatment of butanol as a renewable fuel under the program. Methanol, like ethanol and butanol, is typically blended into gasoline as an oxygenate, and we believe it is appropriate to treat it as a renewable fuel.

We are not including "byproducts of biofuel production that are transferred to another facility for blending into a finished fuel" in the biointermediates list because the term is overly broad and the commenter failed to provide a specific description of what byproducts they had in mind or what renewable fuel pathways they would fit under. Without such a description, it is impossible for us to determine whether inclusion as a biointermediate is appropriate. Additionally, the proposed term is so broad it could theoretically cover almost any product. Allowing for such a broad category of biointermediates would undermine our intent in specifically defining the term biointermediate as discussed in Preamble Section VII.C.3.

Comment:

Two commenters stated that EPA should have a larger list of approved biointermediates and, specifically, include all biochemicals such as methanol, olefins and naphtha. An additional commenter also suggested adding renewable methanol.

Response:

We are not adding methanol, olefins, or naphtha as biointermediates because we have historically treated these products as renewable fuels that are covered by the existing regulatory provisions for renewable fuels. Both olefins and naphtha are used as blendstocks to produce gasoline and diesel fuel. We already have pathways in Table 1 to 40 CFR 80.1426 that include renewable gasoline blendstocks and renewable naphtha and parties are already generating RINs for these products as renewable fuels. Similarly, methanol is typically used as an oxygenate like denatured fuel ethanol, and like denatured fuel ethanol would more appropriately be treated as a renewable fuel. Should parties wish to use these products to produce a different renewable fuel, the appropriate mechanism would not be the biointermediates program but rather the existing provision under 40 CFR 80.1426(c)(6) for renewable fuel that is produced from a process that uses a renewable fuel as a feedstock. Therefore, we do not believe it is necessary or appropriate to add methanol, olefins, and naphtha as a biointermediates.

Comment:

One commenter requested adding glycerin to the list of biointermediates. Glycerin is a process stream composed primarily of glycerols and water that was separated from biological fat or oils. Glycerin comes out of the transesterification process to produce biodiesel or from hydrolysis and is widely available. Commenter stated that glycerin can be used as fermentation feedstock for biomethane production and other uses for renewable heat or as renewable feedstock. The risk of fraud for this feedstock is low because synthetic glycerin production is more expensive than producing biological glycerin. Commenter suggests an audit or system check could ensure the facility of origin could produce glycerin, but that C14 testing could be used as a cross check. Commenter described in detail how auditors could verify glycerin used as a biointermediate

under the proposed biointermediate provisions. They proposed the following definition of glycerin: “Glycerin is a process stream that was separated from a biological fat or oils and contains glycerol.”

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify a s renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters provided all this information for glycerin.

We agree with the commenter that the risk of fraud is low given the economics of producing synthetic glycerin. In addition, the use of non-qualifying feedstocks, such as palm oil, is less likely than in production not involving biointermediates given QAP oversight requirement. We have sufficient information to be confident that the program we are finalizing today can ensure that the use of glycerin as a biointermediate will be consistent with the applicable requirements, so we have added glycerin to the list of biointermediates. However, when defining glycerin, we took a narrower approach than the commenter suggested by specifying that it is produced during biodiesel production. This allows for the specific circumstances the commenter mentioned and is narrow enough to explicitly exclude synthetic glycerin.

Comment:

One commenter requested adding biodiesel distillation bottoms to the list of biointermediates. Biodiesel distillation bottoms (BDB) are a co-product produced by the biodiesel distillation process and can be used as a feedstock for renewable fuel production. BDB are fatty acid methyl ester material including unsaponifiable components of fats and oils, fatty acid glycerides, esters, long chain fatty acids (C24+) and esters thereof. BDB are used either as a heavy fuel oil or feedstock for renewable fuel production. Commenter noted that there is a possibility for BDB to be generated from feeding biodiesel that has already generated RINs into distillation. However, the risk of BDB production from the biodiesel eligible for RIN generation under the RFS program is the same or no worse than the risk from double counting of the biodiesel itself. Standard checks within the RFS program would be sufficient so long as a proper mass balance is completed. The overall mass balance should divert biodiesel mass to BDB and should not increase the total mass from production. Commenter described in detail how auditors could verify BDB used as a biointermediate under the proposed biointermediate provisions.

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify a s

renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters covered all this information for BDB.

The commenter mentioned potential for RIN double counting since BDB can be produced from biodiesel that is eligible for RINs generation under the RFS program. The commenter mentions that this risk can be mitigated by appropriate mass balance. Given the QAP requirement for biointermediate producers requires review of mass balance, we think this requirement adequately addresses the risk of double counting of BDB. Based on our review of the commenter's description of BDB, we are finalizing the addition of BDB to the list of biointermediates. We note that the commenter provided extensive comments explaining how BDB is produced, how it would be used, concerns around the potential to generate fraudulent RINs, and that it does not meet the definition of biodiesel. In addition, BDB was identified in the "Potential Biointermediates" memo available in the docket to this action, so we already had some familiarity with it that provided additional confidence that there are not additional concerns of generating fraudulent RINs.

Comment:

One commenter requested adding soapstock to the list of biointermediates. Soapstock is made up of fats; oils; salts of fatty acids, glycerides, and phosphates; and fatty acid compounds and water. Soapstock is a by-product resulting from a chemical reaction that occurs during the refining of fats and oils with the goal of reducing phosphorus and FFA. Soapstock would be further processed into acidulated soapstock / acid oil, and then esterified into fatty acid methyl esthers. Commenter notes that the risk for fraud is low as it is inefficient to make soapstock to make biodiesel. Soapstock can't be converted to biodiesel directly, it needs to be converted to acid oil first using extensive treatment technology. Commenter described in detail how auditors could verify soapstock used as a biointermediate under the proposed biointermediate provisions. The commenter proposed the following definition of soapstock: "Soapstock is a byproduct of vegetable oil or animal fat refinement"

One commenter requested adding acidulated soapstock to the list of biointermediates. Acidulated soapstock is the product of soapstock that has been acidulated to make FFA feedstock. It is used as an animal feed or feedstock for renewable fuel production. Commenter noted that other sources of fatty acids (especially free fatty acids) could be blended into acid oil which may cause issues with identifying the initial material. Standard checks within the RFS program would be sufficient so long as the originating facility was identified and a mass balance of the soapstock conversion to acid oil was completed. Chemically processing soapstock into acid oil would not increase the overall mass of the acid oil. The acid oil mass would always be less than the soapstock feedstock. Commenter described in detail how auditors could verify acidulated soapstock used as a biointermediate under the proposed biointermediate provisions. The commenter proposed the following definition for acidulated soapstock: "Acidulated Soapstock is the product of soapstock that has been acidulated to make FFA feedstock."

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify a s renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenters covered all this information for soapstock and acidulated soap stock.

We agree with the commenters that the risk of fraud is low given the additional processing necessary to convert soapstock or acidulated soapstock to biodiesel, and we think that soapstock and acidulated soapstock are appropriate additions as biointermediates. Soapstock has been added to the list of biointermediates. However, the definition for soapstock proposed by the commenter could include any byproduct of oil refinement and was too broad to ensure proper oversight. We are promulgating a definition of soapstock as an emulsion generated by washing oils with water, consistent with the description for soapstock included in the commenter's suggestion. Instead of a separate definition for acidulated soapstock, we explicitly included the oil obtained from the emulsion in the definition of soapstock. This better represents what is generally considered soapstock, and we believe it addresses the production and usage of the biointermediate.

Comment:

One commenter asked that the EPA include biointermediates originating from trap grease and wastewater treatment plant scum.

Response:

In the proposal, we requested that commenters provide information for additional biointermediates showing that the biointermediates can be appropriately produced, transferred and used within the proposed provisions; that there are adequate controls to limit opportunities to generate fraudulent RINs; that feedstocks used to produce the biointermediate qualify a s renewable biomass; whether there are unique considerations for the potential biointermediate; the type of biointermediate; the potential volume; and the timeline for development (see 86 FR 72468). The commenter did not provide the requested information. Specificity, we do not have enough information to determine what biointermediates the commenter was envisioning. Our inclusion of soapstock and digestate may address the commenter's concern.

10.3.6 Other Aspects of the Definition of Biointermediates

Commenters that provided comment on this topic include but are not limited to: 0350, 0377, 0385, 0395, 0398, 0403, 0431, 0454, 0458, 0465, 0468, 0470, 0476, 0484, 0485, 0487, 0495, 0510, 0516, 0521, 0556, 0563, and 0572.

Comment:

Six commenters noted that the proposed definition of biointermediate may preclude the use of a biointermediate that also qualifies as a renewable fuel. One commenter noted that paragraph (6) of the proposed biointermediates definition is likely to cause significant disruptions and unintended consequences in the market and should be revisited. The commenter argued that paragraph (6) could be interpreted to mean that the fast pyrolysis oil would be excluded from being treated as a biointermediate since it can be produced in a stand-alone facility and utilized as heating oil. If this interpretation were applied, paragraph (6) would limit the use of pyrolysis oil to the heating oil market. The commenter recommended that EPA revise paragraph (6) as follows: "(6) A feedstock listed in a pathway in Table 1 to 40 CFR 80.1426, or in an approved pathway petition under 40 CFR 80.1416, and used to produce the renewable fuel specified in that pathway or approved petition using the specified process requirements, as applicable, is not a biointermediate if it generates RINs."

Three other commenters noted that there are many cases were a renewable product could be used as either a renewable fuel or a biointermediate, such as pyrolysis oil or biodiesel. One of these commenters suggested revising paragraph (2) as follows: "RINs were not generated for it." Another commenter recommended using affidavits or other recordkeeping devices to allow a product to be approved for some fuels and a biointermediate for other standards.

One commenter noted that the definition as proposed could restrict the use of biointermediates that are allowed to have RINs generated for them as a renewable fuel. The commenter cited examples such as biodiesel additive or pyrolysis oil that could be used as a renewable fuel or as a feedstock to make sustainable aviation fuel or as biocrude. The commenter noted that the proposed biointermediates provisions should oversee RIN fraud so such a restriction is not necessary.

One commenter said the proposal that a biointermediate must meet certain criteria, including that the fuel does not meet the definition of a renewable fuel and RINs were not generated for it may cause unintended consequences when fuel can be either a renewable fuel or a biointermediate. The commenter said numerous examples exist demonstrating that the proposed biointermediate definition has the potential to undermine the growth of renewable fuels.

One commenter requested that EPA include clarifications to the definition of biointermediate and undenatured ethanol indicating that a renewable fuel used as a feedstock can also be a biointermediate if explicitly listed.

Response:

Paragraph (6) of the proposed definition of biointermediate stated that feedstocks listed in a pathway in Table 1 to 40 CFR 80.1426, or in an approved pathway petition under 40 CFR 80.1416, and used to produce the renewable fuel specified in that pathway or approved petition using the specified process requirements, as applicable, is not a biointermediate. That is, the proposed paragraph (6) pertained to feedstocks for renewable fuel production, not outputs of production processes that could be treated either as renewable fuel or a biointermediate. The suggested revisions to paragraph (6) are thus irrelevant. On the other hand, the commenters' request that EPA's definition of biointermediate apply to outputs of a production process only if RINs were not generated for such output is already accounted for in paragraph (2), which, as proposed, stated that a biointermediate does not meet the definition of renewable fuel in 40 CFR 80.1401 *and* RINs were not generated for it as renewable fuel in its own right. Applying these proposed provisions to pyrolysis oil, the potential biointermediate raised in these comments, neither paragraph (2) nor paragraph (6) would restrict its use as a biointermediate, so long as RINs were not generated for it.

We have revised paragraph (2) to address the commenters' concerns and to reflect our intent more accurately. The updated language states that biointermediates must not have had RINs generated on them, which separates their treatment from renewable fuel production. This should alleviate any potential confusion regarding outputs such as pyrolysis oil that can be used either as a renewable fuel or a biointermediate.

Comment:

One commenter sought more clarity around the definition of "substantially altered." Currently, there is a limited list of "form change" terms that exempt a currently approved renewable biomass from meeting the definition of "substantially altered." They asked EPA to expand that list to explicitly include bleaching, heating, impurity extraction and other traditional rendering processes. From their perspective, there are several key pretreatment methods that do not alter the chemical or molecular form of the feedstock and are already being utilized today, and therefore should be included in the list.

Response:

In Preamble Section VII.C.3.a, we explained that we are adding bleaching and degumming to the list of preprocessing processes that do not cause a feedstock to become substantially altered. We have not added the other processes the commenter mentioned to the list because we are concerned that these processes may alter renewable biomass feedstocks to a degree that could impeded our ability to ensure that a biointermediate was produced from qualifying renewable biomass. Heating, impurity extraction, and other traditional rendering processes are broad terms that could be applied to unintended situations, so they were not added to the list of processes.

Comment:

One commenter requested that EPA consider allowing digestate from an agricultural digester to be considered as a self-standing cellulosic feedstock and not a biointermediate. This is further supported by the RFS definition for cellulosic biofuel which reads "renewable fuel derived from any cellulose, hemi-cellulose, or lignin that has lifecycle greenhouse gas emissions that are at least 60% less than the baseline lifecycle greenhouse gas emissions." An agricultural digester produces biogas as its primary product, and digestate is its byproduct, and not a product purposely produced for proto-renewable fuel purposes in any way. Digestate contains the cellulosic content of the original feedstock injected into the digester that was not processed.

The commenter further stated that if digestate is not considered a self-standing cellulosic feedstock, then EPA should not consider digestate a biointermediate because it is listed in an approved pathway and is processed only at one facility, and is only preprocessed such as filtering and dewatering at the first facility (agricultural digester facility) resulting only in a form change.

Lastly, this commenter stated that if digestate is determined to be a biointermediate, then digestate should be listed explicitly in the definition of a biointermediate.

Response:

In an anaerobic digester, a feedstock is substantially altered through microorganisms to form biogas and digestate. The digestate in this case has undergone substantial changes that warrant it being considered a biointermediate. The commenter states that a byproduct which is not purposely produced for proto-renewable fuel purposes should not be able to be classified as a biointermediate but provides no reason why this should be the case. Whether or not something was purposely produced to serve as a biointermediate does not abrogate the concerns we have identified pertaining to renewable fuels that are produced at more than one facility. We are therefore determining digestate to be a biointermediate and are adding it to the definition of biointermediate.

Comment:

One commenter recommended starting paragraph (6) of the biointermediate definition with "Is not" and removing "is not a biointermediate" at the end of the paragraph.

Response:

Though the commenter does not mention why this change was recommended, it appears to improve readability and matches the form of other paragraphs in the definition. We have updated the wording in according with the commenter's recommendation.

Comment:

One commenter proposed that 'removing trace impurities' should be added to the list of approved processes that do not trigger biointermediate steps, since it is used to allow the removal

of trace metals. They also stated that processing that does not alter the chemical composition of the bulk feedstock, such as mild hydrotreating for trace metals removal, should be permitted without triggering the biointermediate designation. The commenter recommended adding a sub-clause to paragraph (6) of the biointermediate definition specifying the processing steps that do not trigger the biointermediate designation, which were discussed in the NPRM.

Another commenter would like to ensure that additional processing activities not mentioned in the preamble, such as deodorizing and bleaching would not prohibit feedstocks from being used in an already approved pathway.

One commenter agreed that approved feedstocks from Table 1 that are pre-processed at a separate facility are not biointermediates. In addition to the proposed list of preprocessing steps, one commenter would like confirmation that follow-on activities such as deodorizing and bleaching will not prohibit these Table 1 feedstocks from being used in already approved pathways.

One Commenter requested that "fractionation", "stripping", "distilling", "freezing", be added to the form changes listed in the preamble and stated that biointermediates should have to undergo a chemical change in order for them to be qualified as biointermediates and that fractionation is not a chemical process. The commenter provided an example of soybean oil, which is a qualifying feedstock, fractionation to produce a soybean oil FFA stream and a pure soybean oil stream, stating that this does not require a chemical change. The same commenter said it's important to recognize that incidental chemical changes take place in some materials, like distillers corn oil and used cooking oil, without those chemical changes occurring due to the actions of the biointermediate producer. Minor chemical changes that occur without human influence should not be considered under the scope of substantial chemical changes in this definition of a biointermediate. As an example, decomposition and polymerization owing to storage conditions represent such a minor chemical change without purposeful intention.

Response:

In Preamble Section VII.C.1, we state that "our approach to defining biointermediates is not intended to affect pre-processing steps for feedstocks in Table 1 that are limited to form changes." Section 80.1460 (k)(2), which prohibits the production of a renewable fuel at more than one facility unless the person uses a biointermediate or the renewable biomass is not substantially altered, also contains the list of pre-processing steps that do not constitute substantial alteration. We are adding bleaching through adsorption to the list of form changes in 40 CFR 80.1460(k)(2) because bleaching through adsorption does not constitute substantial alteration of a renewable biomass feedstock, as is commonly done in vegetable oil processing We specified adsorption because bleaching could mean a variety of processes, some of which may constitute a substantial alteration.

We are not finalizing the addition of "remove trace impurities" since the trace impurities being removed, such as FFAs, may have significantly different properties from the bulk feedstock and are considered a biointermediate. Similarly, "distillation", "stripping", "fractionation" and "freezing" which are used to remove trace impurities can create a separate product that has

substantially different chemical and physical properties from the feedstock. While there may be specific situations where these processes do not substantially alter a product, this is not always the case, so they should not be listed as processes that do not cause a substantial alteration.

We believe specifying examples of form changes in 40 CFR 80.1460(k)(2) obliviates the need to specify the same list in the definition of biointermediates.

As explained in the preamble to the NPRM and in this final rule, we do not consider the distinction between physical and chemical changes to a renewable biomass feedstock relevant in determining whether something is a biointermediate. FFAs have substantially different properties from the oil from which it is obtained, and we are finalizing it as a biointermediate. Given that distillation, which produces a distillate in low quantities, can result in a distillate with vastly different properties than the input to the distillation, we find that distillation constitutes substantial alteration of the original feedstock and are thus not adding it to the list of preprocessing steps which do not constitute substantial alteration in 40 CFR 80.1460(k)(2).

Comment:

Two commenters stated that EPA should modify paragraph (4) of the biointermediate definition to clarify that it is made from a feedstock identified in a pathway.

Response:

We are finalizing paragraph (4) of the biointermediate definition to include the following requirements: that the biointermediate be produced from a feedstock material identified in a EPA-approved pathway, that the biointermediate will be used to produce the renewable fuel in accordance with the EPA-approved pathway, and that the biointermediate is produced and processed in accordance with the process(es) listed in the EPA-approved pathway. Each of these requirements is necessary to ensure that a biointermediate is produced and used in a manner consistent with the statutory and regulatory requirements for renewable fuels. This updated definition incorporates the recommendation of the commenters to clarify that a biointermediate is produced from a feedstock identified in an EPA-approved pathway.

Comment:

One commenter sought clarification that brown grease and trap grease that exceed the free fatty acid content in the definition of a FFA feedstock and are already approved in Table 1 will not be considered a biointermediate.

Another commenter requested that EPA confirm that biogenic waste oils/fats/greases are not also biointermediates unless the waste is substantially pre-processed at one facility to produce a proto-renewable fuel prior to being processed at the renewable fuel production facility.

Response:

As described in the Preamble Section VII.C.2, we do not intend for feedstocks already listed in Table 1 to 80.1426 to be biointermediates. For clarity, we are finalizing language in paragraph (6) of the biointermediate definition that states that feedstocks already approved in Table 1 to 80.1426 that are processed to produce renewable fuel according to the listed pathway are not biointermediates. If the brown grease, trap grease, or waste oils/fats/greases is a feedstock in an already approved pathway, then it is not a biointermediate unless the brown grease, trap grease, or waste oil/fats/greases undergo substantial alteration consistent with 40 CFR 80.1460(k)(2) prior to use as feedstock material at a facility other than the renewable fuel production facility.

Comment:

One commenter noted the proposed rule clearly states that certain forms of pre-processing or treatment that constitute merely a "form change" – such as filtering, centrifuging and dewatering – are outside the scope of EPA's proposed requirements for biointermediates. The commenter agrees and asks that EPA formalize this position by codifying it in the final rule.

Response:

We appreciate the commenter's support and are finalizing a list of form changes at 40 CFR 80.1460(k)(2).

Comment:

One commenter supports EPA's proposed clarifications as to what is not a biointermediate as listed in the proposed 40 CFR 80.1460(k)(2) & (k)(4), and 40 CFR 80.1401 definition of Biointermediate requirement (6).

Response:

We appreciate and acknowledge the commenter's support.

Comment:

Three commenters stated that biogenic oils which have had free fatty acids removed should continue to be considered an original feedstock and not be considered a biointermediate.

One commenter stated that the proposed rule fails to specify whether purified biogenic oils remain an original feedstock following FFA removal and cited the proposed rule (86 FR at 72468). The commenter stated that categorizing cleaned biogenic oils as a biointermediate could disincentivize the construction of biointermediate facilities. The commenter used the example of a facility cleaning used cooking oil (UCO) and stated that it would be difficult to sell the cleansed UCO to only one facility if it were classified as a biointermediate.

Another commenter used the example of oil pretreated for catalytic processing and stated that the treated oils remaining after the removal of contaminants and impurities including FFAs should not be considered a biointermediate since it did not fundamentally change their character. The commenter believes there is ample support for this requested clarification. They stated that the proposed rules' definition of biointermediate indicates that it is not EPA's intention to treat animal fats, UCO and DCO that have undergone FFA removal as a biointermediate. The commenter also noted that EPA's original attempt to regulate biointermediates – the proposed Renewables Enhancement and Growth Support ("REGS") rule - likewise may not have resulted in animal fats, UCO and DCO being considered biointermediates due to the removal of FFA content. Finally, the commenter does not believe EPA would propose an initial list of biointermediates in the present rulemaking that includes FFA feedstock while omitting the original renewable biomass oils from which such FFAs are extracted, if EPA considered the original oils post-treatment to be biointermediates.

One commenter recommended adding a clause to paragraph (6) of the definition of biointermediate clarifying that the portion of the feedstock that is not substantially altered is not considered as biointermediate, using as an example that while free fatty acids would be considered a biointermediate, the remainder of the feedstock would not be considered a biointermediate.

Response:

We recognize the commenters' concern whether the oil from which FFAs were produced would be considered a biointermediate. We proposed and are finalizing that the oils which have had FFAs removed are not considered biointermediates; clause (6) of the biointermediate definition excludes such oils from being considered biointermediates, so we do not believe any additional statement is necessary. By removing the FFAs, important properties, such as composition, reactivity, vapor pressure, and phase, of the oils does not change substantially enough to constitute substantial alteration under 40 CFR 80.1460(k)(2). The removed FFAs, however, have substantially different properties (reactivity, vapor pressure, etc.) from the original substance and, if they meet the definition of biointermediate, must comply with the biointermediate provisions.

Comment:

One commenter did not support treating secondary inputs, such as biomethanol, as biointermediates. They said the predominant source of energy should be the feedstock, not the chemical component that is mixed with the fuel. They commented including secondary chemicals as biointermediates will constrain potential GHG reductions since the current secondary inputs are fossil based and the alternatives are biogenic. They also said it would also dramatically increase the scope of the rulemaking.

Response:

We did not propose and are not finalizing changing how we treat the secondary inputs to processes listed in Table 1 to 40 CFR 80.1426, which includes methanol used in biodiesel

production. As mentioned in a response above, biomethanol will still be treated in the RFS program as a renewable fuel.

Comment:

One commenter encourages EPA to confirm that corn oil produced as a byproduct from the ethanol production process that may undergo form changes (such as the addition of water, physical separation, and drying) prior to sale to a biodiesel producer would not be considered a biointermediate. The commented noted this could be accomplished by expressly including pre-processing of corn oil as an acceptable form change that does not result in treatment of the corn oil as a biointermediate.

Response:

The corn oil that the commenter describes would be treated as the renewable feedstock distillars corn oil, which is listed in Table 1 to 40 CFR 80.1426. Changes such as addition of water, physical separation, and drying to corn oil would not classify the corn oil as a biointermediate because these activities are listed as form changes that do not constitute significant alteration of the original feedstock material as described in 40 CFR 80.1460(k)(2). As such, we do not believe it is necessary to modify the biointermediates provisions because these pre-processing steps are clearly covered in the final regulations.

10.4 Compliance and Enforcement Provisions

10.4.1 General Comments on the Compliance and Enforcement Provisions

Commenters that provided comment on this topic include but are not limited to: 0348, 0375, 0377, 0389, 0408, 0423, 0431, 0448, 0458, 0468, 0484, 0491, and 0516

Comment:

Several commenters suggested that EPA's proposed program is too stringent and may hinder the development and deployment of biointermediates.

Response:

We disagree that the biointermediates program is too stringent. As stated in Preamble Section VII.C, we have taken a balanced approach in the biointermediates program to expanding the opportunities for fuel production and allowing for renewable fuels to be produced at multiple facilities while ensuring proper oversight of a more complex production and distribution chain. We have designed the biointermediate provisions to ensure that renewable fuels produced from biointermediates comport with Clean Air Act and EPA regulatory requirements. Without these controls, we could not adequately oversee and enforce the program, which would likely result in the generation of invalid or fraudulent RINs. Based on our experience, the generation of invalid and fraudulent RINs can hinder the development and use of certain renewable fuels, as obligated parties, who are ultimately responsible for retiring valid RINs for compliance, would elect to not use RINs that they suspect to be invalidly or fraudulently generated.

Each time we have promulgated new flexibilities for the generation of RINs from renewable fuels, we have included regulatory controls designed to ensure that renewable fuels are produced from renewable biomass under an EPA-approved pathway consistent with Clean Air Act requirements for renewable fuels. Parties have adapted to these new regulatory requirements to produce qualifying fuels, and we expect that biointermediates will be no different.

Comment:

Two commenters asked whether biointermediate producers who sold or used the same product as a defined biointermediate for use outside of the RFS program would be subject to EPA's regulatory requirements for biointermediates.

One commenter asked EPA to clarify that only producers who use biointermediates to make renewable fuel (e.g. undenatured ethanol to make ethyl tertiary butyl ether or ETBE) for use in the U.S. would be subject to the proposed biointermediates requirements. The commenter noted that they currently make a fuel (ETBE) that is not currently recognized as renewable fuel under the RFS, but could be if the fuel received an EPA-approved pathway. The commenter recognized that if the fuel received an EPA-approved pathway and was made from a biointermediate then they would have to comply with all applicable RFS regulatory requirements including those related to the use of a biointermediate to produce the renewable fuel. The commenter stated

further that they believed biointermediate and renewable fuel regulations under the RFS should only apply to suppliers and producers who use undenatured ethanol for the production of a "qualified renewable fuel" per the RFS and sold in the domestic motor gasoline market. The commenter suggested that suppliers and producers who purchased undenatured ethanol to produce non-qualifying renewable fuels such as ETBE or for the export market should not be obligated to follow RFS provisions. Specifically, they noted that suppliers of ethanol for the production of exported ETBE should continue to be exempt from RFS reporting and registration requirements, and producers of ETBE continue to be exempt from RIN generation and retirement requirements.

One commenter noted that it is unclear whether the proposed single-buyer limitation affects biointermediate producers that may sell the same chemical for non-biointermediate purposes, as could be the case at ethanol or biogas production facilities. The commenter believes that the proposed regulation has no bearing on non-biointermediate uses.

Response:

We agree with commenters' suggestion that products that meet parts of the definition of biointermediate but are not intended for use and not used to produce a renewable fuel under the RFS program (e.g., undenatured ethanol used as an industrial solvent or undenatured ethanol to produce a non-qualifying fuel like ETBE) are not subject to the RFS regulatory requirements. However, as one commenter noted, if the product is used to make renewable fuel under the RFS program, then all applicable regulatory requirements for the product and the renewable fuel must be met. These applicable regulatory requirements would include the biointermediate provisions if the product was used as feedstock material to produce a renewable fuel.

The requirement to designate a single renewable fuel production facility for transfer of any biointermediate produced from a biointermediate production facility does not affect the transfer of the same chemical for purposes other than the production of renewable fuel under the RFS program.

Regarding exports, similarly, exported products that meet parts of the definition of biointermediate but were exported would not be subject to the RFS regulatory requirements. However, we note that if a renewable fuel producer used the product to produce a renewable fuel that is exported, the requirements of 40 CFR 80.1430 would apply to the exporter of the renewable fuel.

Comment:

One commenter stated that biointermediates should be treated as much like other feedstocks as possible with additional requirements only as necessary. They encouraged the Agency to make use of the mechanisms and checks present in the current RFS registration and compliance process. Specifically, the commenter suggested that:

1) Part 80 Registration would allow EPA to review a new participant and once approved, the Part 80 Program List would then be updated, showing all registered participants on a publicly available website;
2) The engineering review inherently includes a third party review of what the producer is intending to do prior to selling material into the market;
3) A quarterly report like the RFS1600 would show who are the biointermediate customers and include the renewable fuel producer's EPA IDs, to which EPA could also add elements from other reports to include quantity, unit of measure, type of biointermediate, etc. Correspondingly, a renewable fuel producer could be required to report the same information which could then be matched up by the 3rd party auditor and EPA. Furthermore, if a biointermediate producer was also a renewable fuel producer, additional reporting could be added to other RFS quarterly reports like the RFS 701.
4) The annual attest engagement provides another third party in addition to the third party engineer to review information similar to the process for a renewable fuel producer.

Another commenter similarly states that EPA should treat biointermediates like it does used cooking oil or soy bean oil.

One commenter asked EPA to use the same tracking system of feedstocks for biocrude as is required for modified fats and vegetable oil processing facilities.

Response:

While we agree with the commenter that additional requirements should only be added as necessary, we disagree with any implication that any of the biointermediates provisions we proposed and are finalizing are not necessary. As discussed in Preamble Section VII.C, the requirements being finalized for biointermediates are necessary to ensure that biointermediates are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements. It is the combination of these regulatory requirements for biointermediates that, when taken together, will ensure that biointermediates are compliant. The commenter failed to explain how their own suggested list of compliance mechanisms would effectively accomplish the same ends as EPA's proposal. We note that each element of the commenter's suggested approach is encompassed within the final biointermediate provisions; however, the commenter's suggestions are only a subset of our proposed provisions and we do not believe they would accomplish an adequate level of oversight. Noticeably absent from the commenter's list of provisions are mechanisms to track RINs generated in EMTS, records and PTDs to effectively track the transfer of biointermediates, and how the RFS QAP would help oversee the program. Each of these additional requirements is a necessary component of the regulatory structure we believe is necessary to prevent the generation of invalid or fraudulent RINs. The examples given by the commenter are not sufficient for ensuring that generated RINs are valid, nor do they provide the necessary ability for EPA to determine which RINs must be retired when a biointermediate is determined to be invalid.

We also disagree that we must treat biointermediates in the same manner as other feedstocks including used cooking oil or soy bean oil, and the commenters fail to provide an explanation for why treating biointermediates like these feedstocks is appropriate. Biointermediates, which can

sometimes be renewable fuels in their own rights, have unique considerations that distinguish their treatment from other feedstocks. Because biointermediates undergo significant alteration in a manner that can make them indistinguishable from renewable fuels, there is a significant increase in the risk of the biointermediate being multiple-counted for RIN generation. Furthermore, because the process of the renewable fuel production can now occur across multiple facilities, controls are needed to ensure that the biointermediate is produced, transferred, and used in a manner consistent with an EPA-approved pathway. As we note in Preamble Section VII.C.3, we do not believe these concerns apply in the case of form changes that do not constitute substantial alteration as described in 40 CFR 80.1460(k)(2) (e.g., those pre-processing steps typically used to refine, bleach, and deodorize soy bean oil). It is precisely because biointermediates undergo processing beyond that which is done for feedstocks like soy bean oil that additional controls are needed to ensure that the biointermediate was produced, transferred, and used consistent with Clean Air Act and EPA regulatory requirements. Therefore, treating biointermediates like feedstocks that do not undergo substantial alteration would not be appropriate.

Comment:

Commenter requests EPA approve multi-facility pathways under 40 CRF 80.1416, stating that the approach is compatible with the definition of biointermediate and that doing so will allow increased production volumes without risk of unintended consequences of regulatory changes.

Response:

We disagree with the commenter's assertion that the pathway petition process is an appropriate mechanism to implement a biointermediates program. The pathway petition process is not intended as a mechanism to substitute for the regulatory structure governing registration, recordkeeping and PTD requirements, RIN tracking in EMTS, etc. that is necessary to support the use and oversight of biointermediates. As we discuss in Preamble Section VII.A, the RFS regulations were designed with the assumption that renewable biomass would be converted into renewable fuel at a single facility where the connection between renewable biomass and renewable fuel would be obvious and easy to verify. Because the RFS regulations were designed for production of renewable fuels at a single facility, they must be amended to allow for the production of renewable fuels at more than one facility. While a pathway petition must consider the lifecycle emissions of the production of a renewable fuel across the entire production chain, which could include multiple facilities, to determine whether the combination of feedstocks, processes, and use of a renewable fuel meet applicable GHG reduction thresholds, the pathway petition process is not intended as a mechanism to rewrite existing or establish new regulatory requirements. Thus, while we anticipate approving two-facility pathways under the facility-specific pathway petition process of 40 CFR 80.1416, we do not intend to use that process to allow the use of new potential biointermediates that have not been defined under 40 CFR 80.1401.

10.4.2 Transfer Limits

Commenters that provided comment on this topic include but are not limited to: 0357, 0377, 0385, 0389, 0395, 0398, 0402, 0407, 0408, 0423, 0426, 0429, 0431, 0432, 0434, 0442, 0448, 0454, 0458, 0465, 0468, 0474, 0476, 0478, 0483, 0484, 0485, 0491, 0495, 0506, 0510, 0511, 0514, 0516, 0544, 0556, 0563, 0567, 0569, and 0572.

Comment:

One commenter expressed general support for limiting the production of biointermediates to a single facility.

Response:

We appreciate and acknowledge the commenter's support.

Comment:

Several commenters expressed concern around the limitation that a biointermediate producer sell to only one renewable fuel producer at a time and requested this limitation be removed as it could harm open competition, drive prices higher, and prevent growing biointermediate industry.

Three commenters supported allowing a renewable fuel production facility to receive biointermediates from multiple biointermediate production facilities, but suggested that EPA should allow the biointermediate producer to sell to more than one renewable fuel producer.

Other commenters suggested returning to the proposal in the REGS rule allowing multiple counterparties for both the biointermediate producer and the renewable fuel producer.

Three commenters noted that the biointermediate producer must lock in one purchaser, while that purchaser is allowed to source from multiple sources, leaving the producer at a disadvantage.

Two commenters noted that it is likely that the biointermediate production facility and the upgrading facility will be independently owned and operated, and both organizations must have the freedom to secure other customers and suppliers if there are any disruptions at one facility. They also noted that biointermediate producers need to be able to respond to seasonal demand as well as optimal pricing.

One commenter stated that this restriction sets up biointermediate producers as essentially a pretreatment plant.

Multiple commenters suggest that the many-to-one limit is restrictive and interferes with free competition in the biointermediates market. One commenter states that this requirement might cause biointermediate production facilities to shut down or not scale up. They state that this limit restricts the negotiating ability of the biointermediate producers. Another commenter stated that this requirement would create a regulated monopoly.

One commenter urged EPA to consider whether prohibiting sale to one renewable fuel producer is consistent with U.S. antitrust law.

Response:

As discussed in Preamble Section VII.C.4, the many-to-one limit is necessary for EPA to be able to ensure that renewable fuel is produced from renewable biomass through an approved pathway. Without this restriction, in order for EPA and independent third parties to effectively audit whether RINs were validly generated for a volume of fuel they would have to retroactively track, *inter alia*, every quantity of renewable biomass feedstock used by every biointermediate producer and every shipment of product from each biointermediate producer to every receiving party. Even for a single renewable fuel producer, this exercise could involve hundreds of parties and would present an unmanageable oversight and enforcement challenge. By having reasonable limitations to ensure proper oversight, this rule will promote a functional biointermediate market.

This rulemaking allows for greater flexibility for biointermediates and renewable fuel producers by creating new opportunities for additional companies to participate in the RFS program. It aims to promote competition by allowing renewable fuel producers to process biointermediates and our analysis in the Information Collection Request shows an anticipated increase in the number of renewable fuel producers due to this action. This should encourage more free market participation and lead the RFS program. Likewise, the increase in participants should minimize concern about collusion.

The commenter fails to explain how the requirement that a biointermediate production facility have only one designated renewable fuel production facility at a time would result in a monopoly or violate U.S. antitrust law. We note that we are finalizing provisions that would allow biointermediate producers to change their designated renewable fuel production facility once per year, and more frequently subject to EPA approval. We believe this flexibility will allow biointermediate producers the opportunity to renegotiate contracts with renewable fuel producers in a manner that will allow us to effectively implement and oversee the program.

Comment:

One commenter said that if EPA were to allow biointermediates producers to sell to multiple fuel producers, then to ensure ability to audit, all facilities in a system should be audited by the same QAP provider. The same commenter also mentioned consulting with QAP auditors around how they verify many-to-many verifications in biogas is done before finalizing limitations on flexibility.

Response:

As discussed in Preamble Section VII.C.5, we proposed and are finalizing a requirement that the same QAP auditor verify both the biointermediate and renewable fuel producers. This requirement is intended to ensure consistent oversight of the two facilities and ensure the QAP provider can verify that the corresponding records, PTDS, and reported information agree. We

are not allowing biointermediate producers to sell to multiple fuel producers as a part of RFS, so this should alleviate the concern of the commenters.

While QAP auditors are currently verifying RINs generated from biogas used as renewable CNG/LNG, we do not agree with commenter's implication that the procedures used by the QAP auditors to verify those RINs are sufficient to effectively oversee the production, distribution, and use of biointermediates under a program that would allow biointermediates to be transferred in a many-to-many relationship. The commenter fails to explain how the verification procedures used for biogas by QAP auditors would be applicable to biointermediates and how such a procedure would justify more flexibility for the transfer and use of biointermediates.

The regulatory provisions designed for biogas to CNG/LNG are different than those for biointermediates and the concerns we are attempting to address for biogas to CNG/LNG (i.e., to ensure that biogas is used as transportation fuel and for no other purpose) are different than the primary concerns around the production, transfer, and use of biointermediates. Unlike biogas, where all of the processing except for compression (a process that we list as a form change that does not constitute substantial alteration under 80.1460(k)(2)) occurs prior to injection of the biogas into a commercial pipeline system, biointermediates must still undergo significant processing to turn into renewable fuel at a renewable fuel production facility.

Comment:

One commenter recommended the minimum transfer limit be increased to more than one per annum. They also recommended that a process be developed through which entities could petition for greater than the finalized transfer limit if there are exceptional circumstances.

Response:

As discussed in Preamble Section VII.C.4, a once-a-year limitation on biointermediate producers changing the renewable fuel production facility to which they transfer their biointermediates is necessary to implement a many-to-one system. The commenter failed to specify how many more changes might be needed or why allowing additional changes would be necessary. We note that we proposed and are finalizing regulatory language at 40 CFR 80.1450(d)(2)(ii)(B)(*2*) that will allow EPA in its sole discretion to allow for a biointermediate production facility to change the renewable fuel production facility with which it is associated more than once a year in exceptional circumstances (e.g., closure of the renewable fuel production facility, in response to natural disasters, etc.).

Comment:

One commenter asks for clarification about how long approvals for changes beyond one calendar year would take and what steps would be involved. They are concerned that it would interfere with a biointermediate producer's ability to conduct its business.

Response:

We are unable to specify a processing time because the time EPA will need to act on a request will depend on the reason for needing to change renewable fuel production facilities and the completeness and accuracy of the approval request. The timing will thus need to be decided on a case-by-case basis. We intend to only allow a biointermediate producer to change its designated renewable fuel production facility in extreme, unusual, and unforeseen circumstances (e.g., the long-term closure of the renewable fuel facility or some natural disaster that interrupts the transfer and use of a biointermediate like a hurricane or fire at a renewable fuel production facility) and note that in cases that fall outside of those criteria that we will deny the change request. Similar to other registration requirements under the RFS program,[188] we intend to develop forms and procedures for submission of and action on approval requests for biointermediate facility associations beyond the one-per year limit.[189]

Comment:

Many commenters said that the limitation to one renewable fuel producer would cause an issue when the renewable fuel producer undergoes a shutdown and cannot accept biointermediates temporarily. One commenter said that this could put biointermediate producers out of business.

Response:

We appreciate the commenters' concerns that a renewable fuel production facility shutdown could disrupt the use of a biointermediate produced by the biointermediate producer; however, the commenters fail to explain how the provisions we are promulgating to address this concern are inadequate. To address this concern, we proposed and are finalizing that biointermediate producers may change their designated renewable fuel production facility once per year, and are explicitly stating in the regulations at 40 CFR 80.1450(d)(2)(ii)(B)(*2*) that we may, in our sole discretion, allow the biointermediate producer additional designations. As discussed in Preamble Section VII.C.4, we believe this allowance will cover the vast majority of situations for biointermediate production while at the same time helping to ensure that biointermediates are produced, transferred, and used consistent with Clean Air Act and EPA regulatory requirements.

Comment:

Two commenters stated that the many-to-one requirement would disadvantage small biointermediate producers, since they would lose their ability to negotiate for market price.

Three commenters stated that this requirement would disadvantage large biointermediate producers, who produce more biointermediate than one renewable fuel facility can utilize. Two commenters gave as an example undenatured ethanol used in alcohol-to-jet fuel processes. One of these commenters mentioned that biointermediate producers may not be able to offload their entire supply to one renewable fuel production facility, leaving them with a product they cannot

[188] See 40 CFR 80.1450(i)(1).
[189] Information related to registration forms, procedures, and policies are available on our website available here: https://www.epa.gov/fuels-registration-reporting-and-compliance-help/registration-fuel-programs.

sell to anyone else and must store for their sole buyer, becoming de facto storage. Another example given by a commenter is ethanol used to produce fatty acid ethyl esters for biodiesel. The commenter stated that 100,000,000 gallons of ethanol could be used to replace fossil methanol.

Response:

The commenter fails to explain how a small biointermediate producer would be disadvantaged relative to a large biointermediate producer when the same regulatory restriction applies to small and large biointermediate producers alike. We believe that all biointermediate producers will continue to be able to negotiate prices because we are allowing the biointermediate producers to change their designated renewable fuel production facility once per year which we believe will allow small biointermediate producers to negotiate prices, and the commenters fail to explain why this is not sufficient to avoid the concern that they highlight. As stated in Preamble Section VII.C.4, the many-to-one requirement is necessary for EPA to oversee RIN generation for renewable fuels produced from biointermediates. Without this restriction, the use of non-qualifying feedstocks would be difficult to detect and therefore likely to occur. We believe our approach balances allowing flexibility in the market while maintain our ability to oversee the program.

We also disagree with commenters' suggestion that large biointermediate producers would be disadvantaged by the transfer limits for biointermediates. We note that in the specific examples highlighted by the commenters, producers of undenatured ethanol have the option of denaturing the ethanol to produce renewable fuel, exporting the undenatured ethanol, or designating the undenatured ethanol as a biointermediate. Such producers could alternate between those activities without restriction so long as all applicable regulatory requirements are met. That is, allowing biointermediates into the RFS program simply provides an additional opportunity for producers of undenatured ethanol to participate in the marketplace, rather than restricting their options. We believe ethanol producers have enough flexibility to distribute their ethanol in ways consistent with their business plans and not have any product stranded. The commenter also fails to explain how the proposed flexibility to change the designated renewable fuel production facility once per year and in other circumstances based on EPA's sole discretion is insufficient to address the issue the commenters raise.

Regarding the use of undenatured ethanol to displace methanol in the production of biodiesel, under the existing pathways for biodiesel, the undenatured ethanol would be treated the same as methanol. The current pathways for biodiesel do not specify the type and origin of alcohol used as a process input in biodiesel production, and RINs are generated on the total volume of biodiesel produced regardless of the use of methanol or ethanol as an input; i.e., no fewer or additional RINs would be generated under RFS for biodiesel produced using undenatured ethanol as opposed to fossil methanol. We are aware that California provides additional credits under the LCFS program for such situations, but under the existing pathways for RFS, the amount of RINs would remain the same. If a party used denatured fuel ethanol as an input in the production of biodiesel, the biodiesel producer must utilize the provisions of 40 CFR 80.1426(c)(6) to ensure that the denatured fuel ethanol was not double counted for RIN purposes.

In this case, even though the denatured fuel ethanol is not necessarily being used as a feedstock for biodiesel production, use of this provision is necessary to prevent double counting.

Comment:

Several commenters note that EPA has developed a well-designed quality assurance program ("QAP") that has effectively established substantial oversight over the RINs market. The existence of the QAP system obviates the need for EPA to limit sales of biointermediate to a single renewable fuel production facility. Some commenters also noted that QAP auditors verifying RINs for biogas turned into renewable CNG/LNG, which often involve tracking biogas from landfills/digesters to hundreds of CNG/LNG dispensers, is evidence that the RFS QAP can accommodate the verification of a more flexible distribution system for biointermediates.

Two commenters suggested that concerns about invalid RINs can be mitigated with many of the other proposed safeguards such as mandatory QAP and increased recordkeeping requirements.

Response:

While we agree with commenters that the RFS QAP is an important element to help implement and oversee the biointermediates program, we disagree with commenters' assertion that RFS QAP participation is a substitute for the controls established by the transfer limits for biointermediates. The transfer limits and the associated registration, reporting, PTD, and recordkeeping requirements are designed to ensure that biointermediates are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements. The RFS QAP requirement for biointermediate producers and renewable fuel producers is designed to ensure that those requirements are met; the RFS QAP does not itself impose the necessary requirements. We believe it would place too much burden and responsibility on QAP auditors to have them establish verification procedures to ensure, e.g., that biointermediates are transferred in a manner that allows them and EPA to verify their origins absent the clear regulatory requirements involving transfer limits for biointermediates, especially if we were to allow an unrestricted distribution system for biointermediates.

We also disagree with the commenters' assertion that the fact that RFS QAP auditors are verifying RINs for biogas is evidence that they can accommodate a more flexible distribution system for liquid biointermediates. We note that both the regulatory requirements for biogas and the production and distribution chains for biogas to CNG/LNG are significantly different than those for liquid biointermediates. The commenters fail to explain how QAP auditing procedures for biogas to CNG/LNG would apply to or address the specific concerns we identified in the NPRM and in Preamble Section VII regarding the production, transfer, and use of biointermediates.

We believe that the QAP auditors can verify the regulatory provisions for biogas because the regulations contain several specific requirements for how the biogas is produced, how the biogas is injected into the commercial pipeline system, and how parties demonstrate that the biogas was used as transportation fuel. See, e.g., 40 CFR 80.1426(f)(10)(ii), (f)(11)(ii); 80.1451(b)(1)(ii)(P); 80.1454(k)(1). The transfer limits and associated registration, reporting, PTD, and recordkeeping

requirements for biointermediates are the analogous specific regulatory requirements that QAP auditors must design their QAP plans to verify. We believe that commenters are confusing the role of QAP auditors (i.e., a party that verifies whether biointermediate producers and renewable fuel producers comport with the regulatory requirements) with that of EPA in establishing clear regulatory requirements designed to help ensure that biointermediates are produced, transferred, and used appropriately.

Lastly, we disagree with the commenters' suggestion that our concerns about the generation of invalid RINs from biointermediates can be addressed solely by, e.g., mandatory QAP and additional recordkeeping requirements. We proposed and are finalizing a program that includes complementary compliance and enforcement mechanisms that work together to ensure that biointermediates are appropriately produced, transferred, and used. Without any one of them, the program would be less effective, and the commenter fails to explain how the requirements for QAP, recordkeeping, etc. would obviate the need for transfer limits to ensure that QAP providers and EPA are able to effectively track and verify the information relevant to ensuring that biointermediates and the renewable fuels produced from them meet the applicable requirements.

Comment:

Several commenters suggested that EPA allow for a biointermediate to be processed at more than one facility (e.g. a biointermediate partially processed at one biointermediate production facility, then the biointermediate undergoes further processing at a second biointermediate production facility, and then the biointermediate is turned into renewable fuel at the renewable fuel production facility). One commenter noted that this flexibility is vital for projects designed to reduce the risk of wildfires, where having the ability to pre-process the wood residues close to the source and then finishing up the process at another facility prior to delivery to the refinery would be critical for commercial feasibility and wildfire risk reduction. Another commenter recommended that if EPA allows for multiple biointermediate producers, that it require all biointermediate facilities in a multi-biointermediate-producer supply chain to have the same QAP auditor.

Response:

Allowing biointermediates to be processed at more than one facility would increase the opportunity for fraud. For example, the product resulting from the initial biointermediate facility in many cases most likely not be a recognizable renewable biomass feedstock, which means all of the concerns, and the regulatory framework needed to address those concerns, would apply to the initial biointermediates facility as well as to the second biointermediates facility and the renewable fuel production facility. We are not in a position today to establish and implement the additional levels of regulatory oversight that would be needed to allow more than one biointermediate producer as part of renewable fuel production. While we appreciate the commenter's recommendation, additional QAP requirements would not suffice.

Comment:

One commenter stated that EPA should either eliminate the proposed provision that a "biointermediate must not be used to make another biointermediate," or clarify that this prohibition would not apply to the situation in which biogas is converted into ethanol that is then converted into sustainable aviation fuel. Commenter noted that alternatively, EPA could treat biogas as a feedstock as it does for biogas that is converted into CNG/LNG.

Response:

We are not allowing biogas as a biointermediate at this time. To allow for production of renewable fuel from biointermediates in a timely manner, we are finalizing biointermediate provisions that can apply broadly to many biointermediates. We intend to address the use of biogas as a biointermediate when we address issues related to the use of biogas to make renewable electricity (so-called "eRINs") in a future action.

Comment:

Commenter mentioned that the proposed requirements are unclear for products that could serve either as a biointermediate or a near-finished fuel and could force a producer of such products to make a choice between selling their product unfettered by the requirements for biointermediate producers to a wider range of potential buyers or constraining opportunities to a single renewable fuel producer who will consume their product as a biointermediate. They view this as an unnecessary limitation and would be difficult to accept for ethanol producers that have traditionally sold to multiple U.S. offtakers.

Response:

We did not propose and are not finalizing a restriction that a single party cannot participate in the RFS as both a biointermediate producer and a renewable fuel producer. For producers of products that could serve either as a biointermediate or a near-finished fuel (e.g. undenatured ethanol), the producers can participate both as a biointermediate producer and a renewable fuel producer, selling some undenatured ethanol as a biointermediate to a single renewable fuel producer and the rest as a renewable fuel to an importer. It is not our intent in these regulations to force a producer of foreign undenatured ethanol to choose one or the other.

Comment:

Several commenters mentioned the limitation on transferring biointermediates, segregation of batches, and, for foreign biointermediate producers, a direct contractual relationship with the renewable fuel producer are not warranted for undenatured ethanol, given existing robust supply chains. One commenter stated that segregation of batches should not apply for undenatured ethanol. One commenter mentions it is neither economically nor operationally feasible to store, transport and deliver individual facility-sourced ethanol from Brazil. Another commenter asks for clarification whether this restriction applies to a biointermediate that is comingled with undenatured ethanol intended for fuel usage.

Response:

As discussed in Preamble Section VII.C.10, we believe the batch segregation and tracking afforded by the biointermediate provisions is necessary to ensure that any biointermediate, including undenatured ethanol and foreign undenatured ethanol, is properly produced (i.e., produced from qualifying renewable biomass under an EPA-approved pathway), distributed (i.e. not comingled with other undenatured ethanol, including other biointermediate and renewable fuel batches), and used (i.e., only used as a biointermediate and not double-counted as renewable fuel and a biointermediate). Regardless of commenters' experience to date, we are still concerned that adulteration of biointermediates may occur during transit between the biointermediate producer and renewable fuel producer, leading to generation of RINs from non-qualifying feedstock. If we were to allow the comingling of biointermediates with other biointermediates, other feedstocks, or renewable fuels prior to the biointermediate being delivered at the renewable fuel production facility, parties could readily add non-qualifying feedstocks and renewable fuels that had RINs previously generated for them and it would be extremely difficult for EPA and others to detect. Allowing comingling and many-to-many transfers would likely result in the generation of invalid RINs from the production of purported renewable fuels that were not produced consistent with an EPA-approved pathway or EPA regulatory requirements.

Additionally, allowing comingling while ensuring consistency with the statutory and regulatory requirements for renewable fuels would require the apportionment of the various comingled products in a manner that would require a significant amount of additional regulatory requirements (e.g., enhanced recordkeeping, product transfer document, and sampling and testing requirements). We believe the batch segregation requirement avoids the complications associated with allowing biointermediates to be comingled with other biointermediates, feedstocks, and renewable fuels while allowing for the production of renewable fuels at two facilities.

However, while we continue to believe it is necessary to limit transfers from a biointermediate productions facility to a single renewable fuel production facility, we are revising the comingling provisions relative to proposal to allow comingling of biointermediates if the biointermediate is the same type[190] (e.g., different batches of undenatured ethanol),the biointermediate distribution system remains closed (i.e., no other biointermediate types, feedstocks, or renewable fuels are introduced into the system), and the biointermediate is used within the closed system for production of renewable fuel. Under these circumstances, we believe that it is possible to sufficiently track and oversee biointermediates as they are transferred such that our concerns with adulteration, double-counting, and apportionment are addressed. For example, if a party needs to store multiple batches of biointermediate of the same type at some point between the biointermediate production facility and the renewable fuel production facility, so long as no other types of biointermediates, feedstocks, or renewable fuels are comingled, it is possible to track the amount and type of what is being stored and there is limited risk of double-counting or adulteration of the comingled batches of biointermediate. Similarly, if a renewable fuel producer stored biointermediate of the same type from multiple biointermediate production facilities at a storage tank off-site from the renewable fuel production facility, so long as no other

[190] See the definition of "biointermediate" at 40 CFR 80.1401 for the types of biointermediates.

biointermediate types, feedstocks, or renewable fuels are comingled in that off-site tank and everything in the tank is used by the renewable fuel producer to produce renewable fuels, there is limited risk of double-counting or adulteration of the comingled batches of biointermediates. The comingling of batches of biointermediates at the renewable fuel production facility would have been permissible under the proposed regulations; the allowance for off-site storage merely permits the same batches of biointermediate to be comingled at a different location so that the renewable fuel producer does not need to build more or larger tanks on site.

In both cases, we believe that batches of a single type of biointermediate could be comingled between the point that the batch(es) of the biointermediate is produced and the point that the batch(es) of biointermediate is received at the designated renewable fuel facility without compromising our oversight ability. Therefore, we are finalizing modifications to the proposed batch segregation requirements to allow for batches of biointermediates of the same type from the same biointermediate production facility to be comingled at any point between the biointermediate production facility and the designated renewable fuel production facility. We are also finalizing a flexibility that will allow renewable fuel producers to store batches of biointermediate of the same type at an off-site storage location under the control of the renewable fuel producer. By an off-site storage tank under the control of the renewable fuel producer, we intend this to cover cases where the renewable fuel either owns or is the sole position holder in an off-site storage tank. In both cases, the comingled batches of biointermediate must not be comingled with any other biointermediate types, feedstocks, or renewable fuels and must be used by the renewable fuel production facility to produce renewable fuels. If we were to allow the comingling of other biointermediate types, feedstocks, or renewable fuels, the opportunities for multiple-counting and the adulteration of biointermediates with non-qualifying feedstocks significantly increase. Furthermore, accounting for the movement of qualifying versus non qualifying biointermediates, feedstocks, and renewable fuels comingled in a single tank can quickly become complicated and difficult for auditors and EPA to oversee. We believe these changes to the proposed segregation requirement will allow biointermediate producers and renewable fuel producers flexibility in transporting and storing biointermediates in a manner that is trackable, overseeable, and ensures consistency with EPA regulatory requirements.

Comment:

One commenter mentioned that the proposed 40 CFR 80.1478(c)(8) which requires that a transportation or storage provider meets all foreign biointermediate producer commitments, including designating an agent for service of process in Washington D.C., would act as a de facto requirement for a vertically integrated foreign supply chain, which itself would act as a de facto ban on foreign biointermediates.

Response:

Not all of the foreign biointermediate producer commitments need to be met by the transportation or storage provider. For example, transportation and storage providers are not required to have a QAP provider. In addition, the regulations do not require a vertically integrated foreign supply chain, since custody can change multiple times. As discussed in

Preamble Section VII.C.10, the tracking afforded by the biointermediate provisions is necessary to ensure that biointermediates are produced from qualifying renewable biomass under an EPA-approved pathway. We note that the referenced proposed regulatory requirements currently exists for all foreign renewable fuel producers, which includes foreign ethanol producers., Thus, we believe it reasonable to apply the same requirement to foreign biointermediate producers.[191]

Comment:

One commenter urged EPA to not finalize proposed section 40 CFR 80.1478(f), which would require that a foreign biointermediate producer have a direct contractual relationship with the receiving renewable fuel producer. The commenter argued that this requirement would unnecessarily limit supply chains by excluding specialist firms with expertise in feedstock procurement. Given the registration, recordkeeping, and reporting provisions already applicable to foreign biointermediate producers, the commenter did not believe such a restriction was justified. The commenter noted that intermediary parties are commonly used today, and PTD title transfer requirements should be more than sufficient to ensure supply chain integrity.

Response:

We are not finalizing the proposed requirement that any foreign biointermediate producer must establish a contractual relationship with the RIN-generating renewable fuel producer prior to the sale of a biointermediate. We do not believe this requirement is necessary because the foreign biointermediate producer must designate the RIN-generating renewable fuel producer as part of its registration requirements and is required to transfer biointermediates only to the designated renewable fuel producer. In other words, requiring a contractual relationship between the foreign biointermediate producer and RIN-generating renewable fuel producer would be duplicative of the regulatory requirement that limits biointermediate transfers. As noted by the commenter, we expect that biointermediate producers may engage with intermediaries to transfer biointermediates from the biointermediate production facility to the renewable fuel production facility. It was not our intent to prohibit such behavior.

Comment:

Two commenters noted that EPA should clarify that a biointermediate producer can also be co-located with a renewable fuel production facility (with common ownership) allowing the biointermediate material to either be processed on site or shipped to another renewable fuel production facility.

Response:

We did not propose and are not finalizing any restriction on whether a biointermediate producer can also be co-located with a renewable fuel production facility (with common ownership), allowing the biointermediate material to either be processed on site to produce renewable fuel or shipped to another renewable fuel production facility. We believe that such activities would be

[191] See 40 CFR 80.1466(f)(8).

allowed at a single facility as long as all applicable requirements for the production of biointermediates and renewable fuels at the facility are met.

Comment:

One commenter suggested that EPA allow biointermediate production facilities that produce two distinct biointermediates, such as cellulosic sugars and biocrude, to transfer them to two separate renewable fuel production facilities each specializing in upgrading one of the two biointermediates. The commenter argued that the carbohydrate and lignin components of lignocellulosic biomass are chemically distinct with distinct opportunities for upgrading to renewable fuels. Specifically, the carbohydrate fraction can be recovered as cellulosic sugars suitable for fermentation to ethanol while the lignin fraction can be recovered as biocrude suitable for refining into renewable hydrocarbon fuels. However, very different facilities are required to upgrade these two biointermediates. The cellulosic sugar can be fermented like starch-derived sugars in an ethanol plant. The biocrude requires catalytic upgrading in a refinery. The commenter said restricting upgrading of these distinct biointermediates to a single renewable fuel facility is inefficient and uneconomical and would impede the commercialization of these promising carbon negative renewable fuels. Allowing two distinct biointermediates co-produced at a biointermediate production facility to be transferred to two facilities would impose very limited additional enforcement responsibilities on EPA.

Response:

We are not allowing a biointermediate production facility to send different types of biointermediates to separate renewable fuel production facilities at this time. Allowing two distinct biointermediates co-produced at a biointermediate production facility to be transferred to two different facilities would increase oversight complexity by requiring QAP auditors to reconcile numbers from three or more facilities instead of just from two facilities. A single facility producing a renewable fuel and a biointermediate, which we are allowing, is a simpler situation than a facility producing two biointermediates and sending them off to different facilities, since for the former the QAP auditors need to reconcile numbers from only two facilities whereas the latter would require evaluating three facilities. As discussed in Preamble Section VII.C.4, in order to promulgate a program, we can both implement and effectively oversee in a timely manner, we are limiting complexity including by finalizing biointermediates transfer limits as proposed. We intend to review the limits on biointermediate transfers in the future as we gain more experience with biointermediates.

Comment:

One commenter suggested that any biointermediate transfer limits that are imposed apply only to the number of renewable fuel producers, and not to the number of renewable fuel producer facilities.

Response:

We disagree with this suggestion. The transfer limits in the proposed rule specifically applied to facilities because that is the unit in which attest audits, QAP, and other oversight takes place. As discussed in Preamble Section VII.C.4, allowing for a biointermediate to be sent to multiple facilities would require that all facilities that produced and used biointermediates as well as all the locations where biointermediates were distributed and stored need to be systematically audited. The fact that the renewable fuel production facilities are owned by the same parent company does not alter the need to track the production and use of biointermediates to and from individual facilities in order to ensure the resulting renewable fuel is produced in a manner consistent with CAA and regulatory requirements. The complexity arising from transferring biointermediates from a single biointermediate production facility to multiple renewable fuel production facilities would make oversight unrealistic for EPA or independent third parties to accomplish.

Comment:

One commenter noted the proposal would tie an RNG facility to selling to one customer for an entire year, restricting their flexibility to sell into different markets. EPA does not explain how this limitation would address the renewable fuel producer possibly using nonqualifying fuel. And, if the RNG to be used as feedstock does not generate any RINs because it must be claimed for CNG/LNG production to generate RINs, there is no risk of double counting.

One commenter noted that the general limitation of a single renewable fuel production facility may be unacceptable to biogas producers (if biogas is added as a biointermediate) that have developed in a market where multiple offtakers are the norm, and allocations of biogas quantities between them are rigorously overseen under commercially required QAPs. We believe the proposed requirement of mandatory participation in a QAP offers significant protection against double-counting or fraudulent RIN generation and should support a biogas producer that sells to multiple recipients, whether they convert the biogas to CNG, LNG, sustainable aviation fuel (SAF) or renewable diesel. As a potential solution, EPA could issue producers of a near-fuel biointermediates, such as biogas or undenatured ethanol, an additional biointermediate facility identification number. For biogas, this would enable biogas producers to differentiate sales to either the CNG/LNG market or a SAF producer simply by use of one or the other of their facility IDs.

Response:

We are not including biogas or biogas-derived pipeline quality gas (sometimes called renewable natural gas or RNG) as a biointermediate at this time. As discussed in Preamble Section VII.C.3.c, we intend to address considerations related to the use of biogas or RNG as a biointermediate when addressing issues related to using biogas to make renewable electricity in a future action.

Comment:

One commenter opposes the limits on biointermediate transfers for undenatured ethanol. The commenter asserts that the existing TTB regulatory program ensures that supply chain integrity is maintained for producers of undenatured ethanol who ship to more than one customer. The requirement proposed by EPA (called the "many-to-one" limitation) could reduce market opportunities for biointermediate producers and undermine investments in new and novel low-carbon fuel technologies. The commenter further states that unlawful and fraudulent activities associated with RIN generation under the RFS program have been confined to the biodiesel industry and there have been no fraud cases involving ethanol producers.

Response:

We disagree with the commenter's suggestion that TTB regulatory requirements could serve as a substitute for the biointermediates provisions. TTB regulatory programs are not designed to ensure that Clean Air Act requirements under the RFS program are met. While we leverage the TTB denaturing requirements to ensure that denatured fuel ethanol is used as transportation fuel, the TTB regulatory program does not address whether the ethanol was produced from qualifying renewable biomass or under an EPA-approved pathway. TTB regulatory requirements also are not designed to address whether a volume of ethanol (undenatured or denatured) was properly accounted for in RIN generation. In addition, these requirements only apply to domestic undenatured ethanol. Thus, we continue to believe that the transfer limits for biointermediates, including for undenatured ethanol, are a necessary component of the program.

Similar to whenever we allow for the use of new fuels under the RFS program, we impose regulatory requirements designed to ensure that the Clean Air Act requirements for renewable fuels are met. As evidenced by the fact that the RFS program has hundreds of registered facilities producing billions of gallons of renewable fuel a year, parties generally adapt to these regulatory requirements to pursue opportunities to produce renewable fuels consistent with EPA's regulatory requirements.

Comment:

Three commenters suggested another option for EPA to consider would be to permit facilities to operate with multiple facility ID numbers to assist with tracking biointermediate use and renewable fuel production. The proposed rule requires the renewable fuel production facility to enter necessary information in EPA's Moderated Transaction System, including the EPA facility registration number of each biointermediate production facility for which a biointermediate used for the batch was produced. Given the proposed limits on biointermediate transfers, the commenters expected a biointermediate production facility would have just one registration ID number. However, if EPA were to allow for more flexibility for biointermediate transfers, EPA could possibly generate a separate registration ID number to assist with tracking the product. One commenter mentioned that this is similar to renewable fuel importers, which have to include foreign producer information.

Response:

It is unclear from the commenters' suggestion how assigning multiple facility ID numbers would function or aid in the tracking of biointermediates. The commenters provide no details as to how or to what EPA would assign the multiple facility ID numbers; how those multiple facility ID numbers would be associated to biointermediate production, transfer, and use; or how EPA and third parties would audit such information.

Also, the commenters do not specify how multiple facility ID numbers would ensure that proper oversight can be conducted such that invalid RINs are not generated. They fail to describe how the assignment of multiple facility ID numbers could avoid our concerns regarding the comingling of biointermediates with non-qualifying feedstocks during transport and the multiple generation of RINs from biointermediates, which the transfer limits and batch segregation requirements for biointermediates are designed to address.

Furthermore, we believe that assigning multiple facilities ID numbers for biointermediate or renewable fuel producers could significantly increase the complexity of implementing the program and potentially diminish our ability to oversee it. In recent years, we have tried to move away from providing multiple facility ID numbers for a single facility due to the additional layer of complexity it creates when querying the database for accurate information. Given the information provided by the commenters, having multiple facility IDs would create unnecessary complexity while not providing additional oversight abilities.

Comment:

One commenter opposed any transfer limits and instead supported the creation and requirement to maintain a biointermediate plan, similar to a separated food waste plan, listing the producers and buyers of biointermediates to be maintained by parties. After registration approval, the commenter suggested that the biointermediate producer could be required to update the list annually with EPA as part of the annual attest. The commenter said they support quarterly reporting using EPA ID numbers as needed to identify the biointermediate producers and buyers in transactions. It is their view that the plan and quarterly reporting would provide reasonable assurance to market participants.

Response:

We disagree biointermediate plans using the same framework as separated food waste plans would provide for adequate tracking of biointermediates needed to ensure that renewable fuels were produced from renewable biomass under EPA approved pathways. We anticipate the biointermediates program will cover a much larger portion of the industry and involve many more renewable biomass feedstocks and renewable fuel pathways than governed by separated food waste plans. While QAP providers and EPA have the capacity to oversee the relatively limited number of parties required to have separated food waste plans, we do not believe it is feasible for QAP providers or EPA to successfully audit the number of biointermediate plans we expect would be needed. Additionally, and critically, biointermediates plans at best would only cover a portion of what the transfer limits are designed to accomplish, which includes ensuring

that biointermediates are not altered during transport and that all of the biointermediate received came from the biointermediate producer. Biointermediate plans would do nothing to ensure that QAP providers and EPA are able to audit the entire universe of parties necessary to ensure that renewable fuel is produced from qualifying biomass and that RINs are valid.

The biointermediate plan, using the same framework as separated food waste plans, does not provide the necessary assurance for regulating biointermediates as discussed in Preamble Section VII.C.

10.4.3 RFS Quality Assurance Program

Commenters that provided comment on this topic include but are not limited to: 0350, 0385, 0395, 0398, 0407, 0423, 0426, 0427, 0431, 0442, 0448, 0454, 0458, 0462, 0476, 0483, 0484, 0485, 0491, 0495, 0510, 0514, 0516, and 0521.

Comment:

Several commenters expressed support for the mandatory participation in the RFS QAP participation for biointermediate producers.

One commenter highlights that the QAP program has successfully helped to mitigate the risk of invalid or fraudulent RIN generation and has promoted regulatory integrity and would be similarly beneficial for biointermediates. The commenter, as a QAP provider, noted that they were prepared for the influx of new program participants as of the implementation date of the final rule. The commenter notes that QAP participation would provide the most effective means of meeting the challenges of tracking and verifying biointermediates throughout the biointermediate supply chain.

Response:

We appreciate commenters' support of the proposed treatment of biointermediates RFS under the QAP and are finalizing as proposed the requirement that biointermediate producers and renewable fuel producers participate in the RFS QAP. We discuss the reason for this requirement in more detail in Preamble Section VII.C.5.

Comment:

Several commenters stated that the requirement for mandatory RFS QAP participation for renewable fuel producers is unnecessary given the amount of oversight for the biointermediate producer.

One commenter noted that renewable fuel producers using a biointermediate feedstock would be subject to QAP auditing while most other advanced biofuel producers are currently not participating in the RFS QAP which would create a price disparity between the RINs generated from biointermediates and other advanced feedstocks.

One commenter noted that their specific process would have necessary internal controls as well as third-party oversight to adequately address concerns for invalid RINs.

Three commenters do not support mandatory implementation of QAP, noting that the registration, compliance, and attest engagement requirements are sufficient.

Two commenters noted that if QAP is mandatory only one party should need to register under QAP. Another commenter noted that using the same QAP provider may be a challenge when the biointermediate producer and the renewable fuel producer are in different countries.

One commenter noted they are opposed to mandatory QAP participation, based on their real-world experience. In their experience, QAP participation resulted in higher costs and very limited customer demand for verified RINs. The commenter believes that other mechanisms, such as attest audits, will be sufficient. The commenter noted that requiring both the biointermediate producer and renewable fuel producer to register under QAP is counter-productive, expensive and lays another layer of nonproductive paperwork on the biointermediate producer and renewable fuel producer. The commenter believes QAP should be a voluntary program in response to marketplace demands for biointermediate or renewable fuels produced from biointermediates.

Response:

As explained in Preamble Section VII.C.5, we believe that allowing the production and use of biointermediates to go unverified would provide increased opportunity for the use of unapproved feedstocks and the generation of fraudulent RINs through double-counting and that RFS QAP participation by both the biointermediate and renewable fuel producer is necessary to allow renewable fuels to be produced at these separate facilities. Based on our experience implementing the RFS program, the more parties and complexity in the production of the renewable fuel, the greater the opportunities for fraud. The biointermediates program will make it more challenging to verify that the feedstock used to produce renewable fuel is renewable biomass because it will introduce additional parties and complexity into the renewable fuel production chain. We have found that participation in the QAP program reduces fraud by ensuring adequate oversight.

We do not believe that requiring biointermediate and renewable fuel producers to participate in the RFS QAP is unnecessarily burdensome or would create a price disparity between RINs generated from biointermediates and other advanced feedstocks, and the commenter fails to explain how such a price disparity would arise. We believe, as described in Preamble Section VII.A, that the production and use of biointermediates will create additional efficiencies for the production of renewable fuels across separate facilities, which could provide a competitive advantage to renewable fuels produced from biointermediates compared to those that are processed at a single facility.

We disagree with the commenter's assertion that internal controls of the biointermediate producer or renewable fuel producer are a substitute for the RFS QAP requirement. Because we are allowing renewable fuels to be produced at separate facilities under the biointermediates program, it is now the combination of processing at the separate facilities that determines whether a renewable fuel was produced under an EPA-approved pathway and that RINs are valid. Additionally, conformance with EPA regulatory requirements in the case of biointermediates depends also on the actions of each party that transferred the biointermediate to ensure that batches of biointermediate were segregated from the biointermediate production facility to the renewable fuel production facility. The internal controls of any one facility, regardless of how effective the controls may be, are insufficient to verify the processing at another facility and the activities of each party in the distribution chain. As discussed in Preamble Section VII.C.5, we have designed the QAP requirement to ensure these regulatory

requirements are met, which is needed to justify the added flexibility and resulting complexity in overseeing the biointermediates program.

We do not believe that the requirements for registration, compliance, and attest engagements are sufficient to verify the production, transfer, and use of biointermediates, and the commenters fail to explain how these requirements are a substitute for the RFS QAP. The registration requirements for biointermediate and renewable fuel producers discussed in Preamble Section VII.C.7 serve the necessary function to help initially establish whether the biointermediate and renewable fuel production facilities are capable of producing biointermediates and renewable fuels under the intended EPA-approved pathway; however, the registration requirements do not verify whether those facilities actually produced, transferred, and used the biointermediate consistent with the EPA-approved pathway and EPA regulations. Similarly, the attest engagement audit ensures that information submitted to EPA as part of the registration and reporting requirements are consistent with records kept by the regulated party. While attest engagements are a valuable compliance tool that helps ensure the integrity of reported information, the requirement is not designed to verify the underlying production, transfer, and use of biointermediates, renewable fuels, and RINs. The commenters fail to specify which other compliance provisions are sufficient to replace the RFS QAP requirement.

Compared to the registration and attest engagement requirements, the RFS QAP program is designed to provide ongoing verification of biointermediates, renewable fuels, and RINs and verifies different elements not considered in either the registration or annual attest engagement processes. The RFS QAP incorporates a combination of on-site site reviews overseen by a professional engineer with quarterly desktop audits conducted by certified professional accountants and leverages the synergy between these two types of audits to verify biointermediates, renewable fuels, and RINs actually meet the applicable requirements, as opposed to just claiming that they meet the applicable requirements. The RFS QAP also incorporates the records and reports related to the registration and attest engagement requirements as part of the auditor to help ensure that the registration and attest engagement requirements are complied with by the biointermediate and renewable fuel producer.

We disagree with the suggestion that applying QAP to only one party (i.e., either the biointermediate producer or the renewable fuel producer) is sufficient to ensure that biointermediates are properly produced, transferred, and used. To ensure that a renewable fuel was produced under an EPA-approved pathway and verify any RINs generated from such fuel, QAP auditors must verify that the feedstocks used at the biointermediate production facility, the processes used at both the biointermediate and renewable fuel facilities, and the biointermediate used at the renewable fuel production facility all comported with the EPA-approved pathway and EPA regulations. If only one facility is audited, crucial elements of the EPA-approved pathway would be unverified. Furthermore, in order to verify that the requirements that limit biointermediate transfers discussed in Preamble Section VII.C.4 are met, the QAP auditor must verify both the point of origin (the biointermediate production facility) and the ultimate destination (the renewable fuel production facility). If only one party is participating in the QAP program, it would be impossible for QAP auditors to fully audit the entire production chain of the renewable fuel produced across the two facilities.

We believe that QAP auditors can verify biointermediate and foreign renewable fuel producers because we have approved QAP plans that involve auditing international facilities. In these cases, QAP auditors have typically worked with contracted professional engineers in the foreign country while conducting desk audits in the U.S. We do not believe that there is little demand for verified RINs and the commenter provides no evidence to suggest that obligated parties do not obtain and retire for compliance verified RINs.

Comment:

Two commenters encouraged EPA to be more transparent regarding QAP plans and the timelines for which producers can expect EPA to respond to QAP plans applications.

Response:

We review QAP plans in the order they were submitted, and the amount of time it takes to review and approve a QAP plan largely depends on the quality of the submission (i.e., if the QAP plan is inaccurate or incomplete, it will take EPA more time to review and approve such plans as we expect the QAP auditor to first address any issues identified by EPA staff). As such, we cannot specify an exact time when any QAP plan will be reviewed and approved. We encourage biointermediate producers, renewable fuel producers, and QAP auditors to develop and submit materials in a timely manner.

Comment:

Several commenters opposed the requirement that the same QAP provider be used for both the biointermediate producer and renewable fuel producer because the requirement would hinder market liquidity.

Three commenters argued that EPA should not require all related facilities to use the same QAP provider, as this would serve as an unnecessary restriction and would eliminate the independence allowed by permitting the biointermediate producer and the renewable fuel producer to choose their own QAP provider. The commenters argued that requiring that both the biointermediates production facility and the renewable fuel facilities receiving the biointermediates participate in the QAP program is sufficient to address EPA's concerns about RIN fraud.

Response:

We do not believe that the requirement to have the biointermediate producer and the renewable fuel producer to use the same QAP auditor will hinder market liquidity and the commenter fails to explain how this requirement would restrict the production, transfer, and use of biointermediates or renewable fuels produced from biointermediates. The commenters also failed to describe how "independence" is lost and why such independence is important relative to our concerns for adequate oversight and the need to avoid the generation of invalid RINs.

We also do not believe that this requirement imposes an unnecessary restriction on biointermediate producers and renewable fuel producers. As we describe in Preamble Section

VII.C.5, the same QAP auditor must verify both ends of the biointermediates distribution chain to ensure effective tracking and oversight of the production, transfer, and use of biointermediates. We note that there are a variety of methods to assure that volumes shipped between two facilities align and that having two different parties using two different methods to monitor volumes would likely result in unnecessary, duplicative, and ineffective audits, requiring additional verification to align the procedures.

Furthermore, we believe that, as suggested by another commenter (0514, a QAP auditor), a QAP auditor is unlikely to accept the verification of a different QAP auditor due to different auditing procedures, liability for the verification of a different party, and ensuring their professional integrity and reputation. As such, we believe that QAP auditors would likely engage in duplicative audits or verification activities to address their concerns absent our requirement.

Comment:

One commenter noted that voluntary certification schemes, in addition to QAP, may reduce the need for other regulatory restrictions. The commenter specifically mentioned third-party verification requirements for the California Low Carbon Fuel Standard and the European Union Renewable Energy Directive. The commenter recognized that EPA did not accept voluntary certification schemes in the original RFS2 rule[192] because these programs were not tailored for the RFS program. However, the commenter requested that EPA consider these alternative, voluntary certification schemes when establishing the biointermediates provisions.

Response:

While we acknowledge that participating in voluntary verification schemes could help improve oversight of the production, transfer, and use of biointermediates, as the commenter noted, these third-party verification schemes are not tailored to specific Clean Air Act and EPA regulatory requirements. The RFS QAP program is tailored to those requirements and is a much better third-party oversight mechanism to verify the production, transfer, and use of biointermediates. We do, however, encourage parties that produce, transfer, and use biointermediates to voluntarily participate in third-party verification schemes to further increase integrity in the market.

Comment:

Commenter suggested EPA take a provisional approach by requiring QAP initially and add additional restrictions as necessary in future rulemakings. The commenter suggested that EPA should not add limitations for biointermediates based on abstract and theoretical enforcement concerns.

Response:

As stated in Section VII.C.4 of the NPRM, we believe having an independent third-party auditor verify the production of both the biointermediate and the renewable fuel is necessary to help

[192] See 75 FR 14699 (March 26, 2010).

oversee the added complexity that results from having renewable fuel processing occur at two different facilities.

Comment:

Three commenters supported EPA's proposal to require that both the biointermediate producer and their designated renewable fuel producer to employ the same QAP provider.

One commenter stated that doing so would help ensure that the QAP auditor could effectively verify the full supply chain, with consistent procedures applied to the critical links in the chain. The commenter also noted that as a QAP provider they would be reluctant to participate in auditing only one half of a biointermediate pathway.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

One commenter asked EPA to provide an allowance for retroactive RIN generation following successful completion of the initial QAP audit of the biointermediate producer and their designated renewable fuel producer, based on the certified finished fuel volumes determined during the initial audit. The commenter notes that this allowance would be analogous to the "delayed RINs" concept included in 40 CFR 80.1426(g) of the RFS regulations. Commenter contended that EPA proposed to prohibit the generation of RINs "for fuel that was produced from a biointermediate for which the fuel and biointermediate were not audited under an EPA-approved quality assurance plan," and that this prohibition may prevent the generation of RINs for renewable fuels produced from the biointermediate until the initial QAP audit is complete, which could result in a period of 2-4 months without any RIN generation for renewable fuels produced from the biointermediate.

Response:

We did not propose retroactive RIN generation because it adds unnecessary complexity and disproportionate administrative burden to the RFS program. Before the QAP provider has conducted an initial audit, the biointermediate producer may have produced non-qualifying product, which under the commenter's suggestion would have been turned into fuel and then used potentially many months prior to the audit. A situation where several months' worth of volume of fuel would be ineligible for RIN generation would place significant pressure from each party that relied on the value of the RIN for the fuel on the QAP auditor to verify that the biointermediate comported with EPA's regulatory requirements when the biointermediate failed to do so. We believe that this could constitute a conflict of interest under 40 CFR 80.1471(b) which could interfere with the QAP auditor objectively conducting audits under the QAP program. For these reasons, we disagree with the commenter's suggestion and are not allowing for retroactive RIN generation. Instead, we are relying on the current approach for renewable fuels where RINs are verified under the QAP program only after the QAP auditor has met the

regulatory requirements for QAP plans and audits under 40 CFR 80.1469 and 80.1472 respectively.

Comment:

One commenter asked for clarification of whether EPA would consider RIN generated from renewable fuel produced from a biointermediate invalid if there is an issue with the PTDs for the biointermediate. The commenter noted that this differs from current practice because there is not a specific PTD requirement for non-biointermediate feedstocks and, as such, QAP auditors do not review these type of records under the RFS program. The commenter also noted that because biointermediate producers and renewable fuel producers that produce renewable fuel from biointermediates must participate in QAP, this situation would likely arise, and that EPA should advise QAP auditors how to handle cases where there is a PTD issue with a biointermediate.

Response:

Under 40 CFR 80.1426(a)(1)(iii), producers and importers of renewable fuel must only generate RINs if "[t]he fuel was produced in compliance with the registration requirements of 40 CFR 80.1450, the reporting requirements of 40 CFR 80.1451, the recordkeeping requirements of 40 CFR 80.1454, all conditions set forth in an approval document for a pathway petition submitted under 40 CFR 80.1416, and all other applicable regulations of this subpart M." Renewable fuel producers must maintain as records product transfer documents as described in 40 CFR 80.1454(b)(1). Under these regulatory provisions, in a case where the renewable fuel producer does not maintain records of all the product transfer documents required under 40 CFR 80.1453 including but not limited to those related to the transfer and use of biointermediates, any RINs generated from renewable fuels where the recordkeeping requirements are not met are potentially invalid RINs. QAP auditors must report any RINs generated where the recordkeeping requirements of 40 CFR 80.1454 are not met as potentially invalid RINs under 40 CFR 80.1474. We note that the requirement that a RIN generator must meet the recordkeeping requirements to generate RINs under 40 CFR 80.1426(a)(1)(iii) is an existing requirement that applies to all recordkeeping requirements under 40 CFR 80.1454, not just those related to the use of biointermediates.

Comment:

One commenter noted that very few QAP providers exist, which would make the proposed biointermediates program difficult to work if both parties must participate in the RFS QAP. In addition to the lack of QAP providers, the commenter noted EPA would need to review and approve a new biointermediate QAP plan for each biointermediate for each QAP provider. The commenters also noted that given the current length of time it is taking EPA to review and approve basic QAP plans for existing processes like biodiesel, they are gravely concerned that the process would significantly hinder if not outright limit the development of biointermediate feedstocks. The commenter said if the Agency decides to require RFS QAP participation, they strongly suggest that it be solely on the side of the biointermediate producer.

Response:

We disagree with the commenter's assertion that the RFS QAP participation requirement for biointermediate and renewable fuel producers would be difficult to implement due to the number of QAP auditors. With the mandatory RFS QAP requirement in this rule, we believe that the associated increase in size of the demand for QAP services can incent both existing QAP providers to expand and new QAP providers to register. The alternative of launching a biointermediate program without the necessary compliance oversight provisions in place would have been irresponsible.

When developing the rule, EPA considered the timing of implementation of the program, including time needed for QAP plans to be developed, reviewed, and approved. The length of time required for review and approval of a QAP plan largely depends on the quality of the plan that is submitted (i.e., whether the QAP plan is complete, accurate, and consistent with EPA's regulatory requirements).

Comment:

Several commenters requested that the QAP program be temporary, not permanent.

Response:

For reasons discussed in Preamble Section VII.C.5, we are making QAP participation permanent. We believe that the issues associated with ensuring that biointermediates are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements are inherent to the use of biointermediates and will require on-going verification under the RFS QAP.

Comment:

One commenter stated that if QAP is required, the QAP provider needs to be completely independent of all renewable fuel industry connections, endorsements, etc.

Response:

We proposed and are finalizing requirements that QAP auditors be independent from both the biointermediate producer and the renewable fuel producer when auditing the production of renewable fuels from biointermediates. We believe these requirements will address the independence concerns highlighted by the commenter.

Comment:

One commenter noted imposing requirements like ensuring that both biointermediate and renewable fuel producers use the same QAP vendor may prove to be a challenge when the parties are in different countries.

Response:

We disagree that imposing a requirement that both the biointermediate and the renewable fuel producer use the same QAP auditor imposes additional challenges when parties are operating in different countries and the commenter does not explain how QAP auditors would be unable to verify both the domestic and foreign party in cases involving biointermediates. The RFS QAP already addresses the situation where a domestic renewable fuel importer generates RINs for a renewable fuel produced by a non-RIN generating foreign producer. We have already accepted QAP plans for this situation and believe that the existing QAP auditors can accommodate this case.

Comment:

One commenter believes participation in the RFS QAP should be voluntary, rather than imposing an additional mandatory cost and burden on biointermediate producers and renewable fuel producers. The commenter noted that while many parties would likely participate in QAP, other parties would view contractual arrangements and/or alternative oversight mechanisms as sufficient assurances that RINs would be valid. Given the breadth of the proposed liability provisions applicable to all regulated parties in a renewable fuel production chain that involves biointermediates, the commenter believed that the proposed regulations have ample safeguards even without requiring mandatory QAP participation.

Response:

As discussed in Preamble Section VII.C.5, QAP participation is necessary for proper oversight of the system. While we agree with the commenter's suggestion that the proposed liability provisions will help incent renewable fuel producers to do what they can to ensure the proper production, transfer, and use of biointermediates, those provisions will not guarantee that the biointermediate producer will provide access to all information needed to completely verify the production, transfer, and use of the biointermediate. The renewable fuel producer needs to have this information in order to ensure that the renewable fuel they produce comports with EPA regulatory requirements for the generation of RINs. We believe there may be cases where a biointermediate producer does not wish to share certain information with a renewable fuel producer because the biointermediate producer believes that the biointermediate producer would like to protect it as confidential business information. Only by making RFS QAP participation mandatory can we ensure that the entire production chain of renewable fuels produced from biointermediates across the two facilities is verified.

Comment:

One commenter suggested that mandatory QAP participation should not be required when biointermediates are co-processed as EPA has proposed more stringent controls for co-processed biointermediates.

Response:

While the additional requirements for co-processing with biointermediates reduce the risk to incorrectly allocate RINs for the renewable portion of a co-processed fuel, they do not verify that the biointermediate was produced, transferred, and used under an EPA-approved pathway consistent with EPA regulatory requirements. As discussed in Preamble Section VII.C.4 and elsewhere in this RTC document, it is necessary to have an independent third-party auditor verify the production of both the biointermediate and the renewable fuel because of the added complexity that results from having renewable fuel processing occur at two different facilities.

Comment:

Two commenters requested that if the QAP participation is mandated, the scope of document and sample review be limited to biointermediate review and not to all production activities at the renewable fuel facility beyond an overall mass balance assessment and qualitative assessment to ensure that the amount and type of biointermediates produced is reasonable and qualifying. They argued that auditing the entire renewable fuel production of a renewable fuel production facility would increase the time and expense of QAP participation, and such a requirement would significantly expand the scope of this rulemaking.

Response:

We did not propose and are not finalizing a requirement that a renewable fuel producer have pathways for fuels that are not produced from biointermediates be verified under the RFS QAP; i.e., renewable fuel producers may voluntarily participate in the RFS QAP for those pathways. When signing up for the RFS QAP program, the QAP provider has the option of which pathways to QAP, and we expect that the renewable fuel producers could work with the QAP providers to limit QAP verification to only biointermediate pathways through their contractual arrangements.

Comment:

One commenter questioned EPA's statements that every customer of a biointermediate producer would necessarily need to be audited, as verification systems typically call for an audit of a representative sample of supply chain participants.

Response:

The commenter appears to be questioning our rationale that a many-to-many transfer allowance of biointermediates would not need the auditing of all parties in the chain to verify that biointermediates were produced, transferred, and used according to EPA regulatory requirements while the commenter offers no explanation why our assessment that such verification is needed to ensure that biointermediates are not multiple counted for RIN generation or that biointermediates were not comingled with non-qualifying feedstocks. As we noted in the NPRM, all facilities that produced and used the biointermediate would need to be audited to ensure that double-counting or the introduction of non-compliant feedstocks during transfer is needed

because auditing just a portion of the distribution chain could mask these issues by only looking at an incomplete picture of the distribution chain.[193]

We also note that under the RFS QAP program it is not a representative sample of facilities that are audited, it is a representative sample of batches of renewable fuels and only for the QAP elements specified at 40 CFR 80.1469(c)(5). We specifically require a complete mass balance for the entire facility under 40 CFR 80.1469(c)(2)(ii), which we believe would include all biointermediate facilities supplying biointermediate to the renewable fuel production facility in a many-to-many scenario. The commenter does not explain how this requirement would be met with representative sampling under the RFS QAP program when it is explicitly not covered under the RFS QAP requirements, and we believe it is integral to verifying the appropriate use of biointermediates at a renewable fuel production facility.

[193] See 86 FR 72469 (December 21, 2021).

10.4.4 Product Transfer Documents

Commenters that provided comment on this topic include but are not limited to: 0389, 0407, 0423, 0429, 0431, 0442, 0448, 0454, 0458, 0468, 0483, 0484, 0485, 0491, 0510, 0514, 0516, and 0556.

Comment:

One commenter supported the proposed PTD requirements for biointermediates but opposed the additional PTD requirements for renewable fuels and RINs generated from renewable fuels produced from biointermediates. The commenter highlighted that the proposed PTD requirements for renewable fuels and RINs could devalue RINs generated from renewable fuels produced from biointermediates ultimately discouraging the production and use of biointermediates. The commenter also noted that mandatory QAP would validate RINs so such RIN PTD language would be unnecessary.

Response:

We appreciate the commenter's support of the proposed PTD requirements for biointermediates and are finalizing with modifications PTD requirements for biointermediate transfers. While we did propose additional PTD language for RINs generated for renewable fuels produced from biointermediates, we did not propose and are not finalizing any revisions to the PTD requirements for renewable fuels at 40 CFR 80.1453(a) in conjunction with the biointermediates program. Additionally, as discussed in Preamble Section VII.C.6, we are not finalizing the proposed changes to RIN PTDs related to biointermediates.

Comment:

Two commenters suggested that EPA should not require the transfer of all information related to the production of the biointermediate to each party that takes custody of the biointermediate as some of the information would typically be treated as confidential business information that businesses would protect as trade secrets and also would be difficult to set forth for each individual shipment of biointermediate product. The commenters suggested that EPA should only require that such information be transferred between the biointermediate producer and the renewable fuel producer. Both commenters suggested that the contracts between biointermediate producers and the renewable fuel producer would include a requirement that the biointermediate producer provide to the renewable fuel producer data for the proper generation of RINs, and this data will be protected therein by confidentiality clauses. One commenter noted that the current requirements for imports of renewable fuels are not as stringent as the proposed biointermediates PTD requirements.

Response:

As discussed in Preamble Section VII.C.6, we are finalizing with modifications the PTD requirements for the transfers of biointermediates. Consistent with the commenters' suggestions, while we are requiring PTDs for transfers of custody of biointermediates, we are not requiring

that all information related to the production of the biointermediate be included in these PTDs. However, for transfers of *title* of biointermediates we are still requiring the inclusion in PTDs of all information related to biointermediate production because we anticipate that transfers of title will mostly occur between biointermediate producers and renewable fuel producers and, as discussed in Preamble Section VII.C.6, this information is needed by the renewable fuel producer to ensure that they produce renewable fuel under EPA-approved pathways and generate valid RINs.

We disagree with the assertion by a commenter that contractual arrangements outside of EPA regulatory requirements could be leveraged to provide adequate information for the valid generation of RINs from renewable fuels produced from biointermediates. Without the PTD requirements for biointermediate transfers, we believe it likely that a biointermediate producer may choose to not share all information necessary to ensure that the renewable fuel is produced under an EPA-approved pathway and that RINs will be invalidly generated. The commenter provides no explanation on how a contractual mechanism outside of EPA regulations would be sufficient to ensure the proper generation of RINs from a biointermediate or why this would be preferable to the PTD requirements proposed for biointermediates.

We do not believe it is appropriate to compare the relative stringency of the PTD requirements for biointermediates to those of imported renewable fuel because the provisions serve two substantially different purposes under the RFS program. The PTD requirements for imported renewable fuel are designed to ensure that a product that has already been produced under an EPA-approved pathway has the appropriate number of RINs generated for it (in the case of RIN-generating foreign producers) or that the renewable fuel importer has enough information to demonstrate that the imported renewable fuel was produced under an EPA-approved pathway from renewable biomass in order to generate RINs. The PTD requirements for biointermediates are designed to both provide the renewable fuel producer needed information to ensure that the renewable fuel produced from the biointermediate is produced under an EPA-approved pathway and to create a paper trail to effectively track the distribution of the biointermediate from the biointermediate production facility to the renewable fuel production facility.

As discussed in Preamble Section VII.C.8, we are streamlining the PTD requirements for transfers of custody of biointermediates so that the PTDs no longer include the types of information the commenter's expressed concerns over in their comments. We believe their concern over transferring potentially sensitive information to other parties is largely abrogated by this change.

Comment:

Several commenters opposed the requirement that additional PTD requirements be in place for RINs associated with fuel produced from biointermediate feedstocks. Commenters suggested that RINs generated on renewable fuels do not include information related to the feedstock used to produce the fuel (such as feedstock type, yield, biointermediate supplier, and energy consumed), other than what can be implied by the D code of the fuel and that RINs generated on biointermediate-derived fuel should be treated no differently. Commenters noted that biointermediate feedstock information on RIN PTDs could result in a discounted RIN price for

RINs generated from renewable fuels produced from a biointermediate, thereby disincentivizing the use of biointermediates.

One commenter strongly opposes both the biointermediate PTD and RIN PTD proposed requirements, particularly the RIN PTD requirement, which might be impossible for all industry participants to comply with. Two commenters believe listing biointermediate producers and renewable fuel producers who use biointermediates on the Part 80 program list would provide better disclosure to the market and increase overall public transparency.

Two commenters mentioned that information not provided in PTDs could still be verified by the QAP provider.

Response:

As discussed in Preamble Section VII.C.6, we are finalizing, with revisions, biointermediates PTD requirements because they are necessary to ensure that renewable fuel producers, EPA, and QAP providers can verify that renewable fuel produced from biointermediates validly generates RINs. We did not propose to amend the PTD requirements for renewable fuels at 40 CFR 80.1453 in conjunction with the biointermediates program, and consistent with commenters' suggestions are not finalizing additional requirements for RIN PTDs when the RIN is generated from a renewable fuel produced from a biointermediate, as discussed in Preamble Section VII.C.6.

Comment:

Several commenters suggested that EPA require PTDs only for title transfer and not custody transfer. Commenters noted that under the RFS, PTDs generally are only required for renewable fuels and RINs when title is transferred and requested that EPA treat biointermediate PTD requirements the same as PTDs for renewable fuels.

One commenter noted that PTDs for custody transfers may pose a challenge for members of the regulated community who routinely own the product but not the facilities or transport equipment in which their products are stored or carried. Tracking each transfer of custody and integrating new RFS-specific PTD language may require significant IT investments and, in some cases, may be beyond the control of the party that has title to the biointermediate owner.

One commenter, a QAP auditor, contended that effectively implemented QAP plans include the review of documentation related to product origin and location without a formal requirement of a PTDs for transfers of custody, and they do not believe that biointermediates pose a unique challenge necessitating a PTDs for transfers of custody.

One commenter does not support separate PTD documentation and tracking requirements for biointermediates as this requirement would add administrative and accounting complexity that is not required for other feedstock types. Furthermore, the commenter believes the proposed PTD requirement has the potential to undo much of the positive work from streamlining the fuel regulations in Part 1090.

One commenter suggested that the biointermediate PTD could be better accomplished by bills of lading (BOL) like other feedstocks sold today. There might be a need for certain information to be disclosed to the renewable fuel producer such as cellulosic content or non-renewable content, yet most of the proposed language goes far beyond that. Furthermore, the batch numbers and volumes treat a feedstock like a renewable fuel which a biointermediate is not. The commenter believes all feedstocks should be treated as equally as possible.

Response:

As explained in Preamble Section VII.C.6, transferring PTDs with transfers of custody of biointermediates is necessary so that the EPA and third parties can audit that the transfer limits on biointermediates were met, which in turn is necessary to ensure that biointermediates' transfer and use is consistent with EPA's regulatory requirements. This is important for biointermediates because some biointermediates can also be renewable fuel and thus auditable information on transfers is necessary to ensure RINs are not improperly generated on a volume that is subsequently used as a biointermediate. Absent the additional PTD requirements for biointermediates, it may not be clear to the purchaser whether RINs had been generated or not. With the biointermediate PTD requirements, a renewable fuel producer can verify that RINs had not been generated on the biointermediates that they have purchased. Renewable fuels do not have the custody PTDs because there is no potential for uncertainty with regard to whether RINs have already been generated on the fuel.

We use PTDs for the transfer of custody of fuels, fuel additives, and regulated blendstocks under 40 CFR part 1090, and we note that many of the parties that comply with those requirements (e.g., jobbers that deliver fuels, fuel additives, and regulated blendstocks) are essentially the same parties that we would expect to have to comply with the PTD requirements for custody transfers of biointermediates. As discussed in Preamble Section VII.C.6, we have streamlined the PTD requirements for transfers of custody for biointermediates based upon commenters' suggestions, and we believe that the streamlined approach to PTDs for custody transfers would not require significant investment in IT development as suggested by commenters because much of the information should already be conveyed as part of customary business practice utilizing existing infrastructure. Many parties are already complying with PTD requirements under 40 CFR part 1090, and this is not unworkably complex for them.

We disagree with commenters' assertion that biointermediates should have the same level of oversight as other feedstocks and that bills of lading can fill the role that we intend PTDs serve under the biointermediates program. As discussed throughout Preamble Section VII, biointermediates have unique compliance considerations that require additional oversight to ensure that they are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements. This is because biointermediates, which can sometimes be indistinguishable from renewable fuel can be multiple-counted for RIN generation, create additional opportunities for adulteration with non-qualifying feedstocks during production and transfer, and greatly increase the complexity of ensuring that a renewable fuel is produced under an EPA-approved pathway. Commenters fail to explain how existing requirements for feedstocks under the RFS program would ensure an appropriate level of oversight to avoid these issues.

Similarly, existing bills of lading do not cover all relevant information needed for renewable fuel producers to produce renewable fuels from biointermediates. One commenter even acknowledges that additional information not covered by a bill of lading would be needed for renewable fuel producers to generate RINs from biointermediates. Without EPA establishing requirements to govern the transfer of information between biointermediate and renewable fuel producer via PTDs, we do not expect that parties would convey all necessary information, nor would we expect parties to maintain this information as records consistent with our recordkeeping regulatory requirements at 40 CFR 80.1454. As discussed in Preamble Section VII.C.6, we believe PTDs are a necessary requirement for the allowance of biointermediates into the program and are therefore finalizing with modifications the proposed PTD requirements for biointermediates.

We also disagree with commenter's assertion that the QAP program is a substitute for PTD requirements for the transfer of custody for biointermediates. The PTD requirements for transfers of custody are necessary and complement the work being done by the QAP auditor to ensure additional potentially non-qualifying feedstocks are not added during transit and to ensure that the biointermediate was not multiple-counted for RIN generation. Without these documents the QAP auditor will likely have inadequate information to verify that the biointermediate that left the biointermediate producer's facility is the same one that arrived at the renewable fuel producer's facility.

Comment:

Two commenters stated the requirement of product transfer documents is a duplicative request for information that is already required under existing RFS registration, compliance, and attest engagement requirements. One commenter expressed that the requirement for PTD's to include "the transfer of records needed…to demonstrate that the biointermediate was produced using qualifying renewable biomass" needs further clarification by EPA. Taken at face value, the transfer of "records" could take a filing cabinet.

Response:

We disagree with the commenters that PTD requirements for biointermediates are a duplicative request for information. The purpose of PTDs is to travel with and identify what is being transferred or sold. Because biointermediates are a newly regulated product in the RFS program, this information is not currently collected or required. Furthermore, these PTDs are necessary for attest auditors to be able to track transactions, as PTDs often serve as a basis for attest auditors to verify reported information during the annual attest engagement. If we did not require PTDs, we would not expect biointermediate producers or renewable fuel producers to maintain these records since this information is not required under registration or recordkeeping requirements, so they would not exist for attest auditors to review. We specify in the regulations at 40 CFR 80.1453(f) the specific requirements for PTDs for biointermediates.

We disagree with the commenters' suggestion that the proposed PTD requirement for the transfer of documents to demonstrate that the feedstocks used to produce the biointermediate were qualifying renewable biomas would lead to the transfer of an excessive amounts of records

between the biointermediate producer and the renewable fuel producer. We believe most of these records are stored electronically and would therefore incur a trivial expense to transfer between the biointermediate producer and the renewable fuel producer. It is necessary for the renewable fuel producer to receive records that demonstrate that the biointermediate was produced from qualifying renewable biomass because the renewable fuel producer is ultimately responsible for the validity of the RIN. The documentation that the biointermediate producer is transferring to the renewable fuel producer is the same documentation that the renewable fuel producer must obtain to ensure that a renewable fuel was produced from renewable biomass. However, in response to these comments and others, we have streamlined the regulatory requirements for PTDs for transfers of custody for biointermediates from the proposal, which should reduce the associated burden from biointermediate PTD requirements for transfers of biointermediates.

Comment:

One commenter believes sugarcane ethanol producers already transfer to importers with each shipment the same types of documents that EPA is proposing for producers of biointermediates. The commenter believes the existing RFS requirements on foreign producers of denatured ethanol should continue to apply, not the proposed product transfer document requirements for biointermediates. The commenter believes current product transfer document requirements could clearly be used to indicate which batches of product are designated as a biointermediate and which ones are designated to be denatured and only for gasoline blending.

Response:

As discussed in Preamble Section VII.C.6, the PTD requirements are necessary to convey information regarding the production and transfer of a biointermediate to ensure that biointermediates are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements. PTDs contain information not required under other registration or recordkeeping requirements and are necessary to ensure registered parties have adequate information to ensure valid RIN generation. This will reduce the risk of double generation and allow QAP auditors to more easily identify double counting when it does happen. The commenter fails to explain how the current PTD requirements for renewable fuels and foreign renewable fuels would sufficiently accommodate the situation where undenatured ethanol is used as a biointermediate. The current PTD requirements at 40 CFR 80.1453 do not include any PTD requirements for undenatured ethanol (foreign or domestic) and the additional PTD requirements for foreign renewable fuels at 80.1466 only apply to foreign renewable fuels for which RINs were generated, which is not the case for undenatured ethanol (foreign or domestic), for which RINs are not allowed to be generated. Thus, the existing PTD requirements to which commenter refers do not cover situations in which foreign ethanol producers produce undenatured ethanol that is imported into the United States for the purpose of being used as a biointermediate. As described in Preamble Section VII.C.6, the PTD requirements for biointermediates are designed to convey information needed by the renewable fuel producer to ensure that renewable fuels produced from the biointermediate comport with Clean Air Act and regulatory requirements, and the current PTD requirements for renewable fuels are inadequate for this purpose.

While there are requirements for renewable fuel importers to obtain information from the registered non-RIN generating foreign producer "sufficient to make the appropriate determination regarding the applicable D code and compliance with the renewable biomass definition for each imported batch for which RINs are generated,"[194] these requirements are insufficient to ensure that all of the information is conveyed to renewable fuel producers (who are typically separate from the renewable fuel importers). Additionally, the information currently required to be provided to importers does not include the information and documentation outlined in the PTD requirements at 40 CFR 80.1453(f) that is necessary for biointermediates. The commenter fails to explain how the information provided to the renewable fuel importer would address all or any of the requirements described in the proposed biointermediate PTD provisions, how existing regulatory requirements would ensure that this information would be transmitted to a separate renewable fuel production facility (as opposed to an importer), and how such information would be kept as records without explicit regulatory provisions for such information. We believe that absent specific regulatory requirements for PTDs and recordkeeping requirements for undenatured ethanol consistent with the same requirements we are finalizing for other biointermediates, many parties would not create, transfer, and keep this information in a manner consistent with ensuring that renewable fuels produced from undenatured ethanol were produced consistent with an EPA-approved pathway and not multiple-counted for RIN generation. Therefore, we are finalizing as proposed that additional PTD requirements for biointermediates apply to undenatured ethanol in the same manner they apply to other biointermediates.

Comment:

One commenter stated that if biogas is added as a biointermediate, then biogas should be exempt from PTD requirements. The commenter noted that EPA has proposed that a biointermediate PTD be issued "when any party transfer title or custody of a biointermediate." Commenter noted that custodial transfers of biogas are likely beyond the ability of a biogas shipper or the renewable fuel producer receiving the biogas to influence, given that biogas is comingled with traditional natural gas in commercial pipelines when it is shipped. They requested that EPA require PTDs only for title transfer of biointermediates, consistent with existing PTD requirements for sales of renewable fuels.

Response:

We are not finalizing biogas as a biointermediate at this time. We intend to address the use of biogas as a biointermediate when we address issues related to the use of biogas to make renewable electricity (so-called "eRINs") in a future action.

[194] See 40 CFR 80.1426(a)(2).

10.4.5 Registration

Commenters that provided comment on this topic include but are not limited to: 0401, 0407, 0431, 0483, 0485, 0491, and 0516.

Comment:

Two commenters supported the proposed registration requirements.

Response:

We acknowledge and appreciate the commenters' support.

Comment:

One commenter stated that the registration requirements for biointermediate producers should not be so onerous as to limit the commercial market for biointermediates or create an undue burden of entry. This commenter further noted that the requirement that biointermediate producers identify in their engineering reviews which renewable fuel producers they will sell biointermediates to could harm competition; they suggested that requirement be removed and, if a renewable fuel producer has registered to use the type of biointermediate feedstock being produced, the biointermediate producer be free to transact with such renewable fuel producer unencumbered.

Another commenter said that biointermediate producers should not be required to identify in their registration the renewable fuel producers that intend to use their product.

Response:

The commenter fails to explain how requiring biointermediate producers to specify as part of their registration materials who they will sell to would create an undue burden of entry. As explained in Preamble Section VII.C.7, we require similar registration submissions for renewable fuel producers under 40 CFR 80.1450(b) and have not observed that the registration requirements are so onerous that renewable fuel producers have not been able to participate in the program. Furthermore, the registration requirements are necessary for EPA to oversee the program and for renewable fuel producers to ensure that RINs are generated from biointermediates produced from qualifying feedstocks under EPA-approved pathways.

The commenter also fails to explain how the requirement that biointermediate producers identify in their engineering reviews which renewable fuel producers they will sell biointermediates could harm competition.

Information about the renewable fuel producer is necessary at registration for EPA and independent third parties including third-party engineers to determine whether the production processes employed at both the biointermediate production and renewable fuel production facilities will in combination produce a renewable fuel under an EPA-approved pathway. For

biointermediates, we will have to consider whether the combined production process across the biointermediate production facility and renewable fuel production falls under an EPA-approved pathway. We simply cannot make this determination without a clear association of the biointermediate production facility to the renewable fuel production facility. Consistent with our current practice, we believe the best time to evaluate consistency with the applicable pathway(s) is during the registration process, i.e., before a renewable fuel producer is able to generate RINs for the biointermediate use. By including this requirement as part of the registration process, it will avoid the generation of invalid RINs because a third-party engineer will have had the opportunity to review whether the biointermediate production and renewable fuel production is capable of producing renewable fuel under an EPA pathway. For these reasons and those reasons discussed in Preamble Section VII.C.7, we are finalizing as proposed that biointermediate producers must establish as part of registration an association with the renewable fuel production facilities and that third-party engineers must conduct third-party engineering reviews of this information.

Comment:

Two commenters specifically suggested that EPA streamline biointermediate registration provisions for already registered ethanol producers. They noted EPA should not require an updated engineering review to determine that an ethanol producer is capable of producing undenatured ethanol feedstock without significant modification, as these of course are identical products that merely have different end uses. EPA should allow ethanol producers to "mirror" their existing registrations and also register as biointermediate producers. One commenter suggested that the proposed 40 CFR 80.1450(b)(1)(ii)(G)(1) requirement that a biointermediate producer designate the receiving renewable fuel producer in its registration submission is unwarranted for undenatured ethanol given the well-functioning ethanol supply chain.

One commenter said biointermediate producers should not be required to identify in their registration the renewable fuel producers that intend to use their product since they may not know at time of registration who the buyer of the product may be after importation. The commenter states that EMTS already tracks Brazilian ethanol feedstock used to produce denatured ethanol on a per batch basis, so the additional reporting would not be needed.

Response:

Registration requirements for biointermediate producers are designed to be the minimum required for their participation in the RFS program' the requirements we are finalizing today are necessary to ensure that biointermediates are produced, transferred, and used in a manner consistent with Clean Air Act and EPA regulatory requirements. Biointermediate producers must identify the renewable fuel producers they sell biointermediates to because this information is needed to implement the transfer limits as discussed in Preamble Section VII.C.4. Without the designation of the associated renewable fuel production facility during registration, it would be impossible for EPA to oversee the program and for third-party auditors to verify that the production, transfer, and use of biointermediates was consistent with EPA regulatory requirements.

We do not expect that registered ethanol producers (domestic or foreign) who are registering as biointermediate producers of undenatured ethanol would need to undergo a new engineering review as part of registration as long as they are not making any changes to their facilities that would otherwise require a new engineering review under 40 CFR 80.1450(d), and as long as the existing engineering review covers all applicable registration requirements for the ethanol producer to register as a biointermediate producer. We hope this provides clarity to the commenters' concerns. The biointermediate producers do, however, need to update their registration to add the biointermediate activity which would include the designation of their associated renewable fuel production facility. This would allow the EPA to be able to review the previous engineering review submitted by the biointermediate producer with that submitted by the renewable fuel producer to determine whether they are compatible. The necessity of this check is discussed in more detail in another response within RTC Section 10.4.5. The commenters did not explain why it is unnecessary for specifically foreign undenatured ethanol producers to specify a renewable fuel producer in their registration, and we have identified no factors around foreign ethanol producers that reduce the concerns that underly this registration requirement. This same approach would apply to any registered renewable fuel producer that was also registering to be a biointermediate producer.

Comment:

One commenter noted that within the context of the proposed biointermediate provisions, they agree that it is appropriate to impose registration, engineering review and site visit requirements on the biointermediate producer, so long as regulations clearly indicate that these additional requirements are not imposed on the biogas sites, such as farm or landfill owners.

Response:

We appreciate the commenter's support of the biointermediate registration provisions, and we note that we are not modifying the regulatory requirements for biogas as part of the biointermediate provisions in this action. We intend to address the use of biogas as a biointermediate when we address issues related to the use of biogas to make renewable electricity (so-called "eRINs") in a future action.

Comment:

One commenter noted that it is understandable that EPA would require intermediate processing of byproducts of the fuel production process to register and participate in the biointermediate program. Without doing so, there would be no way to track the product across multiple facilities. However, the commenter noted that biogenic waste oils/fats/greases must already be extensively tracked from the source via separated waste plans, meaning additional tracking would be duplicative. The commenter believes that it would also be inefficient, and in many cases impossible, to register the multiple facilities from which this type of waste is collected. The commenter believes that because the food production facilities producing this type of waste are not typically involved in the RFS and do not derive their primary income from renewable fuel production, placing these types of burdensome restrictions on them would disincentivize them

from offering their waste products into the renewable fuel supply chain and result in a missed opportunity to further the goals of the RFS.

Response:

Under the biointermediate program, we did not propose and are not finalizing registration requirements for parties that supply biogenic waste oils/fats/greases. Such parties, e.g. aggregators of used cooking oil, provide feedstocks that are listed in Table 1 to 40 CFR 80.1426 and are therefore not biointermediate producers. However, we note that biointermediate producers that produce biointermediates from biogenic waste oils/fats/greases must have accepted separation plans as part of their registrations and suppliers of the biogenic waste oils/fats/greases will need to provide the same information to biointermediate producers as they do with renewable fuel producers.

Comment:

One commenter requested clarification whether the proposal requires that registration must be complete within 60 days before renewable fuel producers may generate RINs for renewable fuels produced from biointermediates. Alternatively, the commenter requested clarification whether the proposed registration provisions would require that when registration documentation has been submitted, RIN generation must take place 60 days later. If the provision is imposing a 60-day window after registration is complete, the commenter is opposed this additional delay for biointermediate producers to participate in the market, and requests that EPA provide specific rationale for this delay if it is implemented and consider reducing the timeframe.

Response:

We are finalizing modifications to the proposed registration requirements for biointermediate producers and renewable fuels producers to clarify that registration requests must be submitted 60 days prior to the intended generation of RINs or transfer of biointermediates. We are also finalizing language to clarify our intent to allow parties to produce, transfer, and use biointermediates after EPA has accepted such registration. These final registration provisions make it clear that parties do not have to wait 60 days after EPA has accepted registration submissions from both the biointermediate producer and the renewable fuel producers to begin producing, transferring, and using biointermediates to produce renewable fuels. This clarification is consistent with our current practice of allowing parties to engage in registration activities after EPA has accepted their registrations under 40 CFR 80.1450.

10.4.6 Reporting

Commenters that provided comment on this topic include but are not limited to: 0385, 0395, 0403, 0407, 0431, 0442, 0454, 0458, 0483, 0484, 0491, 0510, 0516, and 0572.

Comment:

One commenter generally supported the proposed requirements for RIN generation in EMTS.

Response:

We acknowledge and appreciate the commenter's support.

Comment:

Several commenters opposed or had concerns with the requirement to keep different batches of biointermediates segregated.

One commenter recommended modification of the requirements for EMTS reporting from "quantity of each biointermediate" to "quantity of each biointermediate type." This would reduce the need to conduct a mass balance. In addition to this specific change, the commenter stated that the regulations should avoid additional mass balance requirement to assign quantitates from each batch to each batch of biofuel.

Response:

As discussed in RTC Section 10.4.2, we are modifying the proposed batch segregation requirements. However, the reporting of biointermediate batches in EMTS is still necessary to ensure accurate accounting of RINs generated from batches of renewable fuels produced from biointermediates. To further ensure the accurate accounting of RINs attributed to biointermediates, we are designing EMTS to help attribute renewable fuel volumes and RINs by biointermediate type and by biointermediate production facility. This functionality is especially important when a biointermediate is found to be invalid and RINs associated with that biointermediate need to be identified and retired. Without this functionality in EMTS, it would not be feasible to properly determine which RINs must be retired or appropriately remedy invalid RIN generation. Furthermore, consistent with the provisions for the treatment of invalid RINs generated from renewable fuels produced from non-compliant biointermediates discussed in Preamble Section VII.C.9, if we are not able to attribute renewable fuel RINs by biointermediate type and production facility, it would potentially require us to invalidate a larger number of RINs in the case of improper RIN generation because the information would be aggregated in a way that would be difficult to break down to the appropriate volume after the RINs were generated.

We do not agree with the commenter's assertion that modification of the requirements for EMTS reporting from "quantity of each biointermediate" to "quantity of each biointermediate type" would avoid the need for mass balance requirements as a mass balance that utilized such information would still be required as part of the RFS QAP participation under 40 CFR

80.1451(g)(2)(viii). If we took the commenter's suggestion, renewable fuel producers and QAP auditors may have a more difficult time conducting the required mass balance because they would have to break out amounts of biointermediate by facility by batch after the RINs have been generated and rely on less precise documentation versus starting with the apportioned values in EMTS.

Comment:

Several commenters expressed concern about the tracking or identification of RINs including biointermediate information. Three commenters mentioned that it could create a segmented RIN market. Two commenters mentioned that it is an arbitrary hurdle and would discourage use of biointermediates, and/or that requiring disclosure of feedstock origin is not something EPA has done before. One commenter stated that EMTS should not be based on feedstock type and that the requirement to input feedstock information provides no value. One commenter stated that the EPA should not invest in modifying EMTS to determine which biointermediate was used and that the requirement to be Q-RINs should be sufficient.

One commenter disagreed with proposed additional EMTS reporting requirements, stating that current attest engagement and recordkeeping requirements are adequate.

Response:

Information in EMTS tracking biointermediate-related information is needed to appropriately generate RINs and will serve as a basis to determine which RINs are invalid in the case that a biointermediate is improperly produced. Tracking biointermediate-related information in EMTS also allows us to not require additional periodic reports tying batches of RINs to biointermediates, and this EMTS information serves as the basis for our third-party oversight (QAP audits, annual attest engagements, and three-year registration updates), which is much more easily accessible to independent third parties. Given these factors, it is important to invest in this functionality in EMTS.

The commenter did not specify what they meant by 'feedstock type.' Assuming that by 'feedstock type' the commenter was referring to the specific renewable biomass listed in Table 1 to 40 CFR 80.1426 or the biointermediate name listed in the definition of biointermediate in 40 CFR 80.1401, we disagree with the commenter's assertion that EMTS should not be based on feedstock type. This functionality is already included for the generation of RINs for renewable fuels and is consistent with the existing reporting requirements for RIN generation under 40 CFR 80.1452. This information helps to ensure accurate RIN generation in the case when a facility processing multiple feedstocks receives and accidentally processes non-qualifying feedstock, since individual batches can be more clearly identified. We intend to leverage this existing EMTS functionality to help track the generation of RINs from renewable fuels produced from biointermediates. We also believe that further enhancement of EMTS is necessary to help EPA implement and oversee the program while also allowing renewable fuel producers to more easily account and track RINs generated from renewable fuels produced from biointermediates. This information will be needed by both EPA and renewable fuel producers to help determine which RINs are invalid in the case that a biointermediate is noncompliant. Without this functionality,

i.e., if RINs are not attributed to biointermediates in EMTS, it may be difficult for renewable fuel producers to demonstrate that any RINs are valid.

The commenters also did not explain how the current attest engagement and recordkeeping requirements are adequate to address the generation of RINs from renewable fuels produced from biointermediates. While the attest engagement and recordkeeping requirements help oversee that renewable fuels are produced in accordance with RFS regulations, EMTS reporting requirements serve to track the generation and transaction of RINs. The EMTS reporting requirements under the biointermediates program are designed to tie RIN generation from renewable fuels produced from biointermediates to the biointermediate feedstock actually used to produce the renewable fuel, similar to how renewable biomass feedstocks are currently tied to RIN generation. In addition, the EMTS information is required to do an attest engagement. These reporting requirements are needed for us to effectively administer and oversee the program.

Though this information is necessary to ensure RIN generation is valid, it will not be displayed to participants for the purpose of RIN transactions, which should avoid the segmented market that the commenters mentioned.

Comment:

One commenter stated that requiring biointermediate producers to report quarterly is overly burdensome given producers of renewable fuel are only required to update their registration every three years.

Response:

Reporting requirements and registration requirements fulfill separate needs of the program. We disagree with the commenter's assertion that the reporting schedule for biointermediates producers is more burdensome than those for renewable fuel producers. We have similar quarterly reporting requirements for renewable fuel producers under 40 CFR 80.1451(b). Additionally, we note that a quarterly reporting schedule is needed for QAP auditors to conduct their quarterly verifications of recordkeeping and reporting requirements under 40 CFR 80.1469. Finally, we note that biointermediate producers and renewable fuel producers have the same requirement to undergo three-year registration updates under 40 CFR 80.1450.

Comment:

Two commenters opposed EPA's suggestion to identify RINs in EMTS as having been produced from a biointermediate. One commenter opposed EPA listing biointermediate EPA ID for RIN generation. The commenter believed this would be incredibly disruptive to all market participants to update current systems and processes particularly given there are other means of tracking such as third-party engineering reviews with biointermediate plans and quarterly reporting that are all reviewed by third-party auditors.

Response:

As discussed in Preamble Section VII.C.7, we sought comment on whether any additional functionality in EMTS would be helpful to implement the biointermediate program. We are not intending to develop EMTS to identify to users whether RINs were generated for a renewable fuel produced from a biointermediate at this time. We appreciate commenters concerns and will consider them as we continue to development EMTS functionality in the future.

Comment:

One commenter supports quarterly reporting of biointermediate volumes by both the biointermediate producer and renewable fuel producer but does not believe it should be done on a batch basis. It should be closer to how co-products are reported or fuels on the 1400 -1600 reports than how feedstocks are reported in EMTS.

Response:

While we appreciate the commenter's support for requiring reporting of biointermediate volumes by both the biointermediate producer and the renewable fuel producer, we disagree with commenter's suggestion that the quarterly biointermediate batch reports be replaced with a quarterly report that aggregates the volumes of fuels and co-products as described under 40 CFR 80.1451(b)(1)(ii). The batch level of granularity is needed to implement the batch segregation and transfer limit provisions discussed in Preamble Section VII.C.2 and for QAP auditors to conduct audits under the RFS QAP. These quarterly batch reports are designed to align with the PTD and recordkeeping requirements for the production, transfer, and use of biointermediates. If biointermediate volumes were aggregated on quarterly basis as suggested by the commenter, the quarterly reports would no longer align with the underlying records and PTDs that represent that batch diminishing much of the value of the quarterly reporting requirement. For these reasons, we are finalizing that quarterly batch reports be submitted by biointermediate producers as proposed.

Comment:

One commenter opposed adjusting temperature to a standard temperature for the following reasons: 1) No other feedstock requires that it be treated like a finished fuel with regard to tracking of volumes purchased; 2) Industry uses pounds of feedstock in the tracking process. This requirement is commercially unreasonable as it requires capital expenditures for custody meters; 3) There is no standard with regard to the formula that would be used for temperature correction. All biointermediates produced will have different density and makeup depending up the number of different qualified feedstocks used and the specifics of the processes used at the facility; 4) If it will be required to only generate a biointermediate from one qualified feedstock at a time, i.e., batch processing, this will require batch processing by feedstock type at biofuel producers who run more than one qualified feedstock simultaneously and produce qualified biointermediates as part of their preprocessing. As written, temperature correction could be required for each type in the mix which would not be feasible given how continuous stream operate; and 5) Continuous flow production of both biofuel and biointermediates is unduly

burdened and penalized by the proposal. Commenter noted that if the intent of this provision pertained to undenatured ethanol alone to be temperature corrected, EPA should consider including sections that address biointermediate concerns specific to the type of biointermediate. Commenter requested clarification that this requirement only applies to undenatured ethanol and not all biointermediates, and the commenter recommended separate sections in the regulation for each type of biointermediate to ensure that there are no requirements which do not fit the biointermediate material type.

Response:

We agree with the commenter's suggestion that biointermediates measured by mass or energy need not be temperature corrected, and as such we are finalizing modifications to our proposal to only require temperature correction for biointermediates measured by volume. Given that the commenter said that industry uses pounds of feedstock, this should alleviate the commenter's concern. We continue to believe that temperature correction is needed for biointermediates that are volumetrically measured because the measured volume of a biointermediate at two locations (e.g., a biointermediate production facility and a renewable fuel production facility) can vary based on the temperature of the location. If parties do not account for this temperature change, it may appear that a different volume of biointermediate was transferred between two locations, which would appear like a potential compliance issue since the volumes are supposed to align. We also believe that the procedures outlined in 40 CFR 80.1426(f)(8) can accommodate biointermediates that are measured volumetrically. These provisions currently cover a wide range of renewable fuels and provide a mechanism for EPA to approve alternative methods for temperature correction if the specified provisions do not cover the volumetrically measured biointermediate.

Comment:

One commenter asks for clarification that the proposed requirement in 80.1451(j)(1)(vii) to report cellulosic converted fraction only applies to cellulosic based biointermediates and not all biointermediates. The section in which it occurs is in the listing of general biointermediate requirements, not a specific section for cellulosic material. There should be no chance that FFA or biocrude be subject to cellulosic testing so this language should be moved to its own section or other appropriate section. The commenter does not oppose the testing described but we are concerned that its location in the regulation could be interpreted to apply to all biointermediates, not just those where cellulosic testing would be appropriate.

The commenter suggested that EPA include a subsection in the regulations for each category of biointermediates. The subsections can list material specific requirements, such as the cellulosic content testing described here. Adding new biointermediates in the future can be accomplished by inserting new subsections. This will be simpler and much more straightforward than adjusting requirements in the general listing, which may inadvertently cause confusion or inappropriate requirements for established biointermediates

Response:

We are finalizing with modifications that the adjusted cellulosic content of each batch be specified in the quarterly batch reports. For clarity, we are specifying in the regulations that adjusted cellulosic content only needs to be tested and reported for batches intended for use to produce cellulosic biofuels. We do not expect biointermediates not intended for the production of cellulosic biofuels to have cellulosic content tested and reported. We will post on our website reporting forms and instructions related to biointermediates reporting.[195]

We disagree with the commenter's assertion that a separate regulatory reporting section by biointermediate is appropriate because most of the reported elements for each batch of biointermediates is identical and separate regulatory sections would be largely duplicative and may require multiple, duplicative forms. The per batch quarterly adjusted cellulosic content reported elements makes most sense for inclusion with the other quarterly batch reported elements because a single biointermediate producer may report both cellulosic containing and non-cellulosic containing batches of biointermediates and may fail to identify all regulatory reporting requirements if we were to make separate reporting requirements for each biointermediate.

Comment:

One commenter believes the EMTS requirements as proposed are extremely cumbersome and are essentially a requirement to provide duplicate information that already exists on other EPA required forms.

Response:

The commenter did not provide details on why they believe the requirements are duplicative information or how the proposed reporting requirements in EMTS are cumbersome. We disagree that the reporting requirements asks for duplicate information because we do not currently collect information related to biointermediates as biointermediates were not allowed under the RFS program until this action. As discussed in Preamble Section VII.C.7, this information is needed to oversee the biointermediates program.

[195] Information related to reporting under the RFS program, including for biointermediates, is available at: https://www.epa.gov/fuels-registration-reporting-and-compliance-help/how-report-quarterly-and-annually-renewable-fuel.

10.4.7 Recordkeeping

Commenters that provided comment on this topic include but are not limited to: 0458 and 0485.

Comment:

One commenter noted that proposed new 40 CFR 80.1454(i) appears to have an incorrect cross-reference to paragraphs (a) through (m), which would not all apply to biointermediate producers and recommended clarification on which records must be kept by biointermediate producers.

Response:

To provide clarity as requested by the commenter, we have made edits to clarify which recordkeeping requirements in 40 CFR 80.1454 apply to biointermediate producers. We recognize that biointermediate producers may produce biointermediates or conduct other regulated activities under the RFS program (e.g., the biointermediate producer may also be a renewable fuel producer, RIN owner, obligated party, etc.). In cases where the biointermediate producer also engages in activities regulated under the RFS program other than the production of biointermediates, the biointermediates producer must comply with all applicable recordkeeping requirements under the RFS program, not just the recordkeeping requirements for biointermediates producers.

Comment:

One commenter noted current recordkeeping requirements are adequate, and no further requirements are needed to enable implementation.

Response:

We disagree that no further recordkeeping requirements are needed related to the biointermediates program, and the commenter provides no explanation for how the current recordkeeping requirements, which only apply to renewable fuel producers and production that occurs at a single facility as defined in 40 CFR 80.1401 would sufficiently cover the production, transfer, and use of biointermediates. We discuss the need for recordkeeping requirements for biointermediate and renewable fuel producers in Preamble Section VII.C.7.

10.4.8 Attest Engagements

Commenters that provided comment on this topic include but are not limited to: 0431, 0458, 0462, 0484, 0491, and 0495.

Comment:

Three commenters agreed with EPA's proposal to require biointermediate producers to undergo annual attest engagements similar to current annual attest engagement requirements for renewable fuel producers.

Response:

We acknowledge and appreciate commenters' support.

Comment:

One commenter noted that if restrictions on transfers are lifted, then the attest engagement requirements should be updated accordingly.

Response:

As discussed in Preamble Section VII.C.4, we are finalizing as proposed limitations on the transfers of biointermediates and are therefore also finalizing as proposed associated attest engagement requirements for biointermediate and renewable fuel producers.

Comment:

One commenter noted current attest engagement requirements are adequate, and no further requirements are needed to enable implementation.

Response:

We disagree that no further attest engagement requirements are needed related to the biointermediates program, and the commenter provides no explanation for how the current attest engagement requirements, which only applies to RFS producers, would sufficiently cover the production, transfer, and use of biointermediates. We describe and discuss the need for attest engagement requirements for biointermediate and renewable fuel producers in Preamble Section VII.C.8.

Comment:

One commenter noted the proposed requirement for biointermediate producers to attest annually is overly burdensome given the limited number of professionals available to perform this task and that currently renewable fuel producers are only required to update their registration every three years.

Response:

All parties, including renewable fuel producers, that are required to have attest engagements for the RFS and fuel quality programs must submit them annually. This is a distinct requirement from registration updates. The annual attest engagement is a valuable review of activities, reports, and records. Having them performed in each compliance period reduces the risk of invalid RINs rolling over from year to year. Additionally, to clarify, renewable fuel producers are required to update their registration whenever needed, which may be more frequent than every three years.

Comment:

One commenter requested explicit clarification that the third-party auditor be allowed to perform the attest engagement for both renewable fuel production and biointermediate fuel production. If EPA does not allow the same third party to perform the attest engagement for both renewable fuel and biointermediates for a facility, companies would be forced to hire at least three firms to complete the attest and QAP verification work for their facility.

Response:

We did not propose and are not finalizing a limitation that the biointermediate producer and the renewable fuel producer must employ a different attest engagement auditor. Therefore, biointermediate producers and renewable fuel producers may use the same attest engagement auditors to fulfill their respective annual attest engagement requirements. However, we are finalizing the proposed requirement that the renewable fuel producer and biointermediate producer use the same QAP firm.

10.4.9 Liability, Prohibited Activities, and Invalid RINs

Commenters that provided comment on this topic include but are not limited to: 0407, 0423, 0432, 0458, 0474, 0483, 0484, and 0506.

Comment:

Several commenters opposed the proposal to invalidate the entire batch of RINs if a non-compliant biointermediate was used to produce the batch of renewable fuel for which the RINs were generated. Commenters noted that such a provision would reduce the likelihood that a renewable fuel producer would be willing to receive and use biointermediates from multiple parties and that EPA's proposal would unnecessarily restrict the nature of deals, impede contracts, and reduce participation.

One commenter suggested that EPA provide mechanisms to address cases where invalid RINs are generated on a batch of renewable fuel co-processed with biointermediates.

One commenter suggested that invalidating all RINs generated from a batch of renewable fuel produced from a biointermediate would affect biodiesel facilities processing FFA feedstocks. They recommend allowing mass balance calculation to accurately determine qualifying fuel.

One commenter suggested a compliance safety measure of 20% of additional RINs be invalidated instead of an entire batch.

One commenter stated that the regulated party should have the opportunity to show which components of production are subject to RIN invalidity before blanket rules are enforced.

One commenter disagreed that if any RINs from a batch of renewable fuel produced from biointermediates are deemed invalid, all RINs from the batch would be considered invalid. They recommended that only those gallons with the problematic feedstock be invalidated, rather than the whole batch. Current regulations only invalidate the fuel that is invalid, not the whole batch. They noted this is a new treatment for biointermediates that is different from existing regulations and lacks justification.

Response:

As discussed in Preamble Section VII.C.9.c, we are finalizing provisions that will deem all RINs invalid that were generated from a batch of renewable fuel that was produced using a non-compliant biointermediate. This provision will provide a strong incentive for renewable fuel producers to conduct due diligence and oversight procedures on the biointermediate producer to avoid the invalidation of an entire batch of RINs. Consistent with commenter's suggestions, we are finalizing as proposed regulatory language that allows EPA in its sole discretion to determine that a portion of the RINs generated from the batch of renewable fuel produced from the non-compliant biointermediate are not invalid. Based on our experience in dealing with such situations, we will consider information obtained from the RIN generator in making such determinations.

The commenter suggesting a 20 percent safety measure failed to explain how a safety measure of 20 percent or any percentage would be more effective than our approach of deeming all RINs produced from a batch. We believe that a 20 percent safety margin would provide less of an incentive for renewable fuel producers to conduct due diligence and maintain clear records to demonstrate RIN validity. The approach suggested by the commenter does not address the complexity in determining what portion of the RINs resulted from use of an improperly produced biointermediate, and therefore are not sufficient to address our concerns. Furthermore, while this safety measure may be accurate for some production processes, it may not be accurate for all processes.

We do not believe that this provision will discourage participation in the RFS program as suggested by commenters and they fail to explain how this provision would discourage participation in the RFS program, especially given that the biointermediates program constitutes an additional opportunity for participation. Renewable fuel producers are already liable for the generation of all RINs for their renewable fuel and are already required to keep records demonstrating the validity of such RINs should any compliance issue arise. The provision we are now finalizing does not change our general approach of having renewable fuel producers being liable for the validity of all the RINs generated for their facility. This provision coupled with the other related provisions finalized today will provide clarity and certainty over how EPA will treat RINs in cases where a non-compliant biointermediate is used to produce the renewable fuel. This certainty will help renewable fuel producers develop effective business plans for the use of biointermediates.

Comment:

One commenter asked EPA to clarify its statements regarding the invalidation of RINs from co-processed renewable fuels when a biointermediate is determined to be non-compliant. The commenter requested that EPA clarify that only the RINs generated from the renewable portion of the co-processed fuel be deemed invalid.

Response:

We have clarified our position in Preamble Section VII.C.9.c. All RINs associated with a batch of co-processed fuel that was produced in part from an improperly produced biointermediate are deemed invalid unless EPA in its sole discretion determines that a portion of the RINs are not invalid. In addition, parties must not generate RINs for fuels not made from renewable biomass.

Comment:

One commenter requested that EPA confirm that renewable fuels produced through the co-processing of qualified biointermediates, i.e., those that meet the proposed definition in the NPRM, with non-renewable biomass, e.g., crude oil, generate valid RINs in accordance with 40 CFR 80.1426(f)(4). Specifically, the commenter references the NPRM preamble text: "[i]n all cases, where a biointermediate is processed simultaneously with other feedstocks or co-processed with non-renewable biomass, we are proposing that all RINs generated from the renewable fuel would be invalid."

Response:

It appears that the commenter may have been confused by the sentence in the NPRM. We intended the sentence quoted in the comment to apply to all cases where a biointermediate processed in the batch was an improperly produced biointermediate. We have clarified this in Preamble Section VII.C.9.c. We are finalizing as proposed provisions at 40 CFR 80.1426(f)(4) that will accommodate situations where biointermediates are co-processed with non-renewable biomass feedstocks. We have clarified our position in Preamble Section VII.C.9.c as suggested by the commenter.

10.5 Other Considerations Related to Biointermediates

10.5.1 C-14 Testing and Mass Balance

Commenters that provided comment on this topic include but are not limited to: 0359, 0377, 0385, 0398, 0407, 0411, 0423, 0426, 0431, 0434, 0454, 0458, 0462, 0468, 0470, 0474, 0476, 0484, 0485, 0495, 0510, 0556, and 0563.

Comment:

Several commenters showed general support for EPA's proposed C-14 testing requirements, which required Method B of ASTM D6866, stating that it is the most accurate or reliable method for determining renewable content.

One commenter added further evidence for such a requirement by stating that the certification scheme "Single European Bio-based Content Certification" only allows C-14 testing and not mass balance. The commenter also mentioned that if discrepancies arise C-14 measurements can be repeated on the final product, C-14 measurements are independent of declarations of feedstock input, and C-14 measurements using ASTM D6866 Method B have a standard deviation of 0.1-0.4 percent modern carbon.

One commenter stated that this requirement will prevent co-processed fuels that do not generate minimum required carbon reductions or are not produced from renewable biomass from entering the RFS program. The commenter stated that C-14 testing is accurate, available, and affordable. The commenter stated that the comfort level of those needing to use C-14 has increased and can even be done using one's own lab. The commenter stated that they do not see C-14 as a barrier to participating in the RFS program and stated that the California LCFS has shown that co-processors are willing and able to conduct these analyses.

One commenter did not support the development of a facility-specific statistical model for estimating low levels of renewable content in co-processed fuel. The commenter highlighted the EPA's use of the word "estimating" in Section VII.D.1 of the NPRM to indicate the challenging nature of a statistical model.

Response:

We acknowledge and appreciate the commenter's support, and agree that in most cases, testing using ASTM D6866 Method B would be the best way to ensure accurate and reliable accounting of biogenic carbon. We also share concerns about whether a blanket approval for mass balance would result in accurate estimates of renewable content, as discussed in Preamble Section VII.D.1. Numerous assumptions go into any mass balance calculation and ample evidence would need to be provided for each of these assumptions in order for us to have confidence that the method reliably estimates the fraction of renewable content in the fuel. Given this concern, we are not finalizing measurement using "Method A" of 40 CFR 80.1426(f)(4)(i)(A), which provides for a generally applicable mass-balance approach, for use when co-processing biointermediates. However, in some cases, we think there can be sufficient confidence in a

renewable fraction calculated using a facility-specific model, including potentially a mass-balance model, provided that certain conditions are met. We are therefore finalizing an option in 40 CFR 80.1426(f)(4)(iv) for facilities to request that EPA approve a facility-specific approach to calculating renewable content in renewable fuels produced from biointermediates. Facilities choosing to utilize this option must provide additional information as described in Preamble Section VII.D.1 and under 40 CFR 80.1426(f)(9) to ensure that RINs are generated only for qualifying fuels. In addition, we are also allowing facilities to use ASTM D6866 Method C to determine the renewable content of fuels produced from biointermediates under a certain set of conditions, as discussed in Preamble Section VII.D.1.

Comment:

One commenter stated that composite testing could adequately mitigate some of the long turnaround times associated with C-14 testing.

Response:

Under the current regulations at 80.1426(f)(9), parties may utilize composite sampling for C-14 testing as described in 80.1426(f)(9). This applies both to renewable fuel produced from biointermediates and those not produced from biointermediate. We did not propose and are not finalizing changes to the composite testing provisions.

Comment:

One commenter supported not allowing mass balance for all co-processed fuels, including co-processed fuels that were not produced from biointermediates. The commenter noted that due to the complex nature of petroleum processing, mass balance is not an effective compliance mechanism unless 100 percent of the feedstock is renewable.

Response:

We did not propose modifying the testing requirements for fuels that are *not* produced from biointermediates, so changing testing for such fuels is beyond the scope of this rulemaking.

Comment:

One commenter recommended additional requirements in addition to Method B of ASTM 6866: measurements should be done by a third-party lab, that the lab should be free from artificial C-14 since the contamination is likely, and measurements should be done in labs certified in ISO/IEC 17025:2017 since they would have outside accreditation.

Response:

As discussed in Preamble Section VIII.H, we are finalizing our proposal to update the version of ASTM D6866 from ASTM6866-08 to ASTM6866-22. ASTM D6866-22 added the requirement that the lab must be free from artificial C-14, which will help ensure accurate C-14 values as

suggested by the commenter. Additional requirements mentioned by the commenter (that additional certifications should be required and that the test must not be conducted by the renewable fuel producer) are typically not required for testing of other fuel parameters in EPA's fuels programs in 40 CFR parts 79, 80, and 1090. The commenter provided no examples where not having these requirements has led to any compliance issues, and we therefore believe such additional requirements are unnecessary.

Comment:

Several commenters disagreed with EPA's proposal to limit the options for measuring the amount of renewable content in co-processed fuels to Method B of ASTM D6866 and encouraged EPA to approve mass balance. Commenters noted that while C-14 testing may be acceptable in certain circumstances, it is important to authorize other options for cases where C-14 testing may not appropriate and may hinder volume production. Commenters contended that direct C-14 measurement may not accurately measure biogenic content in the 1-5% range, leading for potential false negatives. At such ranges, commenters suggested that measurement methods based on mass-balancing, which are standard practice in industry today, are more accurate and reliable to measure renewable content in co-processed fuels and should be allowed. Commenters cited documents by the National Renewable Energy Laboratory, by the company Honeywell UOP, US Senate in their formal report on the "Department of the Interior, Environment, and Related Agencies Appropriations Bill, 2020" (116TH CONGRESS, 1st Session, Report 116–123), and by other companies and research institutes.

Many commenters also noted that the implementation of C-14 testing may be expensive as these tests would need to be performed at third-party laboratories which also can entail long turn-around times, potentially delaying RIN generation. Many also raised concerns that there might not be enough available accredited laboratories. Furthermore, commenters claim that logistical challenges exist around sampling multiple streams and the testing infrastructure to test projected volumes.

For these reasons, commenters noted that establishing a mandatory C-14 testing requirement for co-processed biointermediates would establish an unnecessary barrier to entry for producers of renewable fuels wishing to use biointermediates.

One commenter listed specific limitations of C-14 testing with regards to co-processing biocrude in an FCC: the levels of biogenic carbon are smaller than the C-14 error bars, the C-14 methodology is affected by the age of the cellulosic feedstock, C-14 is less accurate and reliable than mass balance, and C-14 methods consistently underestimate the amount of biogenic carbon (due to random distribution of C-14 atoms)

One commenter noted that implementing strong controls in the QAP program can suitably address concerns with the mass balance approach.

One commenter mentioned that mass balance would be more appropriate in facilities that process renewable biogas with fossil-derived hydrogen when fossil-derived hydrogen in the renewable

fuel is greater than 10%. According to the proposed definition of co-processing, this may require co-processing kol through C-14 testing, though mass balance would be more appropriate.

One commenter mentioned that there are delays between obtaining C-14 test results for the renewable fraction of a fuel produced through co-processing and selling a batch of that renewable fuel, complicating the work process. The same commenter also mentioned that current refinery infrastructure may not have the necessary sampling and testing equipment for Method B of ASTM 6866, and asks that any requirement align within existing testing equipment.

Two commenters support EPA providing additional flexibilities including mass balancing when coupled with periodic C-14 testing to verify the mass balance approach. One commenter proposed allowing RIN generation using a mass balance approach for biointermediates mixed with fossil fuels when C-14 testing methods show less than 2% renewable carbon. The other commenter stated that EPA should allow a petition type process for individual facilities which could include allowing facilities to develop facility specific modeling.

One commenter stated that there should be no difference in the testing requirements when processing a regular feedstock or when processing a biointermediate.

Multiple commenters mentioned that if not fully allowing mass balance, EPA should allow for fuel producers to petition for mass balance to be allowed when C-14 testing is not appropriate or when EPA is satisfied with data demonstrating that the method provides sufficient accuracy.

Response:

Given these comments reflecting concerns around the burden of testing, we are finalizing flexibilities which will allow EPA to approve facility-specific methods to determine the renewable content of co-processed biointermediates, as discussed in Preamble Section VII.D.1. Such methods could cover mass balance approaches tailored to specific facilities as suggested by the commenters. However, while mass balances approaches may be appropriate in certain circumstances; we still have concerns that there may be cases where incorrect assumptions are used to derive the mass balance equations leading RINs to be generated on unqualified fuels.

With respect to the comment that EPA can address concerns with the mass balance approach through the QAP program. That program is not designed to test and verify every assumption that goes into a mass balance equation for determining the amount of renewable content in a finished fuel. Rather, QAP is focused on verifying that calculations were done correctly and in compliance with regulations. Thus, requiring facilities to have a QAP provider would not ensure sufficient accuracy of assumptions for this analysis. We believe that facility-specific approvals of measurement methods will help ensure that assumptions underlying mass-balance approaches are adequately checked before generating RINs. We note however, that we would expect QAP providers to verify that renewable fuel producers comport with any facility-specific approvals as part of their QAP plan.

Comment:

Several commenters recommended using an energy equivalency value for biocrude processed in FCC, which results in less product estimated than mass balance, making it a conservative assumption. Commenters provided multiple supporting documents and references.

One commenter cited a statement in a California Air Resources Board document (Co-processing of biogenic feedstocks in petroleum refineries, Draft Staff Discussion Paper, February 3, 2017, CARB) that the energy equivalency approach reduces administrative burden and that it is a conservative estimate.

Two commenters provided data from NREL and Petrobas and stated that a model obtained from those data show accurate predictions of yields of products from the FCC. The commenters use the data to state that up to 10% biocrude co-processing leads to similar yields of transportation fuels as 100% petroleum processing and that this result is consistent with other studies. One commenter provided a mechanism from Honeywell UOP that shows how biocrude constituents are predisposed to form diesel and aviation fuel, supporting an assumption within the energy equivalence approach.

Two commenters mentioned that joint work by national labs showed at least 80% of biogenic carbon is incorporated into FCC Co-processed fuels, which is higher than would be predicted using the energy equivalence value approach.

One commenter stated that this approach is consistent with the definition of 'produced from renewable biomass' in Section F of the NPRM, because both use energy as the basis for determining renewable biomass.

Response:

We appreciate the work towards developing a conservative energy equivalency approach. This approach can be included in applications for facility-specific approvals of measurement methods. EPA will consider energy equivalency approaches for approval if adequate supporting data is provided that meets 1426(f)(4)(iv)(C) as discussed in Preamble Section VII.D.1.

Comment:

Multiple commenters mentioned support for the EPA allowing liquid scintillation counting for Carbon-14 testing, mentioning it has a reduced cost and faster turnaround time than Method B of ASTM D6866. Of the standards that use liquid scintillation counting, two commenters requested ASTM D6866 Method C be approved, and one requested DIN 51637:2014-02 be approved. Two commenters also mentioned that other radiocarbon dating programs could be allowed if they show comparable performance through Performance Based Measurement Standards similar to other fuel programs in 40 CFR Part 1090. One commenter supported requiring a minimum concentration of 10% renewable carbon to use this method.

One commenter mentioned liquid scintillation counting was easier to train staff to use and is accurate when analyzing the same product and raised concerns that ASTM D6866 Method B is not offered by many labs, has up to six week waiting period for results, and might require one to two years waiting time to purchase necessary equipment (which costs $2.3 million dollars), requires a large space and extensive maintenance, and that it is difficult to test each batch in a continuous process. If Method B is required, the commenter recommends EPA phase in requirement for C-14 testing to allow time to accredit labs, permit the use of C-14 testing in parallel with liquid scintillation counting, require either quarterly sampling or aggregate sampling, and allow reporting Method C quarterly while waiting for Method B results.

Response:

As discussed in Preamble Section VII.D.1, we are finalizing a provision allowing renewable fuel producers to use Method C of ASTM D6866 as long as the renewable content is 10% or more. Approvals for other tests, such as DIN 51637:2014-02, can be sought through the facility-specific approval process that we are also finalizing.

Comment:

One commenter recommended that EPA be prepared to accept alternative methods when C-14 testing is not suitable, such as when hydrogen generated from renewable biomass or from co-mingled biogas and natural gas. The commenter stated that alternative methods should be within objective standards for accuracy and precision and consistent with other measurement methods, such as Method A of 40 CFR 80.1426(f)(4)(i)(A).

Response:

As discussed in Preamble Section VII.D.1, we are finalizing a facility-specific approval process at 80.1426(f)(4)(iv)(C). This provides for alternative methods when C-14 testing is not suitable, and through this approval process, the EPA can ensure it is within the objective standards for accuracy.

Comment:

One commenter supported the use of C-14 methodology, but also recognizes that there is no “one size fits all” methodology that can be applied across all processing and feedstock options. The commenter stated that a mass balance approach should be permitted in circumstances where C-14 testing is recognized to be unreliable and where there is sufficient data to support the accuracy of the mass balancing being deployed. In addition, the commenter recommended the allowance for petitions for new methodologies in the future as technology and supporting data emerge. The commenter supported the proposed allowance for parties that co-process renewable fuels to develop a facility-specific statistical model for use in estimating low levels of renewable content in co-processed fuel. Recognizing that there are existing approved pathways for co-processing bio feedstocks, they noted this modeling approach apply only to co-processing of biointermediates.

Response:

We acknowledge the commenter's statement that mass balance should be used if C-14 testing is not accurate, that EPA should allow petitions for new methodologies, that EPA should allow facility-specific statistical modeling, and EPA should limit the facility-specific modeling to only apply to co-processing of biointermediates. The provisions we are finalizing, which include a facility-specific approval process, allow for the flexibility in measurement methodologies that the commenter suggests is warranted. Additionally, we did not propose to make changes to the existing permitted measurement methods for co-processed fuels that do not involve biointermediates, and we are not making any such changes here.

Comment:

One commenter noted that a suitable approach with pragmatic requirements for the quantification methodology of renewable fuel credits generated from co-processing would allow broader refining participation from existing producers of liquid petroleum fuels.

Response:

As discussed in Preamble Section VII.D.1, we are finalizing a broader set of options for measuring renewable content in co-processed renewable fuels produced from biointermediates including Method B and C of ASTM 6866 and facility specific approvals, which should allow for broader refining participation than limiting facilities to a single method.

Comment:

One commenter stated that the feedstock energy equations in 40 CFR 80.1426(f)(3)(vi) for the calculation of RINs for batches of renewable fuel produced from multiple feedstocks overstate the impact of higher energy content associated with certain feedstocks. The commenter stated that calculating RINs based on the higher heating value of the converted feedstock, rather than on the basis of mass, results in different RIN allocations than would be generated if each feedstock were processed in separate batches and recommends a formula that uses the mass of the feedstocks and the fuels produced.

Response:

We did not propose or seek comment on changing the feedstock energy equations in 40 CFR 80.1426(f)(3)(vi), which are distinct from the matter of measuring the amount of renewable content in a co-processed renewable fuel produced using a biointermediate. The comment is therefore outside the scope of this rulemaking.

Comment:

One commenter recommends that, if EPA does not allow mass balance and C14 analysis, that EPA require biointermediate producers to measure C14 before it is sent to the renewable fuel producer. The renewable producer would then be required to conduct its own C14 testing on the

finished fuel, which would be used for RIN generation, and the renewable fuel producer could validate the number with a mass balance approach utilizing the test result of the biointermediates. The commenter states that this approach would ensure that the renewable content of co-processed fuels is accurately determined, especially where renewable content percentages are low.

Response:

As discussed in Preamble Section VII.D.1, we are allowing facility-specific approvals for determining renewable content in fuels produced from biointermediates. The commenter's strategy to accurately determine renewable fuel content could be a part of a proposed facility-specific approval.

Comment:

One commenter recommends that the definition of co-processing should not include fuel production processes where 100% of the carbon containing feedstock is from renewable biomass, and where fossil-derived hydrogen contained in the renewable fuel is less than 10%.

Response:

We did not propose modifying the definition of co-processed beyond the clarification that co-processed fuel can also originate from processing a biointermediate, so substantially changing the definition by adding an energy requirement is beyond the scope of this rulemaking.

10.5.2 Pathway Considerations

Commenters that provided comment on this topic include but are not limited to: 0403, 0408, 0423, 0431, 0468, 0478, 0485, 0498, 0516, and 0521.

Comment:

Several commenters suggested that EPA add new or modify existing pathways to allow for the production of biointermediates or other renewable fuels.

Two commenters suggested that EPA modify the pathway at Row M of Table 1 to 40 CFR 80.1426 to allow for refineries to co-process biogas and/or biomass or refinery off-gases as process energy sources. One of the commenters also suggested that EPA add other cellulosic feedstocks such as switchgrass, miscanthus, energy cane, Arundo donax, and Pennisetum purpureum to the pathway at Row M of Table 1 to 40 CFR 80.1426. The commenter noted that these feedstocks are currently included under Pathway L for cellulosic diesel, jet fuel and heating oil produced at facilities that do not co-process renewable biomass and petroleum, and these feedstocks would similarly meet the minimum 60% GHG emission reduction threshold.

One commenter supported EPA's addition of Co-Processed Cellulosic Diesel, Jet Fuel and Heating Oil to Pathway M as part of the REGS rule proposal. However, the commenter said EPA failed to consider petroleum refineries, where such co-processing occurs, will use refinery off-gas as process heating fuel. Thus the commenter said refineries cannot currently use this pathway and when biocrude is added as a possible feedstock to this pathway, it still will not be usable by a refiner. The commenter proposed EPA amend the wording under the Production Process Requirements to state the following: Catalytic Pyrolysis and Upgrading, Gasification and Upgrading, Thermo-Catalytic Hydrodeoxygenation and Upgrading, Direct Biological Conversion, Biological Conversion and Upgrading, all utilizing natural gas, biogas, and/or biomass as the only process energy sources; any process utilizing biogas and/or biomass as the only process energy sources which converts cellulosic biomass to fuel; for petroleum refinery co-processing only, biogas and/or biomass or refinery off-gases as process energy sources.

Two commenters requested EPA facilitate review and authorization of pathways for renewable fuel such as bio-ETBE made from biointermediates. EPA approval of a petition pathway under 40 C.F.R. 40 CFR 80.1426(c)(6) is contingent on specifying a mechanism to prevent double counting of RINs associated with biointermediate feedstocks. The commenter believes under the proposed rule's robust registration, recordkeeping, and reporting requirements, they see an excellent opportunity for EPA to facilitate expedited review of such petitions.

Response:

Co-processed cellulosic diesel, jet fuel and heating oil were added to row M of Table 1 to 40 CFR 80.1426 in the 2020 RFS annual rule (85 FR 7016, 7063 (Feb. 6, 2020)). EPA's action on biointermediates in this rulemaking is limited to allowing for the use of biointermediates under existing Table 1 pathways; we are not making any modifications or additions to Table 1 pathways at this time (with the exception of adding esterification as a process to rows F and H,

which is a pathway for which we have already conducted the LCA[196]). The changes to Table 1 to 40 CFR 80.1426 requested by the commenters were not proposed as part of this rulemaking and are therefore outside the scope of this rule. The commenters can use the petition process at 40 CFR 80.1416 to request EPA's evaluation of new fuel pathways under the RFS program.

Comment:

One commenter suggested that there are already previous provisions that have allowed EPA to approve petitions for undenatured ethanol as a feedstock (Dynamic Recycling petition) and for renewable fuel as a feedstock (Koole-Neste petition). In the latter case, allowing undenatured ethanol to count as a renewable fuel would allow EPA to also apply the provision in 40 CFR 80.1426(c)(6). The company recommends EPA not modify regulatory definitions that preclude undenatured ethanol to be considered a feedstock or a renewable fuel. They also recommend EPA utilize its petition authority for approval of undenatured ethanol feedstocks, with an option to model this process after the efficient producer petition process. They state that petition authority should be utilized especially if delays occur in the rulemaking process.

Another commenter similarly stated that EPA should consider its "renewable fuel as a feedstock" petition authority under 40 CFR 80.1426(c)(6) for undenatured ethanol.

Response:

The pre-existing definition of renewable fuel in the RFS regulations at 40 CFR 80.1401 states that undenatured ethanol is not a renewable fuel under the RFS program ("(2) Ethanol covered by this definition [(the definition of "renewable fuel")] shall be denatured as required and defined in 27 CFR parts 19 through 21."). Once the ethanol is denatured it is eligible to be a renewable fuel under the program. Thus, the mechanism for using renewable fuel as a feedstock to produce a different renewable fuel at 40 CFR 80.1426(c)(6) does not apply for undenatured ethanol. Consistent with our implementation of the program under the 2010 RFS2 rule, we are finalizing as proposed changes to the definition of renewable fuel at 40 CFR 80.1401 to further clarify that undenatured ethanol is not a renewable fuel.

In this rule, EPA is designating undenatured ethanol as eligible to be a biointermediate and giving parties the ability to generate RINs for renewable fuels produced from undenatured ethanol, provided all the applicable regulatory requirements are satisfied. We believe that implementing a biointermediates program through a generally applicable regulatory framework, as opposed to via individual petition approvals, is the most appropriate approach given EPA's need to oversee a potentially large number of facilities that produce and use biointermediates. While the commenter is correct that we have, in the past, approved a facility-specific petition for the use of undenatured ethanol as a feedstock, we are now putting in place a generally applicable regulatory program that will cover the use of undenatured ethanol as a biointermediate moving forward.

[196] See 84 FR 36762, 36802 (July 29, 2019).

Comment:

One commenter supported EPA's proposal to maintain the existing pathways in Table 1 to 40 CFR 80.1426, and its position that the original lifecycle analysis for those renewable pathways are appropriately carried forward. Further, commenter agreed with EPA that it is appropriate that all of the pathways currently applicable to renewable fuel under Table 1 to 40 CFR 80.1426 will allow for use of biointermediates. Commenter noted that EPA should explicitly encourage submission of pathway applications that use any feedstock listed in Table 1 to CFR 80.1426 to produce any listed fuel type through a biointermediate process. For example, an application for the creation of a renewable gasoline or renewable diesel using biogas from landfills as its primary feedstock should receive treatment as a favored pathway for approval since EPA has already evaluated the feedstock and the fuel. Commenter also supported that a qualifying biointermediate would be treated as being equivalent to the renewable feedstock from which it was derived for purposes of identifying the appropriate RIN-generating pathway.

Response:

We are finalizing our proposed approach under which facilities can introduce the use of approved biointermediates (i.e., biointermediates that EPA has regulatorily defined in 40 CFR 80.1401 as being eligible for the program) under Table 1 pathways. We believe this is generally consistent with the approach supported by the commenter. See Preamble Section VII.D.2 for more on this topic. While we do as a general matter prioritize new fuel pathway petitions submitted pursuant to 40 CFR 80.1416 that propose cellulosic, non-food and/or drop-in fuel pathways, we do not designate any "favored pathways" as the commenter requests.

Comment:

One commenter asked that undenatured cellulosic ethanol be added as a feedstock under Pathway L, as such allowing producers of sustainable aviation fuel (SAF) to qualify for D7 RINs. They said by adding cellulosic ethanol to this pathway, EPA would do so under the assumption that the overall GHGs for the combined cellulosic ethanol / SAF production processes still meet the required 60% GHG reduction (vs petrochemical jet fuel) for this pathway. They said if EPA does not add undenatured cellulosic ethanol to the pathway table, their member company producers would need to get a facility-specific pathway approved by EPA, which would slow down commercialization and cause unnecessary delays as a result of pathway approvals. They said undenatured ethanol produced from ligno-cellulosic biomass such as woody biomass or agricultural residues such as corn stover, rice straw, wheat straw, and other agriculture waste biomass need to be included as sources. Commenter asserts that, "there is a great concern that ethanol from one feedstock will flood the market space, especially for SAF production capturing the D-7 RINs keeping cellulosic ethanol high & dry." y. At this juncture, cellulosic ethanol has much higher operating expenditure and capital expenditure as compared to corn ethanol and as such it cannot compete with corn ethanol, but it would be important to level the playing field for undenatured cellulosic ethanol to be listed on EPA's short list of biointermediates.

Response:

As explained in Preamble Section VII.D.2, changes to Table 1 to 40 CFR 80.1426 are not necessary to allow biointermediates to be used under existing Table 1 pathways. Under the biointermediates program we are finalizing in this rule, renewable fuel producers using Row L of Table 1 could use undenatured ethanol that is produced from one of the cellulosic renewable biomass feedstocks listed in Row L as a biointermediate in the production of jet fuel, provided that all processes used to convert the renewable biomass to a biointermediate and then to a renewable fuel are covered by Row L and that all applicable regulatory requirements are satisfied. See Preamble Section VII.D.2 for more on this topic.

Comment:

One commenter noted it is imperative that EPA update its GHG LCA for corn starch-based ethanol. The current value, which greatly underestimates the GHG benefits of ethanol, could adversely affect the use of undenatured ethanol as a biointermediate in advanced fuel production. Production of other advanced fuels such as SAF using ethanol may have its own energy requirements that impact overall lifecycle GHG emissions of the resulting fuel. It is therefore very important that SAF and other advanced fuels that may utilize ethanol as a biointermediate should accurately reflect ethanol's full GHG benefits. Failure to account for all such benefits could improperly disqualify such fuels from appropriate treatment under the RFS program.

Response:

EPA acknowledges comments submitted addressing the GHG impacts of ethanol. However, this comment is about the RIN eligibility of new fuel pathways produced from corn or undenatured corn ethanol, which is outside of the scope of this rulemaking. The proposed rule did not propose any new pathways meeting this description. Parties requesting EPA's evaluation of new fuel pathways for RIN eligibility under the RFS program may submit a petition pursuant to 40 CFR 80.1416/

See Preamble Section VII.D.2 for more on the relationship of the new biointermediates program with lifecycle GHG analyses of fuel pathways. See also RTC Section 9 for our responses to similar comments that support EPA updating its lifecycle GHG analysis of corn ethanol. As noted in RIA Chapter 3.2], outside of this rulemaking process EPA held a workshop on the GHG impacts of land-based biofuels on February 28 and March 1, 2022. We will continue to engage with stakeholders as part of this separate discussion on how best to improve future assessments of the GHG impacts of biofuels.

Comment:

One commenter supported approving additional fuel pathways in Table 1 to 40 CFR 80.1426. The commenter noted that in the 2016 REGS rule, "EPA proposed to modify Table 1 to 40 CFR 80.1426 to add pathways for fuel produced from short-rotation hybrid poplar and willow using production processes that convert cellulosic biomass to fuel for the generation of D-code 3 and D-code 7 RINs. See 81 Fed. Reg. at 80828, 80883-90." The commenter then noted that in the

proposed rule, EPA proposed to retain Table 1 with no modifications, such that parties seeking to use new pathways for production of a biointermediate would be required to petition EPA for a new pathway approval. The commenter objects to retaining Table 1 with no changes as they would like EPA to add Table 1 pathways for biocrude produced from short-rotation hybrid poplar and willow. The commenter recommended EPA should adopt the proposals outlined in Section VI of the 2016 REGS rule regarding new pathways for fuel produced from short rotation hybrid poplar and willow.

Response:

Regarding the commenter's request to approve the short rotation hybrid poplar and willow pathways proposed in the 2016 REGS rule (81 FR 80883), we are not adding these pathways at this time. EPA re-proposed certain biointermediates provisions from Section III of the 2016 REGS proposal (see 81 FR 80828 (Nov. 16, 2016)) but did not re-propose the pathways requested by the commenter. The short rotation hybrid poplar and willow pathways are outside the scope of this rulemaking.

Comment:

One commenter said advanced biofuel projects involve high capital costs and large investments. Many projects face long permitting timeframes at the state level. Having an approved EPA RFS pathway can make or break a project. EPA should take steps to accelerate the pathway approval process.

Response:

EPA is committed to acting on new petitions for renewable fuels that can provide greenhouse gas benefits as well as reduce reliance on petroleum fuels. To date, EPA has approved over 135 petitions for new renewable fuel pathways. As required by the Clean Air Act, EPA must conduct a lifecycle greenhouse gas emissions analysis that includes all direct and significant indirect emissions associated with the production and use of fuels under the RFS. We will continue to review new pathway petitions as expeditiously as possible in a manner consistent with our statutory obligations.

10.5.3 Intracompany Transfers of Biointermediates

Commenters that provided comment on this topic include but are not limited to: 0385, 0431, and 0483.

Comment:

Commenters suggested that EPA could provide flexibility for intracompany transfers of biointermediates around such provisions as the creation of records, additional reporting, and the use of product transfer documents. These commenters also suggested that we not require QAP participation for intracompany transfers, asserting that EPA had no cause for concern in cases where the biointermediate producers were the same as the renewable fuel producers and that requiring QAP would result in unnecessary auditing costs and delays without providing EPA or industry any additional benefits.

One commenter suggested that EPA provide three areas of flexibility for intracompany transfers. First, the commenter suggested that QAP reports and audits should be limited to one per company. Second, the commenter suggested that EPA should provide flexibility for companies operating as hub and spoke production companies. An annual visit to the headquarters to work with staff on reviewing sampled transactions for each facility under their control and review would be sufficient to review all needed documentation. Third, the commenter suggested that QAP audits should only cover biointermediates produced and received by the facilities. The commenter said these suggestions demonstrate the opportunity for many duplicative testing, auditing, reviews, and other regulatory burdens that create an overwhelming amount of costs (e.g. time, money, etc.) without providing the same level of benefits to the program that could justify these proposed requirements.

The same commenter asked the Agency to consider establishing two levels of verification and registration commensurate with the role being played by the company, similar to the approach used under the California Low Carbon Fuel Standard (CA LCFS) for Joint Applications vs. Intermediate facilities.

Another commenter suggested that EPA provide additional flexibilities for intracompany transfers of biointermediates for the case where a biointermediate is co-processed with petroleum feedstocks. The commenter specifically mentioned an exemption from mandatory QAP for intracompany transfers. The commenter noted that the proposed restrictions for co-processed biointermediates are sufficient.

Response:

While EPA did not propose any flexibilities for intracompany transfers of biointermediates (i.e., cases where the same company owns both the biointermediate production facility and the renewable fuel production facility), we had previously heard from several parties that were interested in such accommodations. We therefore sought comment in the NPRM on whether we should provide flexibilities for intracompany transfers of biointermediates. We also explained that we had concerns with relaxing the proposed regulatory provisions for intracompany transfers

of biointermediates as this lack of transparency could incent the generation of fraudulent RINs. In fact, we suggested that the issues could be worse because if we exempted intracompany transfers from the proposed biointermediates provisions, there would be no required records, reports, or oversight on whether that company appropriately produced, transferred, or used the biointermediate. This situation could allow ample opportunities for parties to use non-qualifying feedstocks or generate fraudulent RINs and provide EPA no oversight mechanisms. In requesting input on this issue, we asked that commenters articulate specifically what provisions they believe EPA could allow to provide flexibility and how effective oversight of the program would be maintained.

We are not finalizing flexibilities for intracompany transfers. The registration, reporting, recordkeeping, and PTD requirements are designed to identify and track biointermediate production and serve as the basis for verification of the production, distribution, and use of biointermediates for third parties and EPA. The need to track biointermediates to ensure that they are produced from renewable biomass, used to produce renewable fuel under and EPA-approved pathway, and are not double counted to invalidly generate RINs applies to intracompany biointermediates situations as much as to inter-company transfers. We do not believe there is any reason that the incentives that would cause parties to avoid compliance or fraudulently produce and generate RINs from biointermediates would be different if the same company is both the biointermediate and the renewable fuel producer. And, as we stated in the NPRM, we believe that a single company that is both the biointermediate producer and renewable fuel producer may not have as many records or reports or be subject to as much oversight as situations in which different companies produce and use the biointermediate. This relative lack of transparency has the potential to result in circumstances in which it easier to produce, distribute, and use non-compliant biointermediates or generate invalid RINs. If we exempted intracompany transfers from any of those requirements, we believe that third-party auditors would be unable to conduct the QAP plan. We also note that that QAP participation is still necessary for cases where the biointermediate producer and the renewable fuel producer are the same company.

Site visits are a critical part of verifying RIN production in the QAP program. Waiving site visit requirements would not allow auditors enough information to adequately verify RINs. While there are additional C-14 testing requirements when co-processing, these additional requirements do not fully address the concern mentioned in the NPRM around introduction of non-qualifying feedstocks, since non-qualifying feedstocks can have a similar C-14 content as a qualifying feedstock. The commenters did not adequately explain how removing proposed requirements would address the concerns around the introduction of non-qualifying feedstock and oversight mentioned in the NPRM.

While we are not finalizing flexibilities for intracompany transfers, we note that we do believe that parties that are both the biointermediate producer and the renewable fuel producer can find ways to more efficiently comply with the biointermediates provisions. For example, we allow that parties create and store records at off-site facilities as long as those facilities are identified in the registration information. We believe that a single company that is both the biointermediate producer and the renewable fuel producer can store records at a single off-site location, and this situation would simplify the transfer of records as part of the PTD requirements.

Comment:

One commenter agrees that intracompany transfer of biointermediates should not be excluded from proposed requirements for validation and quality assurance.

Response:

We acknowledge and appreciate commenters support.

10.5.4 Other Biointermediates Comments

Commenters that provided comment on this topic include but are not limited to: 0348, 0423, 0516, and 0544.

Comment:

One commenter suggested that EPA should add regulatory text noting that biointermediates can be processed together with other renewable feedstocks to generate RINs.

Response:

We did not propose and are not finalizing a prohibition on processing biointermediates with other renewable feedstocks to generate RINs. While we are not promulgating regulatory text specifically as suggested by the commenter, we are finalizing as proposed RIN generation provisions in 40 CFR 80.1426(f) that accommodate the processing of biointermediates with other, renewable biomass feedstocks.

Comment:

One commenter suggested that renewable marine fuel should be included in the RFS program. The commenter expects renewable marine fuel to be fastest growing drop-in fuel segment, and noted that Europe has successfully developed a renewable marine fuel program. The commenter suggested further that a biointermediate could be produced from waste trap grease; which will then be processed by a transesterification/esterification process into a renewable marine fuel that would be used as a marine drop-in fuel, or marine blendstock.

Response:

CAA section 211(o)(1)(J) and (L) excludes fuel for use in ocean-going vessels under the RFS program; this exclusion is codified in the definitions of "fuel for use in ocean-going vessels" and "transportation fuel" in 40 CFR 80.1401. Therefore, any renewable fuel produced from biointermediate for ocean-going vessels would not be allowed to generate RINs under the RFS program.

Comment:

One commenter mentioned a bonding requirement for biointermediate producers mentioned in the docket memo should continue to be inapplicable and notes that the reference in the memo does not serve as adequate notice.

Response:

We did not propose and are not finalizing any requirement that biointermediate producers (domestic or foreign) which do not generate RINs are subject to the bonding requirement. Only

RIN-generating foreign renewable fuel producers and foreign RIN owners are required to be bonded; these requirements were not addressed or reopened in this rulemaking.

Comment:

One commenter suggested that the EPA needs to prepare itself for a large number of proposed feedstocks, biointermediate feedstocks, and new fuel pathways that will result from the biointermediates proposal. The commenter notes that these will all need new registrations and approvals and EPA should act on these new registrations in a timely manner.

Response:

We appreciate the commenter's concerns, as discussed in Preamble Section VII.C.2, we have designed the biointermediates provisions in a manner so that we can implement the program by the effective date of the rule (typically 60 days after publication of the final rule in the *Federal Register*). We review and accept registrations in the order the registration submissions are received and cannot commit to a timeframe to review and accept registrations because the time it takes to review and accept a submission depends heavily on the quality and completeness of the submission.

11. Amendments to the RFS Program Regulations

11.1 Changes to Registration for Baseline Volume

Commenters that provided comment on this topic include but are not limited to: 0431 and 0485.

Comment:

Several commenters generally supported the proposed changes to registration to provide more flexibility in defining baseline volumes. Commenters supported this change because it would provide the flexibility to communicate capacity more accurately.

Response:

We acknowledge and appreciate the commenters' support for revising the registration requirements to allow producers to use a non-grandfathered facility's nameplate capacity or actual peak capacity as its baseline volume, if permitted capacity cannot be determined.

11.2 Changes to Attest Engagements for Parties Owning RINs ("RIN Owner Only")

Commenters that provided comment on this topic include but are not limited to: 0431, 0485, and 0570.

Comment:

Two commenters supported the proposed exemption from the annual attest engagement requirement for companies transacting fewer than 10,000 RINs because it lowers the costs for market entrants and can expand renewable fuels under the program.

Response:

We acknowledge and appreciate commenters' support for the proposed exemption from the annual attest engagement requirement for companies transacting fewer than 10,000 RINs.

Comment:

One commenter opposed EPA's proposed exemption from the annual attest engagement requirement for companies transacting fewer than 10,000 RINs. The commenter claimed that EPA failed to act on recommendations from obligated parties, in the proposed rule entitled "Renewable Fuel Standard Program: Modifications to Fuel Regulations to Provide Flexibility for E15; Modifications to RFS RIN Market Regulations," to protect obligated parties from hoarding, manipulation, speculation, and fraud in the RIN market.[197] The commenter suggested that attest engagements are a protection against RIN fraud and that no regulatory purpose is served by lessening the protections for captive participants in the RIN market. The commenter also contended that there is no reason to save "RIN owners only," whom they describe as market speculators that are not even in the RFS program, from the expense of attest engagements. The commenter argued that these parties should not be in the market in the first place but if they are going to be in the market, they should be subject to the same rules as other market participants.

Response:

The exemption from the annual attest engagement for parties who are registered as RIN Owners, only (i.e., RIN Owners who are not also registered as obligated parties, renewable fuel producers, or in any other RFS program activity) is primarily designed to provide relief to small entities. These small entities include municipal fleets and local oil companies that incidentally find themselves engaged in the RIN market. We disagree with the commenter that this narrow exemption will benefit market speculators. The way the original RFS regulation was written, a party who accepts one (1) RIN is required to do an attest engagement; we continue to believe that a reasonable limit of 10,000 RINs, which is a small number of RINs to be owned or transacted in a given year, is appropriate. The "market speculators" that the commenter fears would not be able to meaningfully impact the market with a volume of less than 10,000 RINs.

[197] Docket ID No. EPA–HQ–OAR–2018–0775, 84 Fed. Reg. 10,584 (proposed Mar. 21, 2019).

We note that the additional reporting and recordkeeping requirements promulgated as part of the RIN Market Reform (RMR) rule are designed to help EPA identify and react to RIN market speculation and manipulation.[198] Parties exempted from the annual attest engagement requirements will still be subject to the RMR requirements, and we will continue to monitor information collected under RMR for any manipulation/speculation concerns.

We also do not agree with the commenter's assertion that the exemption of the annual attest engagement for parties that transact less than 10,000 RINs per year will result in RIN fraud. Because the exemption does not apply to parties that generate RINs, we do not believe it is possible that this exemption will result in RIN fraud, and the commenter fails to explain how this exemption could result in RIN fraud.

[198] See 84 FR 26980 (June 10, 2019).

11.3 Public Access to Information

Commenters that provided comment on this topic include but are not limited to: 0485, 0510, 0522, 0525, and 0570.

Comment:

Commenters generally supported EPA's proposal for increased transparency regarding the identified basic information included in submissions to, and determinations made by, EPA under the RFS program and invalid RIN enforcement actions.

Response:

EPA appreciates the commenters support in its efforts to increase transparency in the RFS program.

Comment:

Some commenters requested that EPA provide greater clarity regarding what information would remain subject to claims of confidentiality. Examples of information commenters were concerned about preserving claims of confidentiality over included actual production, production capacity, and materials submitted in support of registration requests.

Response:

Only the information specified in 40 CFR 80.1402(b), (c), and (d) is subject to this advance confidentiality determination by rulemaking. As stated in 40 CFR 80.1402(e), any other information included in a submission under this subpart remains subject to the provisions of 40 CFR Part 2, Subpart B. Additionally, the information specified in 40 CFR 80.1402(d) is already made public for registration requests at the time EPA registers the requester. As such, these regulations merely codify EPA's existing practice.

Comment:

One commenter requested that EPA make the same information in 80.1402(b) available for enforcement actions regarding an obligated party's failure to comply with its volume obligations.

Response:

EPA agrees with the commenter that factual information regarding an obligated party's failure to comply with its Renewable Volume Obligations that is contained in enforcement-related actions and determinations should not be entitled to confidential treatment. While EPA believes that its proposed confidentiality determination already included this information because it is information relating to the use of RINs and any other information relevant to describing the violation at issue, we are explicitly including it in the final confidentiality determination for the avoidance of doubt and the sake of clarity.

Comment:

One commenter opposed EPA's proposed confidentiality determination in so much as it would allow disclosure of information that would identify the small refineries that submit small refinery exemption petitions under the RFS program. This commenter asserts that, because EPA has previously issued confidentiality determinations upholding the confidential status of the information proposed in 40 CFR 80.1402(c) and (d) in the context of small refinery exemption petitions and decisions, EPA cannot now determine the same information is not entitled to confidential treatment in future petitions and decisions.

Response:

The confidentiality determinations made in the context of requests made under the Freedom of Information Act (FOIA) are retrospective and narrowly apply to the specifics of the FOIA request. The purpose of an advance confidentiality determination by rulemaking is to be prospective in its effects and broadly applicable to future submissions under this subpart from all parties. In past confidentiality determinations, EPA did determine that certain information specified in 40 CFR 80.1402(c) and (d) qualified for confidential treatment in the context of some small refinery exemption petitions, whereas the same information was not entitled to confidential treatment in the context of other petitions because the specific facts did not support that same conclusion. EPA has never made a broad determination on whether the information specified in 40 CFR 80.1402(c) and (d) is entitled to confidentiality, nor has EPA previously provided an express or implied indication on whether or not the information is permanently entitled to confidential treatment. Through this rulemaking, EPA is providing an express indication that the specified information included in certain submissions and requests under the RFS program, and EPA's decision on those submissions and requests, is not entitled to confidential treatment. This rule will apply prospectively to submissions and requests under the RFS program received by the Agency after publication of the final rule, and EPA's decision on those submissions and requests.

Comment:

EPA received comment that opposed the advance confidentiality determination proposed in 40 CFR 80.1402(c) and (d), stating that "[a]dministrative burden is not a sufficient justification for EPA's proposal." The comment asserted that convenience in responding to FOIA requests is insufficient justification for abandoning a long-standing process for assessing the confidentiality claims covering the identities of small refinery exemption petitioners. EPA's existing process is sufficient and does not need to be modified as proposed.

Response:

While the final rule will increase administrative efficiency, it also promotes greater transparency and provides certainty to submitters. EPA has been taking gradual steps towards greater transparency in its implementation of the small refinery exemption provision as these exemptions have the potential to impact the both the RIN market and the efficacy of EPA's annual volume standards. EPA began increasing transparency by publishing online aggregated totals of

petitions, decisions, and exempted volumes. Now, EPA believes that providing the public with the specified basic information about submissions, requests, and decisions under the RFS program will promote confidence in EPA's administration of the RFS program and the RFS's intended goal of reducing greenhouse gas emissions from transportation fuel. The final rule also provides certainty to submitters regarding the release of information under 40 CFR part 80, subpart M. With this advance notice, each submitter will have certainty regarding how EPA will treat the information specified above, and, as applicable, have the discretion to decide whether to make such a request with the understanding that EPA may release certain information about the request without further notice to the submitter.

The regulations at 40 CFR 80.1402 align the treatment of information submitted under part 80 with that of the same information submitted under part 1090. Consistent treatment of the same information across EPA fuels programs provides security and predictability to information submitters, as well as EPA and potential information requesters.

While commenters assert that EPA has maintained the information in 40 CFR 80.1402(c) and (d) in the context of small refinery exemption petitions as confidential, this determination applies to a wider array of submissions under the RFS than just requests for hardship exemptions, and commenters have not provided any reason for this determination not to apply to the many other submissions received under the RFS program. EPA is not making this determination only in the context of small refinery exemptions, but instead is making this determination for all submissions, requests, and decisions under the RFS program including pathway petitions, compliance reports, registration requests, and others.

Comment:

In so far as EPA's proposal permits disclosure of the identifying information of small refinery exemption petitioners, it is inconsistent with EPA's own statements in defense of the case-by-case determinations made in response to litigation in the D.C. District Court over EPA's withholdings under FOIA exemption (b)(4) for confidential business information in response to several requests.

Response:

In EPA's past confidentiality determinations, EPA applied the relevant standard and determined on an individualized basis whether certain information specified in 40 CFR 80.1402(c) and (d) in the context of specific small refinery exemption petitions qualified for confidential treatment. In doing so, EPA analyzed the specific facts asserted in each company's substantiation of their individual confidentiality claims. EPA concluded that certain petitioners' information was entitled to confidential treatment, whereas the same information was not entitled to confidential treatment in the context of other petitions because the specific facts did not support the same conclusion. While EPA has granted some confidentiality claims in the past, the Agency had not made any express or implied assurances prior to the issuance of those determinations that such information would be permanently treated as confidential. Through this rulemaking, EPA is providing an express indication that the specified information included in certain submissions and requests under the RFS program, and EPA's decision on those submissions and requests, is

not entitled to confidential treatment. This rule will only apply prospectively to submissions and requests under the RFS program which are received by the Agency after publication of the final rule, and EPA's decision on those submissions and requests.

Such an express indication is consistent with the *Argus Leader* case. Where the government provides an express indication to the submitter prior to or at the time the information is submitted to the government that the government would publicly disclose the information, then the submitter cannot reasonably expect confidentiality of the information upon submission, and the information is not entitled to confidential treatment under Exemption 4 absent sufficient countervailing factors. Through this rule, EPA has provided such an explicit notice regarding the information specified in 40 CFR 80.1402(b), (c), and (d).

Comment:

EPA's proposal does not follow Department of Justice guidance on the *Argus Leader* opinion for agencies to apply "sound administrative practice" regarding whether they provide an express or implied assurance of confidentiality. Instead, EPA is determining broad categories of information as being unentitled to confidential treatment, contrary to its historic treatment of the information.

Response:

EPA views the confidentiality determination in 40 CFR 80.1402 as "sound administrative practice." It is narrowly tailored to clearly delineate a set of basic information related to submissions, requests, and decisions under part 80, subpart M, that will not be treated as confidential. It provides parties participating in the RFS program notice that, going forward, they have no expectation of the specified information being maintained or treated as confidential by EPA.

Comment:

EPA's proposed advance confidentiality determination would harm small refineries by forcing them to choose between disclosing themselves as small refinery exemption petitioners or requesting hardship relief. "Disclosure of a company's need to regulatory relief could cause its competitors, partners, customers, and others to question its viability and, as a result, cause the company to suffer competitive harm."

Response:

EPA finds that establishing the potential release of the specified basic information through regulation appropriately balances the interest in transparency for the public and the protection of information that could harm a small refinery. As noted above, providing the public with information about submissions, requests, and decisions will promote confidence in EPA's regulatory programs assuring greenhouse gas emission reductions and expedite the process for the release of this information. EPA further notes that, post-*Argus Leader*, substantial competitive harm is no longer the standard for evaluating whether information is confidential

within the meaning of Exemption 4. Accordingly, EPA is prospectively, via rulemaking, providing that the specific information in 40 CFR 80.1402 will not be treated as confidential. Additionally, EPA disagrees with commenters that the disclosure of this information would necessarily result in harm. For many of the non-hardship submissions and requests covered by this determination, the mere fact of a submission is not often claimed as confidential (*e.g.,* pathway petitions, compliance reports, registration requests, etc), and commenters have not provided any explanation as to why the disclosure of the fact of a request for these non-hardship regulatory submissions and requests and EPA's response could result in harm.

11.4 Clarifying the Definition of "Agricultural Digester"

Commenters that provided comment on this topic include but are not limited to: 0440, 0485, and 0522.

Comment:

One commenter did not oppose EPA's proposal to revise the definition of "agricultural digester" to clarify that each and every material processed must be predominantly cellulosic in order for the digester to qualify as an agricultural digester under the RFS regulations. The commenter based this position on their understanding that EPA is not proposing to reopen its determination that the phrase "predominantly cellulosic" means at least 75 percent cellulosic content or its determination that animal manure, crop residues, and separated yard waste are predominately cellulosic. The commenter also based this position on EPA not imposing any new regulatory requirements for agriculture digesters.

Response:

We are finalizing as proposed our clarifying amendments for the definition of "agricultural digester" in 40 CFR 80.1401. The commenter is correct that we did not reopen our determination that "predominantly cellulosic" means having an adjusted cellulosic content of at least 75%, or that animal manure, crop residue, and separated yard waste are predominantly cellulosic. See Preamble Section VIII.E for additional information.

Comment:

One commenter opposed EPA's proposal to modify the definition of "agricultural digester" and requested that EPA restore the original text of the first part of the definition of agricultural digester to clarify that feedstock is not limited to solely animal manure, crop residues, or separated yard waste; but that any feedstock must satisfy the 75% adjusted cellulosic content threshold. While the commenter supports EPA's goal of clarity, the commenter suggested that the proposal constitutes a significant change to what is currently allowed for use in an agricultural digester. The commenter noted that in the 2014 RFS Pathways II rulemaking,[199] EPA assessed the cellulosic content of animal manure, crop residues, and separated yard waste and found each to be predominately cellulosic; however, EPA did not state that only animal manure, crop residues, and separated yard waste could be predominately cellulosic. The commenter highlighted that a wide range of waste products derived from agriculture other than those named in the definition could be determined to be predominately cellulosic and would represent opportunities for sustainable biofuels. The commenter requested that EPA not finalize the change to the first part of the definition so that applicants capable of providing satisfactory evidence to EPA for the cellulosic content of their agricultural feedstock have the ability to do so efficiently, as opposed to being forced into an unnecessary, as well as time and resource intensive pathway petition process.

[199] See 79 FR 42128 (July 18, 2014).

Response:

We are finalizing as proposed our clarifying amendments for the definition of "agricultural digester" in 40 CFR 80.1401. See Preamble Section VIII.E for our response to this comment.

Comment:

One commenter agreed with EPA's proposed modification to the definition of agricultural digester but suggested that EPA should include an exception for a *de minimis* amount of processed material. The commenter agreed that renewable fuel producers should not intentionally introduce non-cellulosic materials into an agricultural digester and noted that a clarification of the definition would be helpful to the regulated community. However, the commenter also noted that they were concerned that a strict interpretation of the proposed definition of agricultural digester would disqualify a project that processed any amount of traceable, non-cellulosic material and without an allowance for minimal non-cellulosic volumes in digester, the proposed definition would introduce uncertainty and risk in the market for producers and EPA. Therefore, the commenter asked that EPA include an exception for *de minimis* amounts of non-cellulosic materials that could be introduced into the digester as part of its revised definition.

Response:

We are finalizing as proposed our clarifying amendments for the definition of "agricultural digester" in 40 CFR 80.1401. We note that 40 CFR 80.1426(f)(1) says, "In choosing an appropriate D code, producers and importers may disregard any incidental, *de minimis* feedstock contaminants that are impractical to remove and are related to customary feedstock production and transport." Thus, the RFS regulations already include an exception for *de minimis* feedstock contaminants. We want to emphasize that the regulatory language is clear that *de minimis* feedstock contaminants are limited to pre-existing contaminants that are impractical to remove and related to customary practices, and thus do *not* include any feedstock materials that are added intentionally. Given that the existing language in 80.1426(f)(1) applies to all pathways we do not believe additional reference to *de minimis* feedstock contaminants is necessary in the definition of "agricultural digester."

11.5 Esterification Pathway

Commenters that provided comment on this topic include but are not limited to: 0349, 0431, and 0544.

In the original 2020 Annual Rule NPRM ("Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volumes for 2021, Response to the Remand of the 2016 Standards, and Other Changes," 84 FR 36762, July 29, 2019), we proposed to add a standalone esterification pathway to rows F and H to Table 1 to 40 CFR 80.1426. We received six comments on this topic at docket EPA–HQ–OAR–2019–0136: 0186, 0196, 0211, 0213, 0267, 0313. We did not add the esterification pathways in the original 2020 Annual Rule Final Rule (85 FR 7058, February 6, 2020), but we are doing so in this rulemaking and are thus now addressing these six esterification pathway comments.

Comment:

A number of commenters expressed general support for the standalone esterification pathway.

Response:

We acknowledge and appreciate commenters' support for the addition of a standalone esterification pathways to rows F and H of Table 1 to 40 CFR 80.1426.

Comment:

Several commenters said that in addition to a standalone direct esterification pathway, a dual transesterification and esterification pathway should also be included, allowing a feedstock with a mixture of triglycerides and FFA that can be converted without the need for separation or parallel operations as part a single technological advanced renewables process.

Response:

After this rule's addition of the standalone esterification pathways, rows F and H to Table 1 to 40 CFR 80.1426 will include the following biodiesel production processes: "Trans-Esterification with or without esterification pre-treatment" and "Esterification." We believe these pathways collectively cover the intended range of biodiesel production processes and would allow biodiesel produced through the process described by the commenters to be eligible for D4 or D5 RINs provided all other regulatory requirements are satisfied.

Comment:

One commenter said they support the proposed qualification of the esterification pathways for D4 and D5 RIN generation, but they recommend that EPA use of more recent and representative

data for its lifecycle GHG analysis of these pathways. The commenter cited Chen et al. (2018) for more recent data on biodiesel production from high free-fatty acid feedstocks.[200]

Response:

In the July 2019 proposed rule, we estimated the emissions from biodiesel processing via esterification at 23,708 grams carbon dioxide-equivalent per million British Thermal Units (gCO2e/mmBtu), a 71% reduction relative to the petroleum diesel baseline. The Chen et al. (2018) study cited by the commenter estimates lifecycle GHG emissions for biodiesel produced from animal tallow (a high free-fatty acid feedstock) at 20.2 gCO2e per megajoule (gCO2e/MJ), a 78% reduction relative to the petroleum diesel baseline. More recently, the GREET1-2021 model[201] estimated lifecycle GHG emissions for biodiesel produced from animal tallow at 18.7 gCO2e/MJ, or a 78% reduction relative to the petroleum diesel baseline. To be eligible for D4 or D5 RINs, biodiesel produced from biogenic waste FOG through an esterification process must satisfy the 50% lifecycle GHG reduction requirement relative to the petroleum baseline. Our review of more recent studies in response to this comment supports our finding that this fuel pathway satisfies the applicable 50% GHG reduction requirement.

[200] Chen, R., et al. (2018). "Life cycle energy and greenhouse gas emission effects of biodiesel in the United States with induced land use change impacts." Bioresource Technology 251: 249-258.
[201] Argonne National Laboratory (2021). GREET 2021 Fuel Cycle Model, Argonne National Laboratory. https://greet.es.anl.gov/index.php

11.6 Technical Corrections and Clarifications

Commenters that provided comment on this topic include but are not limited to: 0392 and 0485.

Comment:

One commenter generally supporting EPA's proposal to give parties more time (30 days instead of 14) to respond to an EPA-issued notice of intent to deactivate a registration under 40 CFR 80.1450(h).

Response:

We acknowledge and appreciate the commenter's support for our proposal to give parties more time (30 days instead of 14) to respond to an EPA-issued notice of intent to deactivate a registration under 40 CFR 80.1450(h) and are finalizing as proposed.

Comment:

One commenter said the Agency should avoid taking any action that would inhibit the market for sustainable aviation fuel produced from undenatured ethanol. Thus, they believe EPA should not change the definition of "renewable fuel" or "foreign renewable fuel producer" so as to prevent undenatured ethanol from qualifying.

Response:

We disagree with the commenter's assertion that the changes to the definition of "renewable fuel" or "foreign renewable fuel producer" would inhibit the market for sustainable aviation fuel produced from undenatured ethanol, and the commenter fails to explain how the proposed changes would do so. We proposed and are finalizing as proposed our clarifications to the definitions of "renewable fuel" and "foreign renewable fuel producer" consistent with our current implementation of the program and to harmonize these definitions with the allowance of undenatured ethanol as a biointermediate. To the extent the commenter is implying that the changes newly exclude undenatured ethanol from the definition of "renewable fuel" and, by extension, from "foreign renewable fuel producer," we disagree. The existing definition of "renewable fuel" in 40 CFR 80.1401, which EPA promulgated in 2010, provides that "[e]thanol covered by this definition shall be denatured as required and defined in 27 CFR parts 19 through 21."[202] EPA further explained that "[a] party that adds a denaturant to imported undenatured ethanol is a producer of renewable fuel under the RFS2 regulations, since 'renewable fuel' is defined in §80.1401 to include only denatured (not undenatured) ethanol."[203]

[202] 75 FR 14670, 14865 (Mar. 26, 2010).
[203] Renewable Fuel Standard Program (RFS2) Summary and Analysis of Comments at 3-165 (Feb. 2010), Office of Transportation and Air Quality, U.S. Environmental Protection Agency, Docket No. EPA-HQ-OAR-2005-0161-3188, *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1007GC4.pdf; *see also id.* at 3-164 ("Under our final RFS2 regulations at §80.1401 (definition of 'renewable fuel'), RINs can be generated for imported biofuel that meets the definition of 'renewable fuel,' under which ethanol must contain a denaturant.").

Thus, by finalizing the use of undenatured ethanol as a biointermediate, we are creating additional opportunities for the use of undenatured ethanol to make renewable fuels, like renewable jet fuel, which would otherwise be not allowed in the RFS program.

12. Other Comments

12.1 Statutory and Executive Order Reviews

Commenters that provided comment on this topic include but are not limited to: 0463.

Comment:

One commenter stated that EPA should create a new nested standard within the advanced biofuel standard under the Regulatory Flexibility Act (RFA). The commenter argued that preserving 2 billion gallons of advanced biofuel that could only be produced by small advanced biofuel refiners (i.e., those producing fewer the 100 million gallons per year of advanced biofuel) would ensure that small biodiesel producers are not completely subsumed by large petroleum refineries.

Response:

EPA has fulfilled its RFA obligations with regard to this rulemaking as explained in the preamble and RIA Chapter 11. Specifically, EPA certified that this final rule does not "have a significant economic impact on a substantial number of small entities." Therefore, EPA is not required to conduct either an initial or final regulatory flexibility analysis. This certification applies both to small refiners as well as to small advanced biofuel refiners. That is, we find that this rule will not have a significant economic impact on small advanced biofuel refiners. The RFA requires nothing more.

We note that even were this rule to have a significant economic impact on small advanced biofuel refiners, the RFA would not require EPA to establish a new standard for such entities. The RFA does not provide any new or special authority for EPA to develop new RFS regulations or to create new renewable fuel categories under the RFS program. Moreover, as we explain in RTC Section 3.1, we generally do not believe it would be either consistent with the statutory framework or appropriate to create a sub-category for certain renewable fuels, including for small advanced biofuel producers.

To the extent the commenter is asking EPA to exercise our discretion to revise the implementing regulations to create a separate standard for small advanced biofuel refiners, that request is beyond the scope of the rulemaking.

12.2 Point of Obligation

Commenters that provided comment on this topic include but are not limited to: 0369, 0383, 0393, 0394, 0466, 0508, and 0526.

Comment:

We received comments suggesting that EPA should change the point of obligation to blenders, which would better align the obligation to the parties who perform the blending (in contrast to refiners who sometimes do not blend fuel). The commenters claimed this would increase blending in the future and also reduce RIN costs for refiners.

Response:

The D.C. Circuit in *Alon Refining Krotz Springs v. EPA*, 936 F.3d 628 (D.C. Cir. 2019) held that EPA "has no duty to reconsider the appropriateness of its point of obligation regulation as part of its yearly determination of volumetric requirements." *Id.* at 659. EPA acknowledges that it has discretion to reevaluate the point of obligation in the annual rulemaking should it choose to do so. EPA did not solicit comment on or otherwise reexamine this issue in this rulemaking. We decline to reopen this issue.

We believe that our examination of this issue in the Point of Obligation Denial document remains valid.[204] In that proceeding, we provided the public with notice and an opportunity to comment on a proposed denial. We received over 18,000 comments, and carefully evaluated all comments. In an 85-page final decision, we decided to maintain the existing point of obligation (i.e., refiners and importers of gasoline and diesel).[205] We supported our decision with a comprehensive analysis of the impacts on fuel refiners, blenders, and retailers, as well as of a vast array of other economic and regulatory factors.

Additionally, we recently revisited our analysis regarding RIN cost passthrough in denying small refinery exemptions, finding that small refineries do not experience disproportionate economic hardship from the RFS program.[206] In reaching this decision, we analyzed more recent data since the Point of Obligation Denial, addressed numerous comments, and confirmed that all obligated parties—including small refineries—recover their compliance costs through the market price they receive when they sell their fuel products and thus do not bear a hardship created by compliance with the RFS program. This finding also supports our decision to maintain the current point of obligation.

We acknowledge that we have again received comments asking us to reevaluate or revise the point of obligation from some parties. However, we are not aware of new information or analyses that warrant our reconsidering this issue at this time. We received many substantively similar comments on our small refinery action and have addressed those comments in that

[204] See "Denial of Petitions for Rulemaking to Change the RFS Point of Obligation," November 22, 2017.
[205] 40 CFR 80.1406(a).
[206] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions," EPA-420-R-22-011, June 2022.

proceeding.[207] We also address comments regarding the economic impacts of this rulemaking in RTC Section 9 and RIA Chapter 9. Specifically, we address the RIN price impacts on refiners in RTC Section 9.1.8 and RIA Chapter 9.4.

[207] See "June 2022 Denial of Petitions for RFS Small Refinery Exemptions: Appendices," EPA-420-R-22-011A, Appendix B, June 2022.

12.3 Environmental Justice

Commenters that provided comment on this topic include but are not limited to: 0458, 0485, 0503, 0510, 0512, 0521, and 0570.

Comment:

Several commenters stated that the combustion of biofuels (biodiesel and ethanol) in vehicles and engines produces fewer criteria pollutants than traditional diesel or gasoline, which can benefit populations near trucking corridors and other roadways. These commenters also point to mitigation of GHGs as a benefit to EJ communities.

Response:

As discussed in RTC Section 9.2.2 and RIA Chapter 3.1, combustion of renewable fuels may increase some pollutants and decrease others. Given the magnitude of the volume changes in this rule, the emission and air quality impacts are expected to be relatively small. Moreover, with respect to biodiesel, this rule is associated only with small increases as explained in RIA Chapter 2. While we are analyzing larger increases in ethanol, most of the increase in ethanol use we are projecting in 2022 is due to increased uptake of E10, which is due to higher gas demand, not due to this rule. In any event, even considering the full projected increase in ethanol use, the air quality impacts are expected to be small.

Emission impacts from the production of fuels, however, can have more significant localized impacts. In RIA Chapter 8 we indicate that while emissions increases associated with biofuel production may adversely affect near-facility populations, reductions in petroleum sector emissions may benefit their nearby populations.

As we explain in RIA Chapter 8, GHG reductions are a benefit to EJ communities.

Comment:

A commenter stated that EPA's comments on water quality and subsequent downstream impacts on subsistence fishing, nutrient blooming, and agricultural runoff are too sweeping, and that these effects are not attributable to the RFS program.

Response:

As EPA explains in RIA Chapters 3.4 and 8.3, the majority of the biofuel volume increases analyzed in this rule are biofuels made from corn and soy. This suggests the potential for an associated increase in crop production, which in turn may impact water quality and the factors discussed by the commenter. Such impacts, in turn, have the potential to disproportionately affect EJ communities. As we note in RIA Chapters 3.3 through 3.5, however, there are significant uncertainties as to the attribution of crop production changes to this rule. Moreover, as we discuss in RIA Chapter 8.3, given the lack of information at this time, we are also unable to assess the degree of impact this rule may have on EJ communities. We stress, however, that

such disproportionate impacts are a possibility and thus something that should be explored in further analyses. This is a topic of future research to ensure that environmental justice under Executive Order 12898 is considered in all rulemakings.

12.4 Severability

Commenters that provided comment on this topic include but are not limited to: 0402.

Comment:

A commenter suggested that EPA should make each year severable from each other, such that, e.g., the 2020 standards be severable from the 2021 and 2022 standards.

Response:

We disagree that the RFS standards for 2020-2022 should be severable from each other. As we explain in Preamble Section III, the market's compliance with the 2020-2022 standards is intertwined. Moreover, EPA is establishing all three standards under the reset authority, and our analysis and rationale for each year is intertwined with the other years. For these reasons, we regard the 2020-2022 standards as a whole and not severable from each other. Were a reviewing court to set aside the 2020 standards, for instance, we would intend for the 2021 and 2022 standards to be set aside as well.

We further address the severability between the 2020-2022 standards and the supplemental standard in Preamble Section II.E.

12.5 Timing

Commenters that provided comment on this topic include but are not limited to: 0421 and 0485.

Comment:

Several commenters suggested that EPA should expeditiously finalize the rule. They pointed to the importance of certainty in the market to renewable fuel producers.

Response:

We have taken steps to promptly finalize this action. We recognize the importance of timeliness and regulatory certainty to the smooth implementation of the RFS program and to our stakeholders, including biofuel producers and obligated parties.

12.6 Beyond the Scope

Commenters that provided comment on this topic include but are not limited to: 0348, 0355, 0365, 0369, 0370, 0380, 0383, 0385, 0392, 0393, 0394, 0395, 0396, 0403, 0407, 0411, 0415, 0421, 0422, 0423, 0426, 0427, 0428, 0430, 0431, 0437, 0438, 0441, 0442, 0443, 0444, 0454, 0458, 0459, 0462, 0463, 0466, 0468, 0469, 0470, 0471, 0472, 0476, 0479, 0481, 0483, 0484, 0488, 0490, 0491, 0494, 0498, 0503, 0506, 0511, 0512, 0513, 0515, 0516, 0521, 0522, 0530, 0561, 0564, 0570, 0574, 0575, and 0576.

Comment:

Commenters addressed numerous additional topics, including but not limited to the following:

- Potential future RFS rulemakings such as the "Set rule"
- EPA's proposed denial of pending small refinery exemption petitions
- Additional changes to the existing RFS regulations, including creating new or revising existing definitions (e.g., renewable fuel producer, woody biomass, slash and pre-commercial thinnings), adjusting equivalence values, implementing RIN trading reforms (e.g., RIN price cap), and separated MSW reporting requirements
- Suggestions for new RIN-generating pathways including renewable electricity
- Updates to EPA's lifecycle analyses
- Revising the 2019 RFS standards
- Legislative changes for the RFS program, including repeal of the RFS program
- Changes to the E15 misfueling mitigation plans
- Regulatory action extending the 1-psi waiver to E15
- Regulatory action for a nationwide mandate for E15
- Introduction of new mid- and higher-level ethanol blends into the market (e.g., E30)
- Pending facility registration requests and pathway petitions
- Light-duty vehicle standards
- Regulatory action regarding underground storage tanks

Response:

These comments are all beyond the scope of this rulemaking. While we did propose several changes to the RFS program as part of this action, we did not propose any of the changes described above or otherwise seek comment on these issues. Many of these issues, moreover, are being addressed in separate proceedings. These topics are not further addressed in this document.

Comment:

We received comments regarding the feasibility of compliance with the 2019 standards, and suggestions that we should reconsider the volumes we established for 2019 given the difficulty certain obligated parties will have in coming into compliance with the standards.

Response:

These comments are beyond the scope of this action. We did not propose to modify the 2019 standards, nor did we solicit comments on the 2019 standards in this action. We do have a consistent practice of looking at prior years' RIN generation in calculating the size of the carryover RIN bank and in evaluating the feasibility of meeting the standards we are promulgating, but doing so does not reopen or constitute seeking comment on prior standards. Were this not the case, then every single annual RFS rule would reopen the prior annual rules to administrative reexamination followed by judicial litigation. Such regular, retroactively reconsideration of past annual rules is not consistent with the prospective statutory scheme established by Congress. 77 FR 1340 (January 9, 2012). It would also significantly undermine the regulatory certainty critical to smooth implementation of the RFS program and fostering development of renewable fuels.

In this action, we did propose to revise one prior annual rule, namely the 2020 standards, but not any prior year's standards. Our reasons for doing so are described in Preamble Section III. Those circumstances justifying reopening of the 2020 standards are not present for 2019. Notably, the COVID-19 pandemic did not occur in 2019. Neither did EPA erroneously project exempted small refinery volumes in the 2019 final rule; indeed, at that time, the standard-setting formula did not account for a projected exemption of SREs granted after the final rule.

To the extent commenters take issue with previously promulgated standards, the proper course is to submit an administrative petition for rulemaking or reconsideration. Commenters may also avail themselves of the statutory petition mechanisms provided for by CAA section 211(o), such as the general waiver petitions in CAA section 211(o)(7)(A). We note that we are adjudicating several such petitions in this action, as described in Preamble Section II and RTC Section 13.

13. Response to General Waiver Authority Petitions

In this section, EPA summarizes and responds to comments in response to the January 19, 2021 *Federal Register* notice, "Notice of Receipt of Petitions for a Waiver of the 2019 and 2020 Renewable Fuel Standards" (86 FR 5182), the docket for which (Docket Number EPA-HQ-OAR-2020-0322) is incorporated by reference into the docket for this action. We separately respond to comments relating to the general waiver authority filed in the docket for this action in RTC Section 2.1.

13.1 Response to General Waiver Authority Petitions for 2019 and 2020

Comment:

Many commenters supported the petitions requesting a waiver of the RFS standards. Other commenters were opposed to a waiver of the RFS standards.

Several commenters pointed to the "costs" of the RFS program due to RIN acquisitions and to RIN costs as evidence of severe economic harm to refineries. Several commenters suggested that the combination of the drastic drop in demand in 2020 due to the COVID-19 pandemic, combined with high RIN prices, was causing severe harm to the U.S. refining sector. Several commenters suggested that merchant refiners in particular were unable to completely recover RIN costs, due to the misplaced point of obligation. Other commenters suggested that drops in demand due to the COVID-19 pandemic are not caused by the RFS, and therefore not properly a reason to waive volumes. Other commenters also pointed out that the COVID-19 pandemic is also affecting renewable fuel producers, farmers, and rural communities.

Some commenters suggested that any harm from implementation of the 2019 and 2020 standards would be mitigated by the RIN bank and the deficit carryfoward provision, and thus no waiver was needed. A commenter suggested D6 RIN prices were actually below average in 2020, and at historic lows in 2019.

Several commenters suggested that RFS need not be the *sole* cause of severe economic harm, and that such an interpretation is not consistent with the statute, nor is it consistent with "economic reality." These commenters suggested the standard was too high to be met, and that failure to reduce volumes could result in refinery shutdowns. They suggested granting a waiver when the RFS volume requirements would be a "significant factor" in causing severe economic harm would be a better interpretation of the statute, and that the volume requirements could operate in combination with other economic factors existing at the time to bring about the harm. They suggested this would result in RFS volume requirements that did not exceed 10% of the gasoline supply, and a BBD volume at 1.0 billion gallons. The commenter suggested that doing so would relieve pressure for obligated parties.

A commenter pointed to EPA's grant of small refinery exemptions in 2017 and 2018 as evidence that economic harm exists from the RFS program. The commenter also suggested that EPA should re-examine RIN cost pass through.

A commenter submitted information from EIA at the time of our request for comment indicating that gasoline and diesel demand was unlikely to rebound such that a waiver would be necessary.

A commenter argued that the 2020 standards were too high already, and refineries were particularly vulnerable to high compliance costs due to the pandemic and decreased demand.

A commenter pointed to the PES bankruptcy and closure as evidence of the harm caused by refineries shutting down. Commenters also pointed to other refinery closures or transitions, and the impacts those closures or transitions have on the communities.

Several commenters suggested that because ethanol is likely to be used even without the RFS requirements, there is no harm to the ethanol industry were EPA to waive the volume requirements. Several commenters pointed to profits for ethanol and biodiesel in 2020 and that domestic biofuel production was insufficient to meet the 2020 standards. Commenters also noted that because 2020 is in the past, a waiver cannot harm biofuels producers. Other commenters suggested that because 2020 is in the past, a waiver cannot impact renewable fuel volumes or transportation fuel prices, cannot relieve those harms, and thus it should not be granted.

Several commenters suggested that a waiver should only be granted upon a demonstration that the RFS causes severe economic harm to the economy as a whole. The commenters also suggested that the 2020 standards were already adjusted downward through the percentage standards.

A commenter suggested that the petition from small refineries clearly demonstrated that compliance under the RFS will "inflict extraordinary damage on small refineries" and cause severe economic harm to the surrounding community. The commenter suggested this would require reliance on foreign sources of fuel, which would go against the goals of the RFS to reduce dependence on foreign oil. The commenter suggested the harm is demonstrated through high RIN prices which are not passed through for small refineries who must compete with parties who do not have RIN costs. The commenter also suggested that relief will not harm farmers or biofuel producers because it will not flood the market with RINs, and ethanol will continue to be blended even without the RFS program.

Many commenters supported EPA's longstanding interpretation of the general waiver authority; A commenter stated that there is no reason to reconsider EPA's prior interpretation. Many commenters suggested that the petitions did not provide evidence sufficient to meet the criteria articulated in the past interpretation, or in past letters suggesting that petitions for waivers were incomplete. A commenter pointed out that no economic analysis was provided by the petitioners, contrary to EPA's guidance in the past. A commenter suggested that the incoming petitions were not of sufficient specificity and did not provide enough evidence to properly evaluate them, or to grant such waivers. The commenter pointed to EPA's past statements that it needs "necessary supporting information."

Many commenters suggested that RIN prices do not cause economic harm, as supporting by EPA and independent findings on RIN cost pass through.

A commenter suggested that in order to meet the statutory criteria, the harm must be to a state, region, or the United States, and not just individual refiners or groups of refiners.

In response to the letter from NWF suggesting severe environmental harm, several commenters pointed to the GHG benefits of biofuels as reason not to wave volumes on the basis of severe environmental harm, and some provided specific feedback on some of the information cited in the NWF letter. Another commenter suggested that evaluation for severe environmental harm should be held to the same standard as a waiver for severe economic harm. Several commenters noted that because NWF is not a state or obligated party, they cannot petition for a waiver under the statute. Several commenters also noted the air quality benefits of the RFS program, including reductions in hydrocarbon emissions which contribute to air toxics emissions and particulate matter emissions, as well as reductions in carbon monoxide, nitrogen dioxide, ozone, fine particulate matter, and sulfur dioxide. A commenter suggested that in particular, BBD does not cause environmental harm because it does not drive land use change, it provides GHG benefits, and reduces engine particulate and hydrocarbon emissions.

Several commenters suggested that the request from small refineries was attempting to circumvent the requirements for seeking an SRE, and that they would not suffer severe economic harm. Several commenters also suggested that the statutory text and structure do not allow for the general waiver authority to be used to provide individual relief to small refineries. The commenters pointed to the existence of a specific statutory provision for SREs, and that there is no evidence presented that Congress intended that the general waiver authority be used to relieve individual obligations. The commenter indicated that Congress knew have to provide for individual exemptions and did so for small refineries. Several commenters also pointed to the term "national quantity" as indicating that the general waiver authority cannot be used to waive individual obligations. Several commenters stated there is no redundancy between the "annual adjustments" and a reduction in the "national quantity," as the adjustments can only be applied in certain circumstances, not applicable in the context of the waiver authorities. Commenters also stated that the individual obligations are found in CAA section 211(*o*)(3), not CAA section 211(*o*)(2) as contended by the small refineries, and thus the general waiver authority does not authorize a waiver of the compliance obligations of individual small refineries. The commenters stated that the more logical reading of the statute was that the "requirements" refer to the four renewable fuel categories under paragraph 2. Commenters stated that the language that EPA "may waive" indicates that EPA may choose not to waive the volumes, and does not provide EPA flexibility in how to define "national quantity," which clearly refers to the nationwide volume requirements under the RFS. The commenters stated that the amendments to the Act in 2007 did not expand the provision to allow individual waivers, but instead only allowed for additional parties to request waivers without changing what can be waived. The commenters suggested that the reference to "national quantity" defines the available remedy, not a qualifying clause. The commenters also noted that the role of the RFS program to promote production of biofuels.

A commenter stated the reference to the "national quantity" of fuel unambiguously referred to the nationwide volume requirements.

A commenter highlighted that allowing for petitions from small refineries in this fashion would allow them to plan not to comply, and then suggest the RFS program is causing financial distress through pointing to higher RIN prices. They also suggested that the economic harms are due to the pandemic and not the RFS program itself. The commenter also suggests that the "opportunity for notice and comment" language in the general waiver authority would have limited value if the general waiver authority was applied to individual obligated parties as any evidence supporting a waiver would likely be claimed as CBI. The same commenter also responded to many of the statutory construction arguments made by the small refineries. The commenter stated that only allowing for reductions to the national quantity still preserves the statutory language harm to a State or region because such a demonstration would still be a lower showing than for a nationwide effect.

A commenter suggested the harms noted by small refineries were not due to the RFS, but rather were due to "general market downturns," and that Congress did not envision protecting small refineries at the cost of biofuels interests. Several commenters suggested that the petitions did not show any harm related to the RFS.

A commenter noted that while they had supported reductions under the general waiver authority in the past, they do not support the reductions in the 2019 and 2020 general waiver authority petitions, and in particular, did not support the request from small refineries. The commenter noted that the petitions did not provide sufficient evidence and that EPA's prior interpretation of the general waiver authority provision under a finding of severe economic harm should be maintained.

A commenter supported EPA evaluation of environmental impacts from the RFS, but did not find the evidence presented in the NWF letter persuasive or sufficient.

A commenter suggested it would not be proper to grant a waiver without "comprehensive and robust analytical basis for any claim that the RFS itself is causing harm." A commenter suggested EPA could not use the waiver to retroactively adjust volumes for a year in the past, and that doing so would incentivize obligated parties to not meet the standards because EPA will simply waive the volumes after the year is complete. A commenter suggested that the RIN costs, in combination with the COVID-19 pandemic created severe economic harm for refineries justifying a waiver for 2019 and 2020. The commenter took the position that the RFS does not preclude waiving the standards if the RFS is a "contributing cause to severe economic harm." The commenter pointed in particular to PADD 2 and PADD 4 as being harmed due to "negative ethanol blending economics for most of 2020, and low market acceptance of biodiesel blending." Another commenter pointed to economic harm particularly in PADD 1 due to the RFS program, and high RIN prices.

Response:

We are in this action denying the pending petitions seeking waivers of the 2019 and 2020 volumes under a finding of severe economic harm for which we previously sought comment.[208] In this action, we are also responding to a letter from the National Wildlife Federation that was

[208] 86 FR 5182 (January 19, 2021).

also included in the request for comment on the general waiver authority petitions. NWF's letter suggested that EPA waive the 2020 volumes, and that EPA could do so under a finding of severe environmental harm as well as a finding of severe economic harm. We decline to exercise our general waiver authority on the basis of either severe economic or environmental harm. Our reasoning for denying the petitions and declining to exercise the general waiver authority is provided in Preamble Section II.

This response supplements the discussion in the preamble and specifically addresses the above-noted petitions and the comments filed in response to our solicitation for comment on those petitions. We are denying the petitions and declining to exercise the general waiver authority for three independent reasons. First, none of the petitioners or commenters met the high showing required to invoke the general waiver authority, most notably, that the RFS standards themselves cause severe harm with a high degree of confidence. Second, because EPA is waiving the 2020 standards under the reset and cellulosic waiver authorities, this action already addresses the chief concerns animating the petitions, and in any event, the revised 2020 standards do not cause severe economic or environmental harm. Finally, the small refineries' request that EPA selectively waive their obligations while maintaining the obligations of their competitors exceeds EPA's statutory authority.

First, in denying these petitions, we are utilizing our longstanding interpretation of the general waiver authority. Our interpretation was put forth in our denial of petitions for a waiver under a finding of severe economic harm in 2008 and 2012.[209] There we articulated that the statute requires demonstration that: 1) implementation of the RFS itself would severely harm the economy and that it is not enough to determine that implementation of the RFS would merely contribute to such harm; 2) there is a generally high degree of confidence that there would be severe harm because of the RFS; 3) there is a high threshold for the nature and degree of the harm by requiring a determination of severe harm; 4) it would be unreasonable to base a waiver determination solely on consideration of impacts of the RFS program to one sector of an economy without also considering impacts on other economic sectors; and 5) in exercising our discretion under the statute to grant or deny a waiver request, it would be reasonable for EPA to consider all impacts associated with RFS implementation, including benefits. We have applied this interpretation in subsequent RFS actions, including in the 2018 and 2019 annual rules, which were upheld by the D.C. Circuit.[210] We are continuing to apply the same interpretation in this action, consistent with our past actions and the D.C. Circuit's precedent.

EPA is also applying this interpretation to determine whether to grant a waiver on the basis of severe environmental harm. Since severe economic harm and severe environmental harm are two prongs of the same waiver authority, contained in the same statutory sentence in CAA section 211(o)(7)(A)(i), it is generally appropriate to apply the same interpretation.

As described above, in order to waive volumes under the general waiver authority, we have interpreted the statute to require a high degree of certainty of harm, harm that is severe and not merely significant, and demonstration that the RFS program itself causes the severe harm. The

[209] 73 FR 47168 (August 13, 2008); 77 FR 70752 (November 27, 2012).
[210] Growth Energy v. Env't Prot. Agency, 5 F.4th 1, 16-17 (D.C. Cir. 2021); Am. Fuel & Petrochemical Manufacturers v. Env't Prot. Agency, 937 F.3d 559, 580 (D.C. Cir. 2019).

petitioners did not provide evidence that the alleged harm, either economic or environmental, was due to the RFS, was severe, and had a high degree of certainty to occur. Many commenters, for instance, asserted that RIN prices were causing severe economic harm to refiners; however, as we explain in RTC Chapter 9.1.8 and our SRE denials (including all pending SRE petitions for 2019 and 2020), EPA has determined that all refiners—regardless of their size, structure, or location—are recovering the RIN price costs of compliance. While many refiners were adversely affected by the COVID-19 pandemic, commenters failed to show that the 2020 RFS standards themselves (as opposed to the pandemic or some other factor) were causing severe harm with a high degree of confidence.

Other commenters claimed that the 2020 RFS standards were causing severe environmental harms; however, these commenters generally pointed to the use of crops for biofuels and the impacts of crop farming, without identifying the causal effect of the 2020 RFS standards on biofuel or crop production. As we explain in RTC Section 9.2 and RIA Chapter 2-3, numerous factors, beyond the RFS, affect biofuel and feedstock use and production, and there is a high degree of uncertainty in attributing environmental impacts to particular RFS standards.[211]

We note that even were EPA to change our interpretation of the general waiver authority, as suggested by some commenters, and allow waivers based on the RFS standards being only a significant contributing factor to severe harm, the petitioners and commenters fail to meet even that lower standard for substantively the same reasons.

We do of course acknowledge the economic and environmental impacts associated with the RFS program. In exercising our reset authority, we have accounted for these impacts, including social costs and fuel prices (RIA Chapter 9) and environmental impacts (RIA Chapter 3). However, as explained above, the general waiver authority requires a stringent showing to warrant its exercise, and the petitions and comments failed to make the required demonstrations.

Second, in any event, we are reducing the 2020 volumes to the volume of renewable fuel actually used in 2020 under the reset and cellulosic waiver authorities. This means the 2020 renewable fuel obligations will only require the retirement of RINs associated with renewable fuel that was already used in 2020. These obligations are significantly reduced from the obligations in the original 2020 final rule. None of the original petitioners or commenters on our notice regarding those petitions, 86 FR 5182 (January 19, 2021), provided persuasive data or analysis demonstrating the necessity or propriety of reductions below what we are finalizing in this action. In addition, we received no comments on the RFS annual rulemaking arguing that we should exercise the general waiver authority to further reduce volumes for 2020.[212]

In any case, we have determined that the revised 2020 standards do not cause severe economic or environmental harm. Because we are setting the standards based on the volumes actually used,

[211] We note also that no State or obligated party filed a petition to waive volumes on the basis of severe environmental harm. However, since EPA has the authority to exercise the general waiver authority on its own motion, we have considered the arguments raised by NWF and other commenters regarding severe environmental harm. See CAA section 211(o)(7)(A) (allowing the Administrator to waive volumes "on petition by one or more States, by any person subject to the requirements of this subsection, or by the Administrator on his own motion").
[212] We did receive a comment from Governor Wolf of Pennsylvania supporting our reductions to the 2020 and 2021 standards to actuals.

there are inherently sufficient RINs to comply with the revised 2020 standards. As we have explained in Preamble Section III.C, such compliance is feasible for obligated parties and will not result in severe economic harm. Furthermore, because 2020 is entirely in the past, it is not possible for this action to impact renewable fuel use in 2020, and thus, it cannot result in severe economic or environmental harm in 2020. As we explain in Preamble Section III, we also think there are also significant benefits to not further lowering the standards, which weighs against exercising the general waiver even were the statutory criteria to be met (which they are not). Thus, it is not necessary or proper to waive the volumes under a finding of severe economic or environmental harm.

Third, the petitions from the small refineries for 2019-20 seeking a selective waiver of their obligations is also inconsistent with the statute.[213] We continue to interpret the general waiver authority under CAA section 211(o)(7)(A) as allowing only for EPA to reduce the national quantity of renewable fuel such that it reduces obligations for all obligated parties equally as opposed to relieving the obligation of one or more individual parties.[214]

We believe that this interpretation is compelled by the statutory text.[215] The statute provides that the Administrator may "reduc[e] the national quantity of renewable fuel required." CAA section 211(o)(7)(A). This reference to the "national quantity" as opposed to language such as "obligations" indicates that the general waiver authority be used to waive volumes for the entire country. Moreover, the statute refers to the "paragraph (2)," or CAA section 211(o)(2), which sets forth the nationally applicable volumes. By contrast, CAA section 211(o)(3) requires EPA to determine the obligations that apply to particular obligated parties.

We acknowledge that the provision allows us to waive the requirements "in whole or in part." While this gives us the authority to waive only some requirements and not others (e.g., only the cellulosic biofuel requirement and not any other biofuel category) or to promulgate a partial waiver (e.g., by 100 million gallons as opposed to by the full volume), it does not allow us to selectively waive the obligations of particular refineries while maintaining those of their competitors. Relatedly, the statutory term "may waive" gives us discretion in determining whether and to what extent to waive volumes, but it also does not allow EPA to selectively waive the obligations of particular refineries. Similarly, while the statute allows waivers in response to severe economic harm to "a State, a region, or the United States," this simply means that EPA has discretion to invoke the waiver based on a particular State or region suffering severe harm (even if the entire nation is not suffering severe harm). The fact that a petition can be filed "by one or more States" or "by any person subject to the requirements of this subsection" also means just that: it merely specifies who can file a petition. It suggests that Congress believed that States and obligated parties were sufficiently interested and appropriate entities to request that the Administrator issue a waiver. None of these provisions change the textual limitation that waivers

[213] As with the other petitions, these petitions (along with the supporting comments) also failed to demonstrate that the 2019-20 RFS standards caused severe harm to a State, region, or the United States, with a high degree of confidence.

[214] See 77 FR 70752, 70756 (November 27, 2012) (stating there is a "statutory requirement that any RFS waiver be nationwide in scope"); 73 FR 47168, 47172 (stating that "[t]he relief requested by a waiver applicant will always, under this provision, be national in character").

[215] Even if this interpretation is not textually compelled, EPA believes it is a reasonable reading of the statute for the reasons stated here. See *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 842-44 (1984).

are achieved "by reducing the national quantity of renewable fuel required under paragraph (2)." By contrast, the petitioners' interpretation, under which EPA is allowed to selectively waive individual obligations, would erroneously read this language out of the statute.

EPA's interpretation also accords with the statutory context. It recognizes the existence of CAA section 211(o)(9) which provides explicitly for exemptions from the RFS program for individual refineries. Under the principle of *expressio unius*, this provision indicates that EPA lacks the statutory authority to exempt individual refineries from the requirements of the RFS program for other reasons. Thus, while we recognize that as articulated in our SRE denials, and in this final rule, that we do not anticipate granting SREs in the future, we do not believe it would be appropriate to read into CAA section 211(o)(7)(A) the authority to target individual exemptions from the RFS program through the general waiver authority given the existence of CAA section 211(o)(9).

Relatedly, CAA section 211(o)(3)(B)(ii)(III) requires that the renewable fuel obligation "consist of a single applicable percentage that applies to all categories of persons specified in subclause (I)," where subclause (I) refers to the determination of obligated parties. This provides further support that Congress intended the renewable fuel obligations to apply uniformly to all obligated parties, subject only to the statutory small refinery exemptions provided for in CAA section 211(o)(9).

Having carefully examined the statutory text and its context, EPA finds it clear that the general waiver authority does not allow EPA to waive individual obligations. Petitioners fail to seriously grapple with the statute, and most their textual arguments have been rejected above. Petitioners' additional arguments are also without any merit.

Petitioners also claim that the canon of the last antecedent means that the limitation of "reducing the national quantity of renewable fuel" should only apply to waivers initiated sua sponte by the Administrator. However, this canon, like all other canons, is context dependent, and cannot bear the weight that petitioners seek. Petitioners fail to provide any persuasive reason as to why Congress would seek to limit the agency's authority only when it initiated a waiver on its own motion, but would significantly expand that authority simply because a State or any one obligated party filed a petition.

Nor do petitioners address the relevant statutory history, which further undercuts their argument. In the original provision enacted in the 2005 EPAct, Congress authorized the Administrator to grant a waiver "on petition by one or more States by reducing the national quantity of renewable fuel required under paragraph (2)." 119 Stat. 1072. In this original provision, there was no occasion for applying the canon of the last antecedent. Rather, waivers could be granted in response only to a State petition and only "by reducing the national quantity of renewable fuel." In amending the provision in EISA, Congress expanded the range of petitioners by adding the text ", by any person subject to the requirements of this subsection, or by the Administrator on his own motion" following the word "States." It seems extremely unlikely that Congress intended for this expansion of the list of petitioners to also expand the Administrator's substantive authority by allowing EPA to exempt individual obligated parties.

Petitioners also argue that, as a policy matter, EPA's construction of the statute is an inefficient and insufficiently tailored way of relieving harms for individual refineries. While that may be true, as noted above, Congress provided a separate means tailored to relieving harms suffered by individual small refineries in CAA section 211(o)(9). There is no principle of statutory interpretation that requires Congress to provide yet another mechanism tailored to relieving harms suffered by individual small refineries. In any event, this policy argument cannot overcome the plain reading of the statute. Even if it could, it is EPA's judgment that petitioners, like all other refineries, are recovering the costs of RFS compliance, and that additional relief is therefore unmerited.

Because we do not interpret the CAA as allowing the type of reductions petitioner seeks, this provides an additional, independent basis for denying the small refineries' requests for 2019 and 2020.[216]

[216] Our publication and solicitation of comment on the general waiver petitions and this action to respond to those comments and deny the petitions does not reopen the 2019 standards. See 86 FR 5184 & n.8 (citing *Nat'l Mining Ass'n v. United States Dep't of the Interior*, 70 F.3d 1345, 1351 (D.C. Cir. 1995)). This remains true even though we are promulgating our denial of the petitions in the same *Federal Register* notice as the 2020-2022 RFS annual rulemaking. EPA is choosing to package these actions together in its discretion for administrative expedience. This packaging does not reflect a substantive reexamination of the 2019 standards, whether in the petition denial process or in the annual rulemaking. As we explain in Section 12.6, in the annual rulemaking, we have chosen to reexamine the 2020 standards and not the standards for 2019 or any other prior year. Thus, comments on the 2019 standards filed on the annual rulemaking are beyond the scope. We note that rule was already extensively litigated in *Growth Energy v. EPA*, 5 F.4th 1 (2021).