**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 80**

**[EPA–HQ–OAR–2010–0133; FRL–9324–3]**

**RIN 2060–AQ76**

## Regulation of Fuels and Fuel Additives: 2012 Renewable Fuel Standards

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** Under the Clean Air Act Section 211(o), the Environmental Protection Agency is required to set the renewable fuel standards each November for the following year. In general the standards are designed to ensure that the applicable volumes of renewable fuel specified in the statute are used. However, the statue specifies that EPA is to project the volume of cellulosic biofuel production for the upcoming year and must base the cellulosic biofuel standard on that projected volume if it is less than the applicable volume set forth in the Act. EPA is today proposing a projected cellulosic biofuel volume for 2012 and annual standards for cellulosic biofuel, biomass-based diesel, advanced biofuel, and renewable fuels that would apply to all gasoline and diesel produced or imported in year 2012. In addition, today's action proposes an applicable volume of biomass-based diesel that would apply in 2013. This action also presents a number of proposed changes to the RFS2 regulations that are designed to clarify existing provisions and to address several unique circumstances that have come to light since the RFS2 program became effective on July 1, 2010. Finally, today's rule also proposes to make a minor amendment to the gasoline benzene regulations regarding inclusion of transferred blendstocks in a refinery's early benzene credit generation calculations.

**DATES:** Comments must be received on or before August 11, 2011.

*Hearing:* We intend to hold a public hearing on July 12, 2011 in the Washington, DC area, Details of the time and location of the hearing be announced in a separate notice.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2010–0133, by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- *E-mail: asdinfo@epa.gov.*
- *Mail:* Air and Radiation Docket and Information Center, Environmental Protection Agency, Mailcode: 2822T, 1200 Pennsylvania Ave., NW., Washington, DC 20460.
- *Hand Delivery:* EPA Docket Center, EPA West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to Docket ID No. EPA–HQ–OAR–2010–0133. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at *http://www.regulations.gov,* including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or e-mail. The *http://www.regulations.gov* Web site is an ''anonymous access'' system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *http://www.regulations.gov* your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.* For additional instructions on submitting comments, go to Section I.B of the **SUPPLEMENTARY INFORMATION** section of this document.

*Docket:* All documents in the docket are listed in the *http://www.regulations.gov* index. Although listed in the index, some information is not publicly available, *e.g.,* CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the Air and Radiation Docket and Information Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

**FOR FURTHER INFORMATION CONTACT:** Julia MacAllister, Office of Transportation and Air Quality, Assessment and Standards Division, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor MI 48105; Telephone number: 734–214–4131; Fax number: 734–214–4816; E-mail address: *macallister.julia@epa.gov,* or Assessment and Standards Division Hotline; telephone number 734 214–4636; E-mail address *asdinfo@epa.gov.*

**SUPPLEMENTARY INFORMATION:**

### I. General Information

*A. Does this action apply to me?*

Entities potentially affected by this proposed rule are those involved with the production, distribution, and sale of transportation fuels, including gasoline and diesel fuel or renewable fuels such as ethanol and biodiesel. Potentially regulated categories include:

| Category | NAICS [1] codes | SIC [2] codes | Examples of potentially regulated entities |
|---|---|---|---|
| Industry | 324110 | 2911 | Petroleum Refineries. |
| Industry | 325193 | 2869 | Ethyl alcohol manufacturing. |
| Industry | 325199 | 2869 | Other basic organic chemical manufacturing. |
| Industry | 424690 | 5169 | Chemical and allied products merchant wholesalers. |
| Industry | 424710 | 5171 | Petroleum bulk stations and terminals. |
| Industry | 424720 | 5172 | Petroleum and petroleum products merchant wholesalers. |

| Category | NAICS [1] codes | SIC [2] codes | Examples of potentially regulated entities |
|---|---|---|---|
| Industry | 454319 | 5989 | Other fuel dealers. |

[1] North American Industry Classification System (NAICS).
[2] Standard Industrial Classification (SIC) system code.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this proposed action. This table lists the types of entities that EPA is now aware could potentially be regulated by this proposed action. Other types of entities not listed in the table could also be regulated. To determine whether your activities would be regulated by this proposed action, you should carefully examine the applicability criteria in 40 CFR part 80. If you have any questions regarding the applicability of this proposed action to a particular entity, consult the person listed in the preceding section.

*B. What should I consider as I prepare my comments for EPA?*

1. Submitting CBI

Do not submit confidential business information (CBI) to EPA through *http://www.regulations.gov* or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. Tips for Preparing Your Comments

When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree, suggest alternatives, and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified.

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## I. Executive Summary

The Renewable Fuel Standard (RFS) program began in 2006 pursuant to the requirements in Clean Air Act (CAA) section 211(o) which were added through the Energy Policy Act of 2005 (EPAct). The statutory requirements for the RFS program were subsequently modified through the Energy Independence and Security Act of 2007 (EISA), resulting in the promulgation of revised regulatory requirements on March 26, 2010.[1] The transition from the RFS1 requirements of EPAct to the RFS2 requirements of EISA generally occurred on July 1, 2010.

Under RFS2, EPA is required to determine and publish the applicable annual percentage standards for each compliance year by November 30 of the previous year. As part of this effort, EPA must determine the projected volume of cellulosic biofuel production for the following year. If the projected volume of cellulosic biofuel production is less than the applicable volume specified in section 211(o)(2)(B)(i)(III) of the statute, EPA must lower the applicable volume used to set the annual cellulosic biofuel percentage standard to the projected volume of production. When we lower the applicable volume of cellulosic biofuel in this manner, we are also authorized to lower the applicable volumes of advanced biofuel and/or total renewable fuel by the same or a lesser amount. Since these evaluations will be based on evolving information about emerging segments of the biofuels industry, and may result in the applicable volumes differing from those in the statute, we believe that it is appropriate to establish the applicable volumes through a notice-and-comment rulemaking process. Today's notice provides our proposed evaluation of the projected production of cellulosic biofuel for 2012, our proposed evaluation of whether to lower the applicable volumes of advanced biofuel and total renewable fuel, and the proposed percentage standards for compliance year 2012. We will complete our evaluation based on comments received in response to this proposal, the estimate of projected biofuel volumes that the EIA is required to provide to EPA by October 31, and other information that becomes available, and will make final determinations of applicable volumes and percentage standards for 2012 by November 30, 2011.

The statute also requires EPA to determine and promulgate the applicable volume of biomass-based diesel that will be required in 2013 and beyond, as the statute does not specify the applicable volumes for years after 2012. This determination must be made at least 14 months prior to the year in which the volume will be required. Thus, for the 2013 compliance year, we must specify the applicable volume of biomass-based diesel by November 1, 2011. The statute identifies a number of factors that EPA must take into consideration in establishing the applicable volume of biomass-based diesel for years after 2012. Today's notice includes our proposed assessment of these factors and proposed applicable volume of biomass-based diesel for 2013.

Today's proposed rule does not include an assessment of the environmental impacts of the percentage standards we are proposing for 2012. All of the impacts of the RFS2 program were addressed in the RFS2 final rule published on March 26, 2010, including impacts of the biofuel standards specified in the statute. Today's rulemaking simply proposes the standards for 2012 whose impacts were already analyzed previously. However, as described more fully in Section IV.A, we are required to analyze a specified set of environmental and economic impacts for the biomass-based diesel volume we are proposing for 2013.

Today's notice also proposes a number of changes to the RFS2 regulations. These changes are designed to reduce confusion among regulated parties and streamline implementation by clarifying certain terms and phrases and addressing unique circumstances that came to light after the RFS2 program went into effect on July 1, 2010. Additionally, this notice also proposes to make a minor amendment to the gasoline benzene regulations regarding inclusion of transferred blendstocks in a refinery's early benzene credit generation calculations. Further discussion of all of these proposed changes can be found in Section V.

Finally, we note that in the RFS2 final rule we also stated our intent to make two announcements each year:

- Set the price for cellulosic biofuel waiver credits that will be made available to obligated parties in the event that we reduce the volume of cellulosic biofuel below the volume required by EISA.
- Announce the results of our assessment of the aggregate compliance approach for verifying renewable biomass requirements for U.S. crops and crop residue, and our conclusion regarding whether the aggregate compliance provision will continue to apply.

For both of these determinations, EPA will use specific sources of data and a methodology laid out in the RFS2 final rule. Since the necessary data for these determinations are not yet available, and the methodology for making them is specified by rule or statute, we are not including proposed determinations in this Notice. We will present the results of both of these determinations in the final rule without a prior proposal.

### *A. Standards for 2012*

#### 1. Assessment of 2012 Cellulosic Biofuel Volume

To estimate the volume of cellulosic biofuel that could be made available in the U.S. in 2012, we researched all potential production sources by company and facility. This included sources that were still in the planning stages, those that were under construction, and those that are already producing some volume of cellulosic ethanol, cellulosic diesel, or some other type of cellulosic biofuel. Facilities primarily focused on research and development work with no intention of marketing any fuel produced were not considered for this assessment. From this universe of potential cellulosic biofuel sources we identified the subset that had a possibility of producing some volume of qualifying cellulosic biofuel for use as transportation fuel in 2012. For the final rule, we will specify the projected available volume for 2012 that will be the basis for the percentage standard for cellulosic biofuel. To determine this final projected available volume, we will consider additional factors such as the current and expected state of funding, the status of the technology, and progress towards construction and production goals along with any other significant factors that could potentially impact fuel production or the ability of the produced fuel to generate cellulosic RINs. This information, to the extent that it is publically available, is

[1] 75 FR 14670.

discussed in further detail in Section II.B.

In our assessment we focused on domestic sources of cellulosic biofuel. While imports of cellulosic biofuels are possible and would be eligible to generate RINs, we believe this is unlikely due to local demand for cellulosic biofuels in the countries in which they are produced as well as the cost associated with transporting these fuels to the U.S. Of the domestic sources, we estimated that nine facilities have the potential to make volumes of cellulosic biofuel available for transportation use in the U.S. in 2012. These facilities are listed in Table I.A.1–1 along with our estimate of the potentially available volume.

TABLE I.A.1–1—POTENTIALLY AVAILABLE CELLULOSIC BIOFUEL PLANT VOLUMES FOR 2012

| Company | Location | Fuel type | Potentially available volume (million ethanol-equivalent gallons) |
|---|---|---|---|
| DuPont Danisco Cellulosic Ethanol | Vonore, TN | Ethanol | 0.25 |
| Fiberight | Blairstown, IA | Ethanol | 3.0 |
| Fulcrum Bioenergy | McCarran, NV | Ethanol | 0.5 |
| INEOS Bio | Vero Beach, FL | Ethanol | 3.0 |
| KiOR | Houston, TX | Gasoline, Diesel | 0.3 |
| KiOR | Columbus, MS | Gasoline, Diesel | 6.4 |
| KL Energy Corp. | Upton, WY | Ethanol | 1.0 |
| Terrabon | Port Arthur, TX | Gasoline | 1.0 |
| ZeaChem | Boardman, OR | Ethanol | 0.25 |
| Total | | | 15.7 |

The volumes in Table I.A.1–1 for each facility represent the volume that would be produced in 2012 based upon the owner's expected month of startup and an assumed period of production rampup to full capacity for testing and process validation purposes. However, none of the facilities we evaluated are currently producing cellulosic biofuel at the rates they project for 2012. Moreover, there are other uncertainties associated with each facility's projected volume that could result in less production volume in 2012 than the potentially available values shown in Table I.A.1–1. Therefore, we are proposing a range of volumes for cellulosic biofuel for 2012, with 15.7 million ethanol-equivalent gallons as the upper end of the range. For the lower end of the range, we believe that a volume of 3.55 million ethanol-equivalent gallons could be justified based on currently available information. This volume is based on consideration of only those facilities that are structurally complete at the time of this proposal and that anticipate commercial production of cellulosic biofuels by the end of 2011. More complete information on the progress of the industry in 2011 will be available for the final rule, and will allow us to make a more accurate projection of cellulosic biofuel volume for 2012. A more detailed discussion of these uncertainties is presented in Section II.B.

2. Advanced Biofuel and Total Renewable Fuel in 2012

The statute indicates that we may reduce the applicable volume of advanced biofuel and total renewable fuel if we determine that the projected volume of cellulosic biofuel production for 2012 falls short of the statutory volume of 500 million gallons. As shown in Table I.A.1–1, we are proposing a determination that this is the case. Therefore, we also must evaluate the need to lower the applicable volumes for the advanced biofuel and total renewable fuel.

To address the need to lower the advanced biofuel standard, we first consider whether it appears likely that the biomass-based diesel volume of 1.0 billion gallons specified in the statute can be met in 2012. As discussed in Section II.E, we believe that the 1.0 billion gallon standard can indeed be met. Since biodiesel has an Equivalence Value of 1.5, 1.0 billion physical gallons of biodiesel would provide 1.5 billion ethanol-equivalent gallons that can be counted towards the advanced biofuel standard of 2.0 billion gallons. Of the remaining 0.5 bill gallons, up to 0.016 bill gallons would be met with the proposed volume of cellulosic biofuel. Based on our analysis as described in Section II.D, it appears likely that there will be sufficient volumes of other advanced biofuels, such as imported sugarcane ethanol, additional biodiesel, or renewable diesel, such that the standard for advanced biofuel could remain at the statutory level of 2.0 billion gallons. However, uncertainty in the potential volumes of these other advanced biofuels coupled with the range of potential production volumes of cellulosic biofuel could provide a rationale for lowering the advanced biofuel standard. If we lowered the applicable volume of advanced biofuel without simultaneously lowering the applicable volume for total renewable fuel, the result would be that additional volumes of conventional renewable fuel, such as corn-starch ethanol, would be produced, effectively replacing some advanced biofuels. In today's NPRM we are proposing that neither the required 2012 volumes for advanced biofuel nor total renewable fuel be lowered below the statutory volumes. However, we request comment on whether the advanced biofuel and/or total renewable fuel volume requirements should be lowered if, as we propose, EPA lowers the required cellulosic biofuel volume from that specified in the Act.

3. Proposed Percentage Standards for 2012

The renewable fuel standards are expressed as a volume percentage, and are used by each refiner, blender or importer to determine their renewable fuel volume obligations. The applicable percentages are set so that if each regulated party meets the percentages, and if EIA projections of gasoline and diesel use are accurate, then the amount of renewable fuel, cellulosic biofuel, biomass-based diesel, and advanced

biofuel used will meet the volumes required on a nationwide basis.

To calculate the percentage standard for cellulosic biofuel for 2012, we have used a potential volume range of 3.55–15.7 million ethanol-equivalent gallons (representing 3.45–12.9 million physical gallons). For the final rule, EPA intends to pick a single value from within this range to represent the projected available volume on which the 2012 percentage standard for cellulosic biofuel will be based. We are also proposing that the applicable volumes for biomass-based diesel, advanced biofuel, and total renewable fuel for 2012 will be those specified in the statute. These volumes are shown in Table I.A.3–1.

TABLE I.A.3–1—PROPOSED VOLUMES FOR 2012

| | Actual volume | Ethanol equivalent volume [a] |
|---|---|---|
| Cellulosic biofuel | 3.45–12.9 mill gal | 3.55–15.7 mill gal. |
| Biomass-based diesel | 1.0 bill gal | 1.5 bill gal. |
| Advanced biofuel | 2.0 bill gal | 2.0 bill gal. |
| Renewable fuel | 15.2 bill gal | 15.2 bill gal. |

[a] Biodiesel and cellulosic diesel have equivalence values of 1.5 and 1.7 ethanol equivalent gallons respectively. As a result, ethanol-equivalent volumes are larger than actual volumes for cellulosic biofuel and biomass-based diesel.

Four separate standards are required under the RFS2 program, corresponding to the four separate volume requirements shown in Table I.A.3–1. The specific formulas we use to calculate the renewable fuel percentage standards are contained in the regulations at § 80.1405 and repeated in Section III.B.1. The percentage standards represent the ratio of renewable fuel volume to projected non-renewable gasoline and diesel volume. The projected volume of gasoline used to calculate the standards in today's proposal is provided by EIA's Short-Term Energy Outlook (STEO).[2] The projected volume of transportation diesel used to calculate the standards in today's proposal is provided by EIA's 2011 Annual Energy Outlook (early release version). For the final rule, we will use updated projections of gasoline and diesel provided by EIA.

Because DOE's 2009 analysis [3] concluded that small refineries would not be disproportionately harmed by inclusion in the RFS program, beginning in 2011, small refiners and small refineries participated in the RFS program as full regulated parties, and there was no small refiner/refinery volume adjustment to the 2011 standard as there was for the 2010 standard. However, DOE recently re-evaluated the impacts of the RFS program on small entities and concluded that some small refineries would suffer a disproportionate hardship if required to participate in the program.[4] As a result, we are required to exempt these few refineries from being obligated parties for a minimum of two years, and must also exempt their gasoline and diesel volumes from the calculation of the annual percentage standards. The proposed standards for 2012 are shown in Table I.A.3–2 and include the adjustment for exempt small refineries (which constitute about 2.5% of both gasoline and diesel pools). Detailed calculations can be found in Section III.

TABLE I.A.3–2—PROPOSED PERCENTAGE STANDARDS FOR 2012

| | |
|---|---|
| Cellulosic biofuel | 0.002 to 0.010%. |
| Biomass-based diesel | 0.91%. |
| Advanced biofuel | 1.21%. |
| Renewable fuel | 9.21%. |

*B. Proposed 2013 Biomass-Based Diesel Volume*

While section 211(o)(2)(B) specifies the volumes of biomass-based diesel (BBD) through year 2012, it directs the EPA to establish the applicable volume of BBD for years after 2012 no later than 14 months before the first year for which the applicable volume will apply. In today's action we are proposing an applicable volume of 1.28 bill gallons for biomass-based diesel (BBD) for 2013. This is the volume that was projected for 2013 in the RFS2 final rulemaking, and we are proposing it for 2013 based on consideration of the factors specified in the statute, including a consideration of biodiesel production, consumption, and infrastructure issues. As required under the statute, we also assessed the likely impact of BBD production and use in a variety of areas, including climate change, energy security, the agricultural sector, air quality, and others. Section IV provides additional discussion of our assessment of the proposed volume of 1.28 bill gallons of BBD.

*C. Proposed Regulatory Changes*

In today's action we are also proposing a number of changes to the RFS2 regulations. These proposed changes are intended to:

- Clarify certain provisions because we have learned that there is some confusion among some regulated parties
- Clarify the application of certain provisions to unique circumstances
- Provide greater specificity in the definition of certain terms
- Correct regulatory language that inadvertently misrepresented our intent

Today's rule also proposes to make a minor amendment to the gasoline benzene regulations regarding inclusion of transferred blendstocks in a refinery's early benzene credit generation calculations. A detailed discussion of these proposed regulatory changes is provided in Section V.

*D. Petition for Reconsideration*

The American Petroleum Institute (API) and the National Petrochemical and Refiners Association (NPRA) jointly submitted a Petition for Reconsideration of EPA's final rule establishing the RFS standards for 2011. The petition requests that we lower the 2011 cellulosic biofuel standard to no more than 3.94 mill gallons, lower the 2011 advanced biofuel standard in concert with the reduction in the cellulosic biofuel standard from 250 mill gallons, and reconsider the regulatory provision for delayed RINs. We are proposing to deny this petition. See Section VI for further discussion.

## II. Projection of Cellulosic Volume Production and Imports for 2012

In order to project production volume of cellulosic biofuel in 2012 for use in setting the percentage standard, we collected information on individual facilities that have the potential to produce qualifying volumes for

[2] The April 2011 issue of STEO was used for today's proposal.

[3] DOE report "EPACT 2005 Section 1501 Small Refineries Exemption Study", (January, 2009).

[4] "Small Refinery Exemption Study: An Investigation into Disproportionate Economic Hardship," U.S. Department of Energy, March 2011.

consumption as transportation fuel, heating oil, or jet fuel in the U.S. in 2012. This section describes the range of volumes that could be produced and imported in 2012 as well as some of the uncertainties associated with those volumes. For today's NPRM we have assessed the range of potentially available volumes for 2012. Despite significant advances in cellulosic biofuel production technology in recent years the production of cellulosic biofuel remains highly uncertain. While we expect that the volume we select in the final rule for use in setting the 2012 cellulosic biofuel percentage standard will be within our proposed range of volumes, we recognize the possibility that updated information at the time of the final rule could result in the final volume falling outside of the proposed range. Section III describes the conversion of our proposed range of volumes for cellulosic biofuel into a range of possible percentage standards.

While the proposed 2012 volume projections in today's NPRM were based on our own assessment of the cellulosic biofuel industry, by the time we announce the final 2012 volumes and percentage standards we will have additional information. First, in addition to comments in response to today's proposal, we will have updated and more detailed information about how the industry is progressing in 2011. Second, all registered producers and importers of renewable fuel must submit Production Outlook Reports describing their expectations for new or expanded biofuel supply for the next five years, according to § 80.1449. Finally, by October 31, 2011, the Energy Information Administration (EIA) is required by statute to provide EPA with an estimate of the volumes of transportation fuel, biomass-based diesel, and cellulosic biofuel that they project will be sold or introduced into commerce in the U.S. in 2012.

*A. Statutory Requirements*

The volumes of renewable fuel to be used under the RFS2 program each year (absent an adjustment or waiver by EPA) are specified in CAA 211(o)(2). These volumes for 2012 are shown in Table II.A–1.

TABLE II.A–1—REQUIRED VOLUMES IN THE CLEAN AIR ACT FOR 2012 (BILL GAL)

| | Actual volume | Ethanol equivalent volume |
|---|---|---|
| Cellulosic biofuel | 0.5[a] | 0.5 |
| Biomass-based diesel | 1.0 | 1.5 |
| Advanced biofuel | 2.0[a] | 2.0 |
| Renewable fuel | 15.2[a] | 15.2 |

[a] These values assume that the biofuels would be ethanol. If any portion of the biofuels used to meet these applicable volumes has a volumetric energy content greater than that for ethanol, these values will be lower.

By November 30 of each year, the EPA is required under CAA 211(o) to determine and publish in the **Federal Register** the renewable fuel percentage standards for the following year. These standards are to be based in part on transportation fuel volumes estimated by the Energy Information Administration (EIA) for the following year. The calculation of the percentage standards is based on the formulas in § 80.1405(c) which express the required volumes of renewable fuel as a volume percentage of gasoline and diesel sold or introduced into commerce in the 48 contiguous states plus Hawaii.

The statute requires that if EPA determines that the projected volume of cellulosic biofuel production for the following year is less than the applicable volume shown in Table II.A–1, then EPA is to reduce the applicable volume of cellulosic biofuel to the projected volume available during that calendar year. In addition, if EPA reduces the required volume of cellulosic biofuel below the level specified in the statute, the Act also indicates that we may reduce the applicable volume of advanced biofuels and total renewable fuel by the same or a lesser volume.

As described in the final rule for the RFS2 program, we intend to examine EIA's projected volumes, comments on this proposal, production outlook reports, and other available data in making a final determination of the appropriate cellulosic biofuel volumes to require for 2012.

*B. Cellulosic Biofuel Volume Assessment*

The task of projecting the volume of cellulosic biofuel production for 2012 remains a difficult one. Currently there are very few, if any, facilities consistently producing cellulosic biofuel for commercial sale. Announcements of new projects and project funding, changes in project plans, project delays, and cancellations occur frequently. Biofuel producers face not only the challenge of the scale up of innovative, first-of-a-kind technology, but also the challenge of securing funding in a difficult economy. The cellulosic biofuel industry also is influenced by various tax credits and subsidies, and changes to these programs could have an impact on cellulosic biofuel production.

In order to project cellulosic biofuel production for 2012, EPA has tracked the progress of over 100 biofuel production facilities. From this list of facilities we used publically available information, as well as information provided by DOE and USDA, to make a preliminary determination of which facilities are the most likely candidates to produce cellulosic biofuel and make it commercially available in 2012. Each of these companies was investigated further in order to determine the current status of their facilities and their likely cellulosic biofuel production volumes for the coming years. Information such as the funding status of these facilities, announced construction and production ramp up periods, and annual fuel production targets were taken into account. Our projection of the range of cellulosic biofuel production in 2012 is based on this information as well as our own assessment of the likelihood of these facilities successfully producing cellulosic biofuel in the volumes indicated. A brief description of each of the companies we believe may produce cellulosic biofuel and make it commercially available in 2012 can be found below. We will continue to gather more information to help inform our decision on the final cellulosic biofuel standard for 2012, and we will specify a single volume in the final rule that will be the basis for the cellulosic biofuel percentage standard for 2012.

1. Existing Cellulosic Biofuel Facilities

The rule that established the required 2011 cellulosic biofuel volume identified five production facilities that we projected would produce cellulosic biofuel and make the fuel commercially available in 2011. Each of these production facilities are now structurally complete, however they are in various stages of biofuel production. All of these facilities have either produced some volume of cellulosic biofuel in 2011, or are on schedule to do so later in the year. Only Range Fuels, however, has completed its registration as a cellulosic biofuel production facility under the RFS2 program and as such they are currently the only facility of the five listed here currently eligible to generate cellulosic biofuel RINs. For

more background information on each of these facilities see the 2011 standards rule.[5]

DuPont Danisco Cellulosic Ethanol (DDCE) successfully started up their small demonstration facility in Vonore, Tennessee in late 2010. This facility has a maximum production capacity of 250,000 gallons of ethanol per year and uses an enzymatic hydrolysis process to convert corn cobs into ethanol. In conversations with EPA in early 2011 DDCE indicated that they had not encountered any unexpected difficulties in their production of cellulosic ethanol and were on target to meet their 2011 production goal of 150,000 gallons of cellulosic ethanol. It is likely that in 2012 cellulosic biofuel production at this facility will approach the production capacity of 250,000 gallons of cellulosic ethanol.

Fiberight uses an enzymatic hydrolysis process to convert the biogenic portion of separated municipal solid waste (MSW) into ethanol. Construction on the first stage of Fiberight's Blairstown, Iowa facility was completed in the summer of 2010. The production capacity of the first stage of this project is 2 million gallons of ethanol per year. Fiberight had planned to begin production of cellulosic biofuel from this facility in late 2010 but poor economic conditions, due in part to low cellulosic RIN values in 2010, caused them to postpone fuel production. Fiberight had also planned to begin construction on an expansion of this facility in late 2010 that would increase the production potential to 6 million gallons of ethanol per year, but were unable to secure funding to carry out the construction as planned. They have since secured funding and began construction on the expansion of their Blairstown facility in April 2011. Fiberight anticipates that they will begin fuel production in the late summer of 2012 and will ramp up production at this facility throughout 2012, producing approximately 3 million gallons of cellulosic ethanol in 2012.

KiOR continues to produce a small volume of renewable crude from agricultural residue at their demonstration facility in Houston, Texas using a technology they call Biomass Catalytic Cracking (BCC). This technology uses heat and a proprietary catalyst to convert biomass to a renewable crude with a relatively low oxygen content. This facility currently lacks the infrastructure to upgrade this renewable crude to finished transportation fuel, however KiOR plans to add this capability at this facility in late 2011. While KiOR has not yet registered under the RFS2 program, their fuel, if refined to gasoline or diesel fuel would be eligible to generate RINs. EPA currently projects a production volume of 200,000 gallons of cellulosic fuel from KiOR, which could potentially generate 300,000 RINs.

KL Energy has developed a process to convert cellulose and hemicelluloses into cellulosic sugars using a thermal-mechanical pretreatment process followed by an enzymatic hydrolysis. They had initially planned to used woody biomass as their feedstock for cellulosic biofuel production; however their production process is versatile enough to allow for a wide variety of cellulosic feedstocks to be used. In August 2010 KL Energy announced a joint development agreement with Petrobras America Inc. As part of the agreement Petrobras will invest $11 million to modify KL Energy's facility in Upton, Wyoming to allow it to process bagasse and other waste products. These modifications are expected to be completed in 2011, and fuel production is likely to begin soon after. If successful, Petrobras and KL Energy plan to work together to integrate the technology into currently existing ethanol production facilities in Brazil. KL Energy has also indentified several sites in the United States for possible future expansion. EPA currently projects that KL Energy could produce up to 1 million gallons of cellulosic ethanol in 2012 in the United States.

Range Fuels began production of methanol at their Soperton, Georgia facility in the third quarter of 2010. This facility uses a thermochemical technology to produce syngas (consisting of mostly hydrogen and carbon monoxide) from a woody biomass feedstock. The syngas is then converted into fuel with the aid of a chemical catalyst developed by Range. Range has developed the capability to produce both methanol and ethanol, depending on the catalyst used. In January 2011, after producing a small volume of ethanol from this facility and proving this capability, Range Fuels shut down the Soperton facility in order to work through technical difficulties they had been experiencing. No timeline has been given for the restart of this facility. EPA will continue to gather information and monitor progress at the Soperton facility. At this time, however, since no timeline has been provided for production from this facility, we are not projecting any volume from this facility in 2012.

2. Potential New Facilities in 2012

EPA is also aware of five new cellulosic biofuel production facilities that are currently planning to begin commercial production at some point in 2012. These facilities are at various stages in the construction process, and as such have various degrees of uncertainty associated with any projected 2012 commercial production. While it is possible that several of these facilities will not begin production of cellulosic biofuels until 2013, they are nevertheless considered here since some commercial volumes can potentially be produced in 2012.

Fulcrum Bioenergy is planning to build a facility capable of producing 10.5 million gallons of cellulosic ethanol and 16 megawatts of renewable electricity per year. They have developed a thermochemical technology to produce ethanol from separated MSW via syngas using a chemical catalyst. In November 2010 Fulcrum announced that they had received a term sheet for a $80 million loan guarantee from DOE and were entering into the final phase of the loan guarantee program. Prior to that Fulcrum had announced that they had signed long term feedstock supply contracts for this facility as well as engineering, procurement, and construction contracts. In January 2011 Fulcrum announced they had closed on a $75 million Series C financing that would provide the remaining necessary capital for the construction of their first commercial production facility pending the closing of their DOE loan guarantee. They announced that they are now planning to begin construction in the second quarter of 2011 and complete the facility by late 2012. EPA currently projects a potential production volume of up to 0.5 million gallons of cellulosic ethanol from this facility in 2012.

INEOS Bio has developed a process for producing cellulosic ethanol by first gasifying feedstock material into a syngas and then using naturally occurring bacteria to ferment the syngas into ethanol. In January 2011 USDA announced a $75 million loan guarantee for the construction of INEOS Bio's first commercial facility to be built in Vero Beach, Florida. This facility will be capable of producing 8 million gallons of cellulosic biofuel as well as 6 megawatts of renewable electricity from a variety of feedstocks including yard, agricultural, and wood waste, as well as separated MSW. On February 9, 2011 INEOS Bio broke ground on this facility. INEOS Bio expects to complete construction on this facility in April 2012 and plans to begin commercial production of cellulosic ethanol soon

[5] 75 FR 76790, December 9, 2010.

after construction is complete. EPA currently projects a potential production volume of up to 3 million gallons of cellulosic ethanol from this facility in 2012.

After successful operation of their demonstration plant in Houston, Texas KiOR is planning to begin construction on their first commercial scale facility in early 2011. This facility, located in Columbus, Mississippi, will convert biomass to a low oxygen biocrude using a process KiOR calls Biomass Catalytic Cracking (BCC). BCC uses a catalyst developed by KiOR in a process similar to Fluid Catalytic Cracking currently used in the petroleum industry. KiOR's Columbus facility will also be capable of upgrading this biocrude into finished gasoline and diesel as well as a small quantity of fuel oil. KiOR plans to begin production from this facility sometime in the first half of 2012. KiOR has also announced plans to construct several more commercial scale biofuel production facilities in Mississippi and across the southeastern United States. However, it is unlikely any of these facilities will begin production of biofuel in 2012. Given this timeline EPA currently projects a potential production of up to 4.0 million gallons of gasoline and diesel (6.4 million ethanol equivalent gallons) from the Columbus facility in 2012.

Terrabon completed construction of a small demonstration scale facility for the conversion of MSW and other waste materials into gasoline in 2010 and is planning to begin production at their first commercial scale facility in 2012. Terrabon utilizes a unique production process that can be used to produce gasoline, diesel, or jet fuel. Feedstock is first fermented into carboxylic acids by a variety of micro organisms. These carboxylic acids are then neutralized to form carboxylate salts that are dewatered, dried, and thermally converted to ketones. Finally, the ketones are hydrogenated to form alcohols which can then be refined into gasoline, diesel, or jet fuel. While currently no pathway exists for the generation of RINs representing cellulosic gasoline in the RFS2 regulations, EPA is planning to initiate a rulemaking to create such a pathway in our regulations. This would allow for facilities such as Terrabon and others who may produce cellulosic gasoline in the future to register and generate RINs under the RFS2 program (provided they meet the fuel registration, renewable biomass, and other requirements of the program as well). EPA currently projects the production of up to 0.7 million gallons (1.0 million ethanol equivalent gallons) of cellulosic gasoline in 2012 from Terrabon's first commercial facility.

ZeaChem has begun construction on a small demonstration scale facility in Boardman, Oregon capable of producing 250,000 gallons of cellulosic ethanol per year. Their production process uses a combination of biochemical and thermochemical technologies to produce ethanol and other renewable chemicals from cellulosic materials. The feedstock is first fractionated into two separate streams containing cellulosic sugars and lignin. The cellulosic sugars are fermented into ethyl acetate using a naturally occurring acetogen, which can then be hydrogenated into ethanol. The hydrogen necessary for this process is produced by gasifying the lignin stream from the cellulosic biomass. ZeaChem's process is flexible and is capable of producing a wide range of renewable chemical and fuel molecules in addition to ethanol. ZeaChem plans to begin production of cellulosic ethanol from their facility in Boardman, Oregon in late 2011, and EPA currently projects a potential production volume of up to 0.25 million gallons of ethanol from this facility in 2012.

Another potential source of cellulosic biofuel in 2012 is a technology being developed by EdeniQ. EdeniQ is developing a suite of enzymes capable of breaking down cellulose into simple sugars that can then be fermented into ethanol. Rather than build their own production facilities EdeniQ plans to license their enzymes to existing corn ethanol facilities. Such licensing would be accompanied by the Cellunator, an advanced milling device they have developed to reduce the particle size of corn kernels to enable greater conversion of starch to ethanol as well as the conversion of cellulose to simple sugars. EdeniQ claims that their technology would allow corn ethanol facilities to increase ethanol production by 1–2% by converting the cellulosic portion of the corn kernel into ethanol. They are also working to increase the effectiveness of their enzymes in order to enable ethanol production increases of 3–4% from the cellulose in the corn kernel in the future. EdeniQ plans to begin commercial trials of their technology in the second half of 2011. This technology has the potential to be implemented rapidly and produce significant amounts of cellulosic ethanol in 2012 as it requires relatively small capital additions to already existing corn ethanol facilities. While this technology is promising, there is currently no pathway in the RFS2 regulations for the generation of cellulosic biofuel RINs using the cellulosic portion of the corn kernel as a feedstock. Moreover, EdeniQ has not announced any agreements with corn ethanol producers to install this technology to enable the production of cellulosic ethanol. For these reasons, EPA has not included any cellulosic ethanol production from EdeniQ's technology in our 2012 projections. We will continue to monitor their process in the coming months for signs of progress towards commercialization of their technology and will consider adding production volumes from EdeniQ into our final projections if appropriate.

In addition to the facilities mentioned above, EPA is also aware of three companies planning to begin the production of cellulosic biofuels in early 2013. Coskata, Enerkem, and Poet are planning on completing construction on their first commercial scale cellulosic biofuel facilities in late 2012 or early 2013 and producing commercial volumes of biofuels in 2013. While it is possible that construction of any of these facilities could be completed ahead of schedule and a small volume of fuel could be produced in 2012, history in this industry suggests that this is unlikely. EPA has therefore not projected that any volume of cellulosic biofuel will be produced from these facilities in 2012. These facilities, along with several other commercial cellulosic biofuel facilities planning to begin production in 2013, notably the first commercial scale facilities from Abengoa and Mascoma, indicate that the potential exists for the rapid expansion of production volumes in future years.

3. Imports of Cellulosic Biofuel

While domestically produced cellulosic biofuels are the most likely source of cellulosic biofuel available in the United States, producers and/or importers of cellulosic biofuel produced in other countries may also generate RINs and participate in the RFS2 program. While the RFS2 program does provide a financial incentive for companies to import cellulosic biofuels into the United States, the combination of local demand, financial incentives from other governments, and transportation costs for the cellulosic biofuel has resulted in no cellulosic biofuel being imported to the United States thus far. EPA believes this situation is likely to continue in the near future. Additionally, the majority of internationally based cellulosic biofuel facilities that currently exist or plan to complete construction by the end of 2012 are small research and development or pilot facilities not designed for the commercial production of fuel.

Two notable exceptions, both located in Canada, are Enerkem and Iogen. Enerkem has a currently existing commercial production facility in Westbury, Quebec and is expecting to complete construction on a second facility in Edmonton, Alberta in late 2011. Iogen has a small demonstration facility in Ottawa and is currently exploring the possibility of building their first commercial facility near Prince Albert, Saskatchewan. The large expected production volumes and relatively small distance this fuel would have to be transported to reach the United States make these facilities the most likely candidates to import cellulosic biofuel into the United States. In conversations with EPA, however, both companies indicated that they had no current intentions of importing fuel from their Canadian production facilities into the United States. On September 1, 2010 the government of Canada finalized regulations requiring all gasoline sold in Canada to have a renewable content of 5% and all diesel fuel and heating oil to have a renewable content of 2%. These regulations will further increase local demand for any cellulosic biofuel produced from these two facilities and decrease the likelihood of any of this fuel being exported to the United States. For these reasons we have not included any cellulosic biofuel production from foreign facilities in our projections of cellulosic biofuel availability in 2012.

4. Summary of Volume Projections

The information EPA has gathered on the potential cellulosic biofuel producers in 2012, described above, allows us to identify potential volumes that could be achieved by each facility in 2012. This information is summarized in Table II.B.4–1 below.

TABLE II.B.4–1—CELLULOSIC BIOFUEL 2012 POTENTIALLY AVAILABLE VOLUME

| Company name | Location | Feedstock | Fuel | Capacity (MGY) | Earliest production | 2012 Potentially available volume (MG) | Ethanol equivalent gallons (MG) |
|---|---|---|---|---|---|---|---|
| DuPont Danisco Cellulosic Ethanol. | Vonore, TN | Corn Stover | Ethanol | 0.25 | Online | 0.25 | 0.25 |
| Fiberight [a] | Blairstown, IA | MSW | Ethanol | 6 | Online | 3.0 | 3.0 |
| Fulcrum Bioenergy | McCarran, NV | MSW | Ethanol | 10.5 | Late 2012 | 0.5 | 0.5 |
| INEOS Bio | Vero Beach, FL. | Ag Residue, MSW. | Ethanol | 8 | May 2012 | 3.0 | 3.0 |
| KiOR | Houston, TX | Ag Residue | Gasoline, Diesel. | 0.2 | Online | 0.2 | 0.3 |
| KiOR | Columbus, MS | Pulp Wood | Gasoline, Diesel. | 10 | Mid 2012 | 4.0 | 6.4 |
| KL Energy | Upton, WY | Wood Waste | Ethanol | 1.5 | Online | 1.0 | 1.0 |
| Terrabon | Port Arthur, TX | MSW | Gasoline | 1.3 | 2012 | 0.7 | 1.0 |
| ZeaChem | Boardman, OR | Planted Trees | Ethanol | 0.25 | 2011 | 0.25 | 0.25 |
| Total | | | | | | 12.9 | 15.7 |

[a] Based on company estimate.

The potentially available volume of 12.9 million gallons of cellulosic biofuel, or 15.7 million ethanol equivalent gallons, represents the higher end of the range of cellulosic biofuel volumes that EPA believes at this time could reasonably be expected to be produced or imported and made available for use as transportation fuel, heating oil, or jet fuel in 2012. It incorporates reductions from the annual production capacity of each facility based on when the facilities anticipate fuel production will begin and assumptions regarding a ramp up period to full production. Other factors such as the funding status, risks associated with new technologies, and the current status of project construction were considered for each facility.

For the lower end of the range, we believe that a volume of 3.55 million ethanol-equivalent gallons could be justified based on currently available information. This volume is based on a consideration of only those facilities that are structurally complete at the time of this proposal and which have indicated that they anticipate commercial production of cellulosic biofuels by the end of 2011. The production facilities meeting these criteria include Dupont Danisco Cellulosic Ethanol, Fiberight (2 million gallon per year first stage), KiOR (Houston, TX facility), and KL Energy. While there is still some uncertainty regarding the projected volumes from these facilities, by completing construction and anticipating fuel production by the end of 2011 there is less uncertainty associated with these facilities than for the others listed as potential cellulosic biofuel producers for 2012.

Therefore, in today's NPRM we are proposing a range of values, from 3.55 million ethanol equivalent gallons to 15.7 million ethanol equivalent gallons for the 2012 cellulosic biofuel standard. The low end of the range represents a projection of higher confidence and less uncertainty, with greater emphasis placed on established/demonstrated production capacity. The high end of the range represents a projection of less confidence and higher uncertainty, with greater emphasis placed on productions plans. As time progresses and we are able to track whether or not the cellulosic biofuels producers are able to meet the construction and ramp up schedules they have presented, and as we consider public comments on this proposal and the EIA estimated 2012 volume of cellulosic biofuel production that they are required to provide to us by October 31 of this year, we will have a better idea of the appropriate volume of fuel that we can reasonably expect to be produced and made commercially available in 2012. Congress did not specify the degree of certainty that should be reflected in our projections of cellulosic biofuel volumes. We expect that the volume that we project in the final rule for 2012 will represent a reasonable balance of the degree of uncertainty or confidence in the projected production volume and the risk of unnecessarily reducing the applicable volumes set forth in the Act.

Although we are proposing a range of values from 3.55 to 15.7 million ethanol equivalent gallons based on information available at the time of this NPRM, we also request comment on alternative

options for setting the 2012 cellulosic biofuel volume requirement at a higher level. It is possible that a cellulosic biofuel volume requirement which reduces less of the 500 mill gallon applicable volume from the statute could spur additional near and longer-term cellulosic biofuel production capacity. We recognize that any method must take into account the uncertainty in estimating future production potential. Nevertheless, the purpose of setting a mandate is to stimulate more rapid increases in the rate of production than the cellulosic biofuel industry would likely experience in the absence of the mandate. We request comment on whether a higher volume requirement for cellulosic biofuel than we are proposing today would provide additional stimulation of production volumes of cellulosic biofuel, and the basis for setting such a higher volume requirement.

*C. Potential Limitations in 2012*

In addition to production capacity, a variety of other factors have the potential to limit the amount of cellulosic biofuel that can be produced and used in the U.S. For instance, there may be limitations in the availability of qualifying cellulosic feedstocks at reasonable prices. Most of the cellulosic biofuel producers that we anticipate will produce commercial volumes in 2012 have indicated that they will use some type of cellulosic waste, such as separated municipal solid waste, wastes from the forestry industry, and agricultural residues. Based on the analyses of cellulosic feedstock availability in the RFS2 final rule, we believe that there will be significantly more than enough sources of these feedstocks for 2012. For producers that intend to use dedicated energy crops, we do not believe that the amount of qualifying cropland for renewable fuel production under RFS2 will limit production in 2012. We plan to continue to evaluate the availability of valid feedstocks in future years as the required volumes of cellulosic biofuel increase.

We anticipate that the relatively small incremental increase in total biofuel volumes in 2012 that would be attributed to cellulosic biofuels can be accommodated by the fuel distribution system. The RFS2 final rule analysis concluded that biofuel distribution challenges as the RFS2 volume requirements ramp up could be overcome in a timely fashion. In the RFS2 final rule analysis, we assumed that most cellulosic biofuel production facilities would be constructed in the nation's heartland similar to corn ethanol production facilities. Based on more recent information, we now believe that cellulosic production facilities will be more geographically dispersed. This is the case for the specific cellulosic biofuels production facilities that we expect would produce fuel in 2012. The greater geographic dispersion would tend to lessen the distance to transport biofuels to petroleum terminals, thereby reducing the overall distribution burden. We believe that the cellulosic biofuel volumes that would be produced in 2012 could be accommodated by fuel retailers without necessitating the installation of new refueling infrastructure such as that which would be needed for E85.

*D. Advanced Biofuel and Total Renewable Fuel in 2012*

Under CAA 211(o)(7)(D)(i), EPA has the discretion to reduce the applicable volumes of advanced biofuel and total renewable fuel in the event that the projected volume of cellulosic biofuel production is determined to be below the applicable volume specified in the statute. As described in Section II.B above, we are indeed projecting the volume of cellulosic biofuel production for 2012 at significantly below the statutory applicable volume of 500 million gallons. Because cellulosic biofuel is used to satisfy the cellulosic biofuel standard, the advanced biofuel standard, and the total renewable fuel standard, any reductions in the applicable volume of cellulosic biofuel will also affect the means through which obligated parties comply with the advanced biofuel standard and the total renewable fuel standard. Therefore, we have considered whether and to what degree to propose lowering the advanced biofuel and total renewable fuel applicable volumes for 2012.

If the required volume of cellulosic biofuel for a given year is less than the volume specified in the statute, it is important to evaluate whether there would be sufficient volume of advanced biofuels to satisfy the applicable volume of advanced biofuel volume set forth in the statute. Even with a reduced volume of cellulosic biofuel, other advanced biofuels, such as biomass-based diesel, sugarcane ethanol, or other biofuels, may be available in sufficient volumes to make up for the shortfall in cellulosic biofuel. We believe that it would be consistent with the energy security and greenhouse gas reduction goals of EISA to not reduce the applicable volume of advanced biofuel set forth in the statute if there are sufficient volumes of advanced biofuels available, even if those volumes do not include the amount of cellulosic biofuel that Congress may have desired. Our authority to lower the advanced biofuel and/or total renewable fuel applicable volumes is discretionary, and in general we believe that actions to lower these volumes should only be taken if insufficient volumes of qualifying biofuel can be made available, based on such circumstances as insufficient production capacity, insufficient feedstocks, competing markets, constrained infrastructure, or the like. As discussed below, we project that sufficient volumes of advanced biofuel can be made available in 2012 such that the 2.0 bill gallon advanced biofuel requirement need not be reduced.

If we were to maintain the advanced biofuel, biomass-based diesel, and total renewable fuel volume requirements at the levels specified in the statute, while also lowering the cellulosic biofuel standard to 3.55–15.7 million ethanol-equivalent gallons, then 1,504–1,516 million gallons of the 2.0 billion gallon advanced biofuel mandate would be satisfied automatically through the satisfaction of the cellulosic and biomass based diesel standards. An additional 484–496 million ethanol-equivalent gallons of additional advanced biofuels would be needed. See Table II.D–1.

TABLE II.D–1—PROJECTED FUEL MIX IF ONLY CELLULOSIC BIOFUEL VOLUME IS ADJUSTED IN 2012

[Mill gallons]

| | Ethanol-equivalent volume | Physical volume |
|---|---|---|
| Total renewable fuel | 15,200 | 14,536–14,701 |
| Conventional renewable fuel [a] | 13,200 | 13,200 |
| Total advanced biofuel | 2,000 | 1,336–1,501 |
| Cellulosic biofuel | 3.55–15.7 | 3.45–12.9 |
| Biomass-based diesel | 1,500 | 1,000 |

TABLE II.D–1—PROJECTED FUEL MIX IF ONLY CELLULOSIC BIOFUEL VOLUME IS ADJUSTED IN 2012—Continued

[Mill gallons]

| | Ethanol-equivalent volume | Physical volume |
|---|---|---|
| Other advanced biofuel [b] | 484–496 | [c] 323–496 |

[a] Predominantly corn-starch ethanol.
[b] Rounded to nearest million gallons for simplicity.
[c] Physical volume is a range because other advanced biofuel may be ethanol, biodiesel, or some combination of the two.

The most likely sources of additional advanced biofuel would be imported sugarcane ethanol and biomass-based diesel, though there may also be some volumes of other types of advanced biofuel available as discussed below. To determine if there are likely to be sufficient volumes of these biofuels to meet the need for 484–496 million gallons of other advanced biofuel, we first examined historical data on ethanol imports and projections from EIA and USDA for 2012. Brazilian imports have made up a sizeable portion of total ethanol imported into the U.S. in the past, and these volumes were predominantly produced from sugarcane. Ethanol imports averaged about 380 million gallons per year over the last five years, and reached an all-time high of 730 million gallons in 2006.[6] These historical import volumes demonstrate that Brazil has significant export potential under the appropriate economic circumstances. However, ethanol imports were significantly lower in 2010 than in previous years. This decline in imports may be related to the cessation of the duty drawback that became effective on October 1, 2008, or to changes in world sugar prices.[7] However, Brazil continues to be second worldwide in the production of ethanol, producing a total of 6.9 bill gallons in 2009.[8] By establishing an increased U.S. demand for 484–496 million gallons of other advanced biofuel in 2012, we would be re-establishing an export market for Brazillian sugarcane ethanol that could compete with the use of sugarcane to produce sugar, and thus it can once again be economical for Brazilian producers to export higher volumes of sugarcane ethanol to the U.S. Moreover, California's Low Carbon Fuel Standard went into effect in 2010, and may result in some refiners importing additional volumes of sugarcane ethanol from Brazil into California in 2012. These same volumes could count towards the Federal RFS2 program as well.

Future projections from other sources also suggest that a large portion of the 484–496 million gallons of advanced biofuel needed could be supplied by imported sugarcane ethanol. For instance, in the Early Release of its Annual Energy Outlook 2011, EIA projects ethanol imports of approximately 400 million gallons for 2012.[9] Similarly, the university-based Food and Agricultural Policy Research Institute (FAPRI) released its 2010 U.S. and World Agricultural Outlook report in which it projects 2012 ethanol imports of 317 million gallons.[10] The volumes of imported ethanol projected by both of these sources is very likely to be sugarcane ethanol, since this is by far the predominant form of imported ethanol to date and is expected to continue to be so for the foreseeable future.

We also examined the potential for excess biodiesel to help meet the need for 484–496 million gallons of advanced biofuel. The applicable volume of biomass based diesel established in the statute for 2012 is 1.0 billion gallons (which corresponds to 1500 ethanol-equivalent gallons). As discussed more fully in Section II.E below, we believe that the biodiesel industry has the potential for producing volumes above 1.0 billion gallons if demand for such volume exists, potentially up to an additional several hundred million gallons.

Another potential source of advanced biofuels is electricity generated from renewable biomass that is used as a transportation fuel. EIA data indicates that in 2009, the most recent year for which data is available, 35.6 million megawatt-hours of electricity was generated from wood and wood derived fuels, and an additional 18.4 million megawatt-hours was generated from other biomass in the United States.[11] If all of this electricity were used as a transportation fuel it would represent nearly 2.4 billion ethanol equivalent gallons of advanced biofuel. While not all the feedstocks used to generate the electricity included in these totals would meet the RFS2's renewable biomass definition this remains a very large potential source of advanced biofuel RINs.

In addition to verifying that the feedstocks used to generate renewable electricity meet the renewable biomass definition producers would also be required to document that the electricity they produce is used as a transportation fuel in order to be eligible to generate RINs. Until recently there were very few vehicles capable of using electricity as a transportation fuel. Expected increases in the number of vehicles with this capability, such as electric vehicles and plug in hybrids, has the potential to dramatically increase the degree to which electricity is able to be used as a transportation fuel. Verifying that the renewable electricity produced is used as a transportation fuel would still remain a challenge, however the potential for capitalizing on the RIN value, without the necessity of making major changes in the areas of fuel production, distribution, or end use, may be a large enough incentive to overcome this challenge. While the many uncertainties associated with the generation of advanced biofuel RINs from renewable electricity prevent EPA from making a quantitative projection for 2012, such RINs may nevertheless play a role in meeting the advanced biofuel standard.

Finally, there are also other potential sources of advanced biofuels. For instance, several companies are making progress on opening advanced biofuel production facilities as early as 2012. Gevo purchased a dry mill corn ethanol plant in Minnesota and is in the process of converting it to produce up to 10 million gallons of biobutanol per year. Solazyme produced over 150,000

[6] "Monthly U.S. Imports of Fuel Ethanol," EIA, released 3/30/2011.

[7] Lundell, Drake, "Brazilian Ethanol Export Surge to End; U.S. Customs Loophole Closed Oct. 1," Ethanol and Biodiesel News, Issue 45, November 4, 2008.

[8] Portal Brasil, Energy Matrix for Ethanol, *http://www.brasil.gov.br/sobre/economy/energy-matrix/ethanol/br_model1?set_language=en.*

[9] Table 11 of AEO2011 Early Release, Report Number DOE/EIA–0383ER(2011). *http://www.eia.doe.gov/forecasts/aeo/tables_ref.cfm.*

[10] Table "Ethanol trade", World Biofuels, FAPRI 2010 U.S. and World Agricultural Outlook. *http://www.fapri.iastate.edu/outlook/2010/.*

[11] Table ES1 of Electric Power Industry 2009: Year in Review. Available online: *http://www.eia.doe.gov/cneaf/electricity/epa/epayir.pdf.*

gallons of algal oil in 2010–2011 that was then converted to jet fuel by UOP and is planning for increased production in 2012. LS9 purchased a fermentation facility in Florida that will enable them to produce 50,000 to 100,000 gallons of diesel fuel per year and plan to have this facility full operational by 2012. Several other companies are also planning on producing advanced biofuels using a variety of feedstocks, including sugars, sweet sorghum, waste cooking oil or restaurant grease, algal oils, and many others that have the potential to achieve commercial production by the end of 2012. Insofar as such fuels are registered under 40 CFR part 79 and meet all the requirements for RIN generation under the RFS program, they could contribute to compliance with the advanced biofuels standard in 2012.

By adding up the potential volumes of imported sugarcane ethanol, excess biodiesel, and other sources of advanced biofuel, there are likely to be sufficient volumes of advanced biofuels to meet the need for 484–496 million gallons. As a result, we do not believe that the advanced biofuel standard need be lowered below the 2.0 billion gallon level specified in the Act. Thus, we are not proposing to reduce the applicable volume of advanced biofuel for 2012. In addition, since we are not proposing to lower the advanced biofuel standard for 2012, we do not believe that there is a need to lower the total renewable fuel standard. Nevertheless, since there is some uncertainty in both the availability of advanced biofuels in 2012 and the market conditions which would support their availability, we request comment on whether the advanced biofuel and total renewable fuel standards should be lowered, and the basis for such a reduction in the applicable volumes from the statute.

*E. Biomass-Based Diesel in 2012*

As described more fully in Section II.D above, we must determine whether the required volumes of advanced biofuel and/or total renewable fuel should be reduced if we reduce the required volume of cellulosic biofuel. The amount of biomass-based diesel that we project will be available directly affected our proposed consideration for this NPRM of adjustments to the volumetric requirements for advanced biofuel and total renewable fuel.

To evaluate whether the applicable volume of 1.0 bill gallons for biomass-based diesel is achievable in 2012, and whether even greater volumes could be produced, we examined recent production rates, production capacity of the industry, and projections for future production. Although there are a variety of potential fuel types that can qualify as biomass-based diesel, biodiesel is by far the predominant type. Thus, our assessment focused primarily on biodiesel, though we also investigated potential volumes of renewable diesel.

According to the Energy Information Administration, biodiesel production in 2010 reached 311 mill gallons.[12] However, we believe that this value underestimates the volume of biomass-based diesel actually produced in 2010 since it is based primarily on feedstocks used in the production of biodiesel. Based on information from the EPA-Moderated Transaction System (EMTS) and RIN generation reports submitted to EPA from producers, we estimate that the volume of biomass-based diesel produced in 2010 was about 380 mill gallons. While this is higher than the 345 mill gallons that we projected would be needed for compliance with the 2010 biomass-based diesel standard,[13] there were also exports of biodiesel that would have reduced the availability of RINs for compliance purposes. To the degree that the volume of biomass-based diesel fell short of the 345 mill gallons that we estimated would be needed, obligated parties would have needed to carry a deficit into 2011.

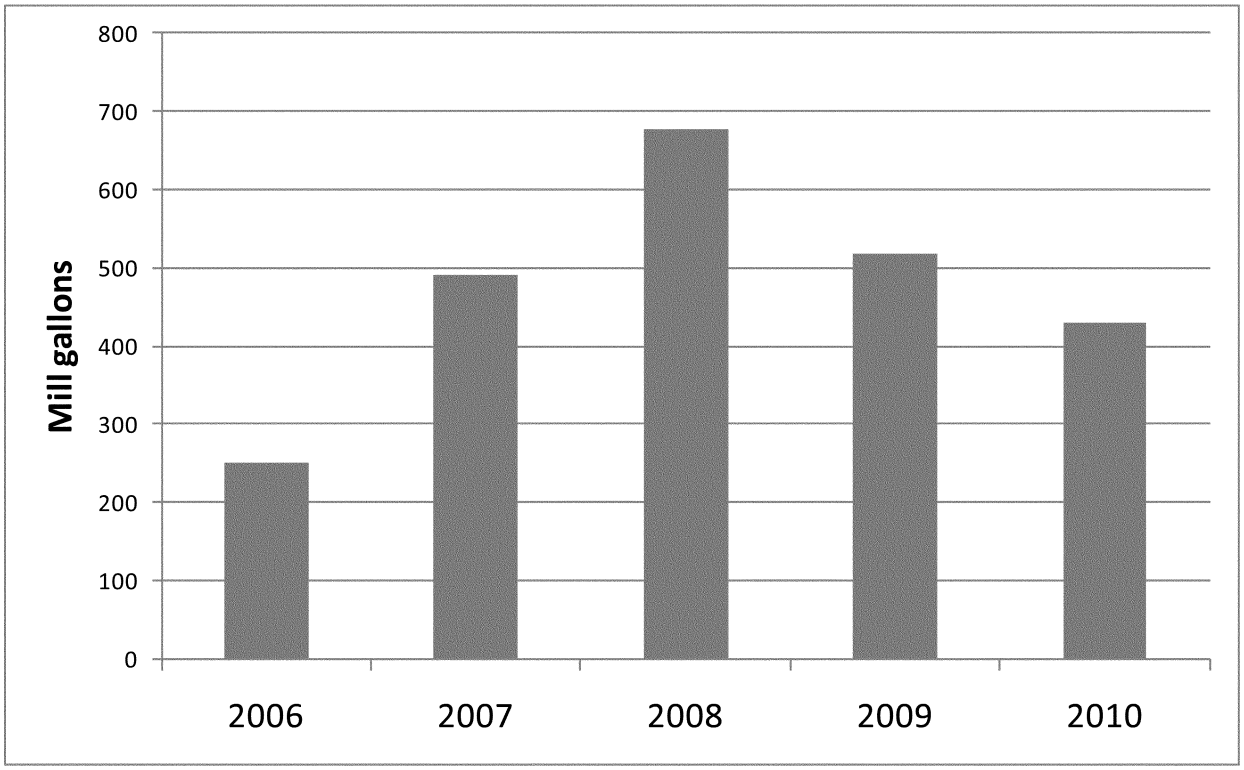
However, many of the activities of the biodiesel industry in 2010 were due to unique circumstances that may not apply in 2012. It is likely that a contributing factor to the lower production volumes in 2010 was the expiration of the biodiesel tax credit at the end of 2009, and the uncertainty throughout 2010 regarding whether and when it might be reinstated. This situation may have led to hesitation on the part of obligated parties for establishing binding contracts for purchases of biodiesel.

Historical production of biodiesel has varied significantly depending on market demand as shown in Figure II.E–1 below.

[12] Monthly Energy Review, May 2011. *http://www.eia.doe.gov/emeu/mer/pdf/pages/sec10_8.pdf.*

[13] See question 6.7 in EPA's ''Questions and Answers on Changes to the Renewable Fuel Standard Program (RFS2)'', *http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfs2-aq.htm#6.*

Figure II.E-1
Historical Domestic Production of Biodiesel




Source: EIA Annual Energy Outlook 2011 Early Release

The fact that the U.S. biodiesel industry has produced higher volumes when demand for it existed suggests that the industry has the capability to produce greater volumes than it did in 2010 under the appropriate circumstances. For instance, information from the EPA-Moderated Transaction System (EMTS) indicates that monthly production volumes of biodiesel have increased steadily in the first few months of 2011, reaching 74 mill gallons by April.[14] This trend demonstrates that the industry is responding to the higher demand created by the 800 mill gal biomass-based diesel volume requirement under the RFS program in 2011.

The biodiesel industry's production potential supports the view that it can more than satisfy the applicable volume of biomass-based diesel specified in the statute for 2012. As of January, 2011, the aggregate production capacity of biodiesel plants in the U.S. was estimated at 2.8 billion gallons per year across approximately 170 facilities. [15] Of this aggregate production capacity, at least 1.8 billion gallons of production capacity has been registered under the RFS2 program.[16] Although some facilities are currently idle, and ramping up production will require some time and potentially some reinvestment, based on feedback from industry we nevertheless believe that it can occur in time to meet a production goal of 1.0 billion gallons in 2012.

Projections of production for 2012 strongly suggest that 1.0 bill gallons of biomass-based diesel is achievable. For instance, the U.S. Department of Agriculture projects that over 400 mill gallons of biodiesel will be produced from soybean oil in 2012, and adds that ''Although some other first-use vegetable oils are also used to produce biodiesel, most of the remaining biodiesel production needed to reach the 1-billion-gallon mandate of the 2007 Energy Act uses animal fats or recycled vegetable oil as the feedstock.'' [17] This projection is further supported by the Agricultural Marketing Resource Center at Iowa State University, which projects that soy-oil biodiesel production may reach as high as 470 mill gallons and that non-soy biodiesel may reach as high as 460 mill gallons.[18] Both of these sources project more growth in non-soy oil feedstock volumes than soy oil. Finally, EIA projects that the total volume of biodiesel in 2012 would be about 840 mill gallons.[19] While all of these projections suggest that volumes of biodiesel may fall short of 1.0 bill gallons, we believe that sufficient additional volumes of renewable diesel can also be available to meet the 1.0 bill gal requirement for biomass-based diesel. For instance, Dynamic Fuels has constructed one plant in Geismar, Louisiana that started production of renewable diesel in November, 2010.[20] In the final RFS2 rule, we projected that annual renewable diesel production could reach 150 mill gallons based on feedstock availability. Since renewable diesel can also be produced at existing refineries with little or no modification to processing equipment, we believe

[14] 2011 RIN Generation and Renewable Fuel Volume Production, *http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfsdata.htm.*

[15] Figures taken from National Biodiesel Board's Member Plant List as of January 27, 2011. *http://biodiesel.org/buyingbiodiesel/plants/showall.aspx.*

[16] Comments from National Biodiesel Board on the July 20, 2010 NPRM proposing the RFS standards for 2011. See Docket EPA–HQ–OAR–2010–0133.

[17] USDA Agricultural Projections to 2020, Long-Term Projections Report OCE–2011–1, February 2011. See Table 24. Assumes 7.68 lb/gal.

[18] Soybean Oil and Biodiesel Usage Projections and Balance Sheet, updated 2/18/2011. *http://www.extension.iastate.edu/agdm/crops/outlook/soybeanbalancesheet.pdf.* Values cited are for the ''High'' case.

[19] Short-Term Energy Outlook, February 2011. Table 8.

[20] Project status updates are available via the Syntroleum Web site, *http://dynamicfuelsllc.com/wp-news/.*

that 150 mill gallons of renewable diesel could be produced in 2012. Thus, we currently believe that the total production volume of both biodiesel and renewable diesel can reach 1.0 bill gal in 2012.

We also believe that there will be sufficient sources of qualifying renewable biomass to more than meet the needs of the biodiesel industry in 2012. The largest sources of feedstock for biodiesel in 2012 are expected to be soy oil, canola oil, rendered fats, and potentially some corn oil extracted during production of fuel ethanol, as this technology continues to proliferate. Moreover, information we received from a large rendering company suggests that there will be adequate fats and greases feedstocks to supply biofuels production as well as other historical uses.[21]

Based on our review of the production potential of the biodiesel industry, and projections from several sources, and our assessment of available feedstocks, we believe that the 1.0 billion gallons needed to satisfy the applicable volume of biomass-based diesel specified in the statute can be produced in 2012. Therefore, we are not proposing to lower the biomass-based diesel standard of 1.0 billion gallons that is specified in the Act. Moreover, based on production capacity and availability of feedstocks, we believe that volumes of biomass-based diesel in excess of 1.0 bill gallons could be made available given sufficient market demand.

## III. Proposed Percentage Standards for 2012

### *A. Background*

The renewable fuel standards are expressed as a volume percentage, and are used by each refiner, blender or importer to determine their renewable volume obligations (RVO). Since there are four separate standards under the RFS2 program, there are likewise four separate RVOs applicable to each obligated party. Each standard applies to the sum of all gasoline and diesel produced or imported. The applicable percentage standards are set so that if each regulated party meets the percentages, then the amount of renewable fuel, cellulosic biofuel, biomass-based diesel, and advanced biofuel used will meet the volumes required on a nationwide basis.

As discussed in Section II.B.4, we are proposing a required volume of cellulosic biofuel for 2012 in the range of 3.45–12.9 million gallons (3.55–15.7 million ethanol equivalent gallons). The single volume we select for the final rule will be used as the basis for setting the percentage standard for cellulosic biofuel for 2012. We are also proposing that the advanced biofuel and total renewable fuel volumes would not be reduced below the applicable volumes specified in the statute. The proposed 2012 volumes used to determine the four percentage standards are shown in Table III.A–1.

TABLE III.A–1—PROPOSED VOLUMES FOR 2012

| | Actual volume | Ethanol equivalent volume |
|---|---|---|
| Cellulosic biofuel | 3.45–12.9 mill gal | 3.55–15.7 mill gal. |
| Biomass-based diesel | 1.0 bill gal | 1.5 bill gal. |
| Advanced biofuel | 2.0 bill gal | 2.0 bill gal. |
| Renewable fuel | 15.2 bill gal | 15.2 bill gal. |

The formulas used in deriving the annual renewable fuel standards are based in part on estimates of the volumes of gasoline and diesel fuel, for both highway and nonroad uses, that will be used in the year in which the standards will apply. Producers of other transportation fuels, such as natural gas, propane, and electricity from fossil fuels, are not subject to the standards, and volumes of such fuels are not used in calculating the annual standards. Since the standards apply to producers and importers of gasoline and diesel, these are the transportation fuels used to set the standards, and then again to determine the annual volume obligations of an individual gasoline or diesel producer or importer.

### *B. Calculation of Standards*

1. How are the standards calculated?

The following formulas are used to calculate the four percentage standards applicable to producers and importers of gasoline and diesel (see § 80.1405):

[21] See **Federal Register** v. 74 n. 99 p. 24903. Comments are available in docket EPA–HQ–OAR–2005–0161.

$$\mathrm{Std}_{\mathrm{CB,i}} = 100\% \times \frac{\mathrm{RFV}_{\mathrm{CB,i}}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$\mathrm{Std}_{\mathrm{BBD,i}} = 100\% \times \frac{\mathrm{RFV}_{\mathrm{BBD,i}} \times 1.5}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$\mathrm{Std}_{\mathrm{AB,i}} = 100\% \times \frac{\mathrm{RFV}_{\mathrm{AB,i}}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

$$\mathrm{Std}_{\mathrm{RF,i}} = 100\% \times \frac{\mathrm{RFV}_{\mathrm{RF,i}}}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

Where:

$\mathrm{Std}_{\mathrm{CB,i}}$ = The cellulosic biofuel standard for year i, in percent.

$\mathrm{Std}_{\mathrm{BBD,i}}$ = The biomass-based diesel standard (ethanol-equivalent basis) for year i, in percent.

$\mathrm{Std}_{\mathrm{AB,i}}$ = The advanced biofuel standard for year i, in percent.

$\mathrm{Std}_{\mathrm{RF,i}}$ = The renewable fuel standard for year i, in percent.

$\mathrm{RFV}_{\mathrm{CB,i}}$ = Annual volume of cellulosic biofuel required by section 211(o) of the Clean Air Act for year i, in gallons.

$\mathrm{RFV}_{\mathrm{BBD,i}}$ = Annual volume of biomass-based diesel required by section 211(o) of the Clean Air Act for year i, in gallons.

$\mathrm{RFV}_{\mathrm{AB,i}}$ = Annual volume of advanced biofuel required by section 211(o) of the Clean Air Act for year i, in gallons.

$\mathrm{RFV}_{\mathrm{RF,i}}$ = Annual volume of renewable fuel required by section 211(o) of the Clean Air Act for year i, in gallons.

$G_i$ = Amount of gasoline projected to be used in the 48 contiguous states and Hawaii, in year i, in gallons.

$D_i$ = Amount of diesel projected to be used in the 48 contiguous states and Hawaii, in year i, in gallons.

$RG_i$ = Amount of renewable fuel blended into gasoline that is projected to be consumed in the 48 contiguous states and Hawaii, in year i, in gallons.

$RD_i$ = Amount of renewable fuel blended into diesel that is projected to be consumed in the 48 contiguous states and Hawaii, in year i, in gallons.

$GS_i$ = Amount of gasoline projected to be used in Alaska or a U.S. territory in year i if the state or territory opts-in, in gallons.

$RGS_i$ = Amount of renewable fuel blended into gasoline that is projected to be consumed in Alaska or a U.S. territory in year i if the state or territory opts-in, in gallons.

$DS_i$ = Amount of diesel projected to be used in Alaska or a U.S. territory in year i if the state or territory opts-in, in gallons.

$RDS_i$ = Amount of renewable fuel blended into diesel that is projected to be consumed in Alaska or a U.S. territory in year i if the state or territory opts-in, in gallons.

$GE_i$ = The amount of gasoline projected to be produced by exempt small refineries and small refiners in year i, in gallons, in any year they are exempt per §§ 80.1441 and 80.1442, respectively. For 2012, this value is 3.27 bill gal. See further discussion in Section III.B.2 below.

$DE_i$ = The amount of diesel projected to be produced by exempt small refineries and small refiners in year i, in gallons, in any year they are exempt per §§ 80.1441 and 80.1442, respectively. For 2012, this value is 1.23 bill gal. See further discussion in Section III.B.2 below.

The four separate renewable fuel standards for 2012 are based on the 49-state gasoline and diesel consumption volumes projected by EIA. The Act requires EPA to base the standards on an EIA estimate of the amount of gasoline and diesel that will be sold or introduced into commerce for that year. The projected volume of gasoline used to calculate the final 2012 percentage standards will be provided directly by EIA. For the purposes of this proposal, we have used the April 2011 issue of STEO for the gasoline projection. The projected volume of transportation diesel used to calculate the final 2012 percentage standards will be provided by EIA. For the purposes of this proposal, we have used the Early Release version of AEO2011. Gasoline and diesel volumes are adjusted to account for renewable fuel contained in the EIA projections. The projected volumes of ethanol and biodiesel used to calculate the final percentage standards will be provided by EIA; for 2011, the final values were based on EIA's Short-Term Energy Outlook (STEO). For the purposes of this proposal, we have used the April 2011 values for ethanol and biodiesel provided in the STEO. Although EIA will be providing fuel consumption projections for the final rule, using the most recent available EIA data for purposes of this proposal allows us to provide the affected industries with a reasonable estimate of the standards for planning purposes.

2. Small Refineries and Small Refiners

In CAA section 211(o)(9), enacted as part of the Energy Policy Act of 2005, Congress provided a temporary exemption to small refineries (those refineries with a crude throughput of no more than 75,000 barrels of crude per day) through December 31, 2010. In RFS1, we exercised our discretion under section 211(o)(3)(B) and extended this temporary exemption to the few remaining small refiners that met the Small Business Administration's (SBA) definition of a small business (1,500 employees or less company-wide) but did not meet the statutory small refinery definition as noted above. Because EISA did not alter the small refinery exemption in any way, the RFS2 program regulations exempted gasoline and diesel produced by small refineries and small refiners in 2010 from the

renewable fuels standard (unless the exemption was waived), see 40 CFR 80.1141.

Under the RFS program, Congress provided two ways that small refineries can receive a temporary extension of the exemption beyond 2010. One is based on the results of a study conducted by the Department of Energy (DOE) to determine if small refineries would face a disproportionate economic hardship under the RFS program. The other is based on EPA determination of disproportionate economic hardship on a case-by-case basis in response to refiner petitions.

In January 2009, DOE issued a study which did not find that small refineries would face a disproportionate economic hardship under the RFS program.[22] The conclusions were based in part on the expected robust availability of RINs and EPA's ability to grant relief on a case-by-case basis. As a result, beginning in 2011 small refiners and small refineries were required to participate in the RFS program as obligated parties, and there was no small refiner/refinery volume adjustment to the 2011 standard as there was for the 2010 standard.

Following the release of DOE's 2009 small refinery study, Congress directed DOE to complete a reassessment and issue a revised report. DOE recently re-evaluated the impacts of the RFS program on small entities and concluded that some small refineries would suffer a disproportionate hardship if required to participate in the program.[23] As a result, these refineries will be exempt from being obligated parties for a minimum of two additional years, 2011 and 2012.[24] The proposed 2012 standards reflect the exemption of these refineries. In addition, and separate from the DOE determination, EPA may extend the exemption for individual small refineries on a case-by-case basis if they demonstrate disproportionate economic hardship. A few refineries have satisfactorily made this demonstration, and EPA has acted on their requests. The gasoline and diesel volumes of those refineries have been appropriately accounted for in the development of the proposed standards. If additional individual refinery requests for exemptions are approved following the release of this NPRM, the final standards will be adjusted to account for those exempted volumes of gasoline and diesel. However, any requests for exemptions that are approved after the release of the final 2012 RFS standards will not affect the 2012 standards. As stated in the final rule establishing the 2011 standards, ''EPA believes 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.'' Thus, after the 2012 standards are finalized, any additional exemptions issued will not affect those standards.

3. Proposed Standards

As finalized in the March 26, 2010 RFS2 rule, the standards are expressed in terms of energy-equivalent gallons of renewable fuel, with the cellulosic biofuel, advanced biofuel, and total renewable fuel standards based on ethanol equivalence and the biomass-based diesel standard based on biodiesel equivalence. However, all RIN generation is based on ethanol-equivalence. More specifically, the RFS2 regulations provide that production or import of a gallon of biodiesel will lead to the generation of 1.5 RINs. In order to ensure that demand for 1.0 billion physical gallons of biomass-based diesel will be created in 2012, the calculation of the biomass-based diesel standard provides that the required volume be multiplied by 1.5. The net result is a biomass-based diesel gallon being worth 1.0 gallons toward the biomass-based diesel standard, but worth 1.5 gallons toward the other standards.[25]

The levels of the percentage standards would be reduced if Alaska or a U.S. territory chooses to participate in the RFS2 program, as gasoline and diesel produced in or imported into that state or territory would then be subject to the standard. Neither Alaska nor any U.S. territory has chosen to participate in the RFS2 program at this time, and thus the value of the related terms in the calculation of the standards is zero.

Note that the terms for projected volumes of gasoline and diesel use include gasoline and diesel that has been blended with renewable fuel. Because the gasoline and diesel volumes estimated by EIA include renewable fuel use, we must subtract the total renewable fuel volume from the total gasoline and diesel volume to get total non-renewable gasoline and diesel volumes. The values of the variables described above are shown in Table III.B.3–1.[26] Terms not included in this table have a value of zero.

TABLE III.B.3–1—VALUES FOR TERMS IN CALCULATION OF THE STANDARDS

[Bill gal]

| Term | Value |
|---|---|
| $RFV_{CB,2012}$ | 0.00355–0.0157 |
| $RFV_{BBD,2012}$ | 1.0 |
| $RFV_{AB,2012}$ | 2.0 |
| $RFV_{RF,2012}$ | 15.20 |
| $G_{2012}$ | 139.98 |
| $D_{2012}$ | 44.47 |
| $RG_{2012}$ | 14.17 |
| $RD_{2012}$ | 0.83 |

Using the volumes shown in Table III.B.3–1, we have calculated the proposed percentage standards for 2012 as shown in Table III.B.3–2.

TABLE III.B.3–2—PROPOSED PERCENTAGE STANDARDS FOR 2012

| | |
|---|---|
| Cellulosic biofuel | 0.002% to 0.010%. |
| Biomass-based diesel | 0.91%. |
| Advanced biofuel | 1.21%. |
| Renewable fuel | 9.21%. |

## IV. Biomass-Based Diesel Volume for 2013

In today's action we are proposing an applicable volume for biomass-based diesel for 2013, based on the statutory requirement to establish the applicable volume of biomass-based diesel for years after 2012 no later than 14 months before the first year for which the applicable volume will apply. To do this, we have reviewed RFS program implementation to date and analyzed a number of factors specified in the statute as part of this effort. We have investigated what the demand for biomass-based diesel is likely to be in 2013 taking into consideration the applicable advanced biofuel volume specified in the statute, the analyses we

[22] DOE report ''EPACT 2005 Section 1501 Small Refineries Exemption Study'', (January, 2009).

[23] ''Small Refinery Exemption Study: An Investigation into Disproportionate Economic Hardship,'' U.S. Department of Energy, March 2011.

[24] Since the standards are applied on an annual basis, the exemptions are likewise on an annual basis even though the determination of which refineries would receive an extension to their exemption did not occur until after January 1, 2011.

[25] 75 FR 14716, March 26, 2010.

[26] To determine the 49-state values for gasoline and diesel, the amounts of these fuels used in Alaska is subtracted from the totals provided by DOE. The Alaska fractions are determined from the most recent (2009) EIA State Energy Data, Transportation Sector Energy Consumption Estimates. The gasoline and transportation distillate fuel oil fractions are approximately 0.2% and 0.8%, respectively. Ethanol use in Alaska is estimated at 8.4% of its gasoline consumption (based on the same State data), and biodiesel use is assumed to be zero.

conducted in the RFS2 final rulemaking, and a consideration of biodiesel production, consumption, and infrastructure issues. In these investigations, biodiesel was the primary focus since it is expected to be the predominant type of biomass-based diesel through at least the next few years. However, renewable diesel may also play a role in meeting the biomass-based diesel standard. When appropriate, we have discussed renewable diesel separately from biodiesel.

Note that, in proposing the 2013 applicable volume of biomass-based diesel, we are not at this time proposing the percentage standards that would apply to obligated parties in 2013. Instead, the percentage standards will be determined after projections of gasoline and diesel volume are provided by the Energy Information Administration (EIA) in the fall of 2012, and will be announced by November 30, 2012. Moreover, in today's proposal we are not addressing potential exemptions for small refineries and/or small refiners in 2013, since such exemptions are only relevant in the context of specifying the percentage standards and their applicability. Finally, we are not proposing any applicable volumes of biomass-based diesel for 2014 or later years.

*A. Statutory Requirements*

Section 211(o)(2)(B)(i) of the Clean Air Act specifies the applicable volumes of renewable fuel on which the annual percentage standards must be based, unless the applicable volumes are waived or adjusted by EPA in accordance with specific authority and directives specified in the statute.[27] Applicable volumes are provided in the statute for years through 2022 for cellulosic biofuel, advanced biofuel, and total renewable fuel. For biomass-based diesel, applicable volumes are provided through 2012. For years after those specified in the statute (*i.e.* 2013+ for biomass-based diesel and 2023+ for all others), EPA is required to determine the applicable volume, in coordination with the Secretary of Energy and the Secretary of Agriculture, based on a review of the implementation of the program during calendar years for which the statute specifies the applicable volumes, and an analysis of the following:

- The impact of the production and use of renewable fuels on the environment, including on air quality, climate change, conversion of wetlands, ecosystems, wildlife habitat, water quality, and water supply;
- The impact of renewable fuels on the energy security of the United States;
- The expected annual rate of future commercial production of renewable fuels, including advanced biofuels in each category (cellulosic biofuel and biomass-based diesel);
- The impact of renewable fuels on the infrastructure of the United States, including deliverability of materials, goods, and products other than renewable fuel, and the sufficiency of infrastructure to deliver and use renewable fuel;
- The impact of the use of renewable fuels on the cost to consumers of transportation fuel and on the cost to transport goods; and
- The impact of the use of renewable fuels on other factors, including job creation, the price and supply of agricultural commodities, rural economic development, and food prices.

While EPA is given the authority to determine the appropriate volume of renewable fuel for those years that are not specified in the statute based on a review of program implementation and analysis of the factors listed above, the statute also specifies that the applicable volume of biomass-based diesel cannot be less than the applicable volume for calendar year 2012, which is 1.0 bill gallons.

It is useful to note that the statutory provisions described above are silent in two important areas. First, the statute does not provide numerical criteria or thresholds that must be attained in the determination of applicable volumes (other than specifying a minimum volume of 1.0 bill gal), nor does it describe any overarching goals such as maximizing GHG or energy security benefits or minimizing cost. The EPA, in coordination with DOE and USDA, is thus effectively charged with making a determination of the applicable volumes based on a judgment of their reasonableness in the context of a review of program implementation and analysis of the factors described above. Second, the statute does not provide authority to raise the applicable volumes of advanced biofuel or total renewable fuel above those specified in the statute for years up to and including 2022. Thus, any increase in the biomass-based diesel volume requirement above that specified for 2012 would not have any impact on the advanced biofuel or total renewable fuel volume requirements. Rather, increasing the biomass-based diesel volume requirement above 1.0 bill gallons would likely result in a change in the makeup of biofuels used to meet the advanced biofuel and the total renewable fuel standards, but would not change the total required volumes of those fuels (in terms of ethanol-equivalent gallons).

Finally, the statute also specifies the timeframe within which these volumes must be promulgated: The rules establishing the applicable volumes must be finalized no later than 14 months before the first year for which such applicable volume will apply. For the biomass-based diesel volume that would apply beginning on January 1, 2013, then, we must finalize the applicable volume by November 1, 2011.

*B. Factors Considered in Assessing 2013 Biomass-Based Diesel Volumes*

As described in Section IV.A, we are required to review the implementation of the RFS program for years prior to 2013, and to use information from this review in determining the applicable volume of biomass-based diesel for 2013. However, given the short history of the RFS program, we believe this review is of limited value. Prior to the beginning of the RFS2 program on July 1, 2010, the RFS1 program had no volume requirement specific to biomass-based diesel. Although RINs were generated for biodiesel under the RFS1 program and those RINs were available for use in satisfying obligated parties' RFS1 total renewable fuel Renewable Volume Obligation (RVO), we do not believe that the RFS1 program contributed significantly to producers' production decisions. Rather, biodiesel production was driven by market demand apart from the RFS program requirements coupled with a tax credit for biodiesel blends. We believe that little can be discerned from the RFS1 history about the operation of the biodiesel industry under a future RFS2 volume mandate.

In the short time since the RFS2 program went into effect, biodiesel production volumes have not increased substantially above historical levels due most likely to factors such as the availability of carryover RINs from 2008 and 2009 and the expiration of the biodiesel tax credit (which was reinstituted at the end of 2010). Domestic biodiesel consumption varied little in the 2008–2010 timeframe, averaging about 330 mill gallons each year.

Given the increases in the biomass-based diesel volumes that are required in the statute for 2011 and 2012, we expect production and consumption volumes of biodiesel to increase

[27] For example, EPA may waive a given standard in whole or in part following the provisions at 211(o)(7).

substantially above these recent historic levels. A review of the RFS program during 2011 and 2012 will, therefore, provide more relevant information regarding implementation of the RFS program for purposes of helping us to evaluate how the industry, as well as feedstock supplies and infrastructure, can respond to potential requirements in 2014 and beyond. For the purposes of proposing the 2013 biomass-based diesel applicable volume in today's NPRM, however, this information is not available.

With the limited information available on the current and historical operation of the RFS program, we believe it would be prudent for 2013 to consider only moderate increases above the statutory minimum of 1.0 bill gallons. One possible benchmark is provided by the increments and growth pattern of those increments that Congress established for the years 2009–2012, shown in Table IV.B–1.

TABLE IV.B–1—INCREMENTAL INCREASES IN BIOMASS-BASED DIESEL IN THE STATUTE

[Bill gal]

| | Applicable volume of biomass-based diesel | Increment from previous year |
|---|---|---|
| 2009 | 0.5 | n/a |
| 2010 | 0.65 | 0.15 |
| 2011 | 0.80 | 0.15 |
| 2012 | 1.0 | 0.20 |

These increments provide a precedent for evaluating a reasonable mandatory minimum growth pattern for 2013. The increments increased in magnitude over the four-year period specified in the statute, increasing from 0.15 bill gal to 0.20 bill gal. If this trend were to continue, the 2013 volume could be more than 0.20 bill gal higher than the 2012 volume. Thus our intention is to consider an incremental increase in the applicable volume of biomass-based diesel between 2012 and 2013 that is not a dramatic change from the trend in increments shown above.

In the final rulemaking establishing the RFS2 program, we developed renewable fuel volume scenarios for all years between 2010 and 2022. For 2013, we estimated a biomass-based diesel volume of 1.28 bill gallons. This volume was based primarily on a projection of the qualifying feedstocks that could be available. Our analyses of feedstock availability in the RFS2 final rule concluded that the 2013 minimum biomass-based diesel volume of 1.0 bill gallons could be met and, indeed, that 1.28 billion gallons could be reasonably produced.[28] The value of 1.28 bill gallons assumed for 2013 in the RFS2 final rule appears to roughly follow the pattern in incremental growth shown in Table IV.B–1 above. Moreover, this biomass-based diesel volume has already been partially evaluated in the RFS2 rule. Therefore, EPA decided to evaluate the appropriateness of proposing an applicable volume for 2013 of 1.28 bill gallons. To this end, we considered whether 1.28 bill gal of biomass-based diesel was reasonable given likely market demand, availability of feedstocks, production capacity, limitations related to storage and consumption, infrastructure, and the impacts of biomass-based diesel in a variety of areas as required under the statute. These impacts are discussed in the subsequent Section IV.C.

1. Demand for Biomass-Based Diesel

The demand for biomass-based diesel in 2013 will be a function of not only the biomass-based diesel standard, but also the advanced biofuel standard, since the standards under the RFS2 program are nested. That is, every RIN that is valid for meeting the biomass-based diesel standard is also valid for meeting the advanced biofuel standard. Moreover, there are currently only a small number of biofuels that are likely to be available for meeting the advanced biofuel standard. In addition to biomass-based diesel, these would include any RINs used to meet the cellulosic biofuel standard, coprocessed renewable diesel, and sugarcane ethanol. To the degree that there are limits in these other advanced biofuels, additional biomass-based diesel may be needed to make up any shortfall.

Since the advanced biofuel standard is an important factor in determining the demand for biomass-based diesel in 2013, we considered how it should be treated in light of the fact that we must determine the applicable 2013 volume for biomass-based diesel this year, but we will not set the 2013 standards (including the advanced biofuel standard for 2013) until next year. EPA has the authority to reduce the applicable volume of advanced biofuel in the event that it reduces the applicable volume of cellulosic biofuel. EPA will consider using this authority at the time it evaluates whether the 2013 applicable volume of cellulosic biofuel set in the statute should be lowered in light of projected production volumes. In both 2010 and 2011 EPA lowered the applicable volume of cellulosic biofuel without lowering the applicable volume of advanced biofuel. EPA is today proposing the same approach for 2012. In light of this history, and the fact that EPA cannot finally evaluate the issue of potentially lowering the applicable volume of advanced biofuel for 2013 until it sets the 2013 standards in November of 2012, we assume for purposes of today's evaluation of biomass-based diesel demand in 2013 that the applicable volume of 2.75 bill gallons of advanced biofuel specified in the statute for 2013 will be used in setting the 2013 advanced biofuel standard.

As described in Section II, the cellulosic biofuel industry continues to develop, with numerous projects under development, planned or underway. Nevertheless, the actual production volumes continue to fall far below the applicable volumes specified in the statute. For instance, we are proposing a cellulosic biofuel volume of 3.55–15.7 mill gallons for 2012, compared to the applicable volume of 500 mill gal specified in the statute. In 2013, the applicable volume doubles to 1.0 bill gallons. While we have not projected specific volumes of cellulosic biofuel that may be available in 2013, it is highly likely that they will fall significantly short of 1.0 bill gallons, and are likely to comprise only a small portion of the 2.75 bill gal applicable volume for advanced biofuel in 2013.

Imported sugarcane ethanol can also be used to meet the advanced biofuel standard. Between years 2000 and 2009, the volume of ethanol imported into the U.S. has ranged from 46–730 million gallons per year, or on average, approximately 200 million gallons per year. These volumes were comprised almost exclusively of sugarcane ethanol from Brazil. In 2010, imports of ethanol into the U.S. were among the lowest in the past 10 years, reaching only 17 million gallons.[29] Some of this recent decline in ethanol imports may be due to extremely wet weather in 2009/10 and dry conditions in 2010/11 which cut into Brazilian supplies of sugarcane and reduced sugar content. In addition, some Brazilian sugarcane mills have the ability to switch between producing sugars for sweetener markets and extracting sugars for ethanol markets. The international price of sweetener was so attractive in 2010 that mills may have given greater priority to sugar. Another factor is the expanding sales of flex fuel vehicles in Brazil, which has

[28] Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006, February 2010. See Table 1.2–3.

[29] Official Statistics of the U.S. Department of Commerce U.S. International Trade Commission. Data only available from January–November 2010.

continued to increase Brazilian domestic ethanol demand, thus likely limiting amounts available for exports. Therefore, history shows that the volume of imported ethanol can fluctuate greatly due to a variety of market influences.

Longer-term market projections can help to better understand the potential outlook for imports of sugarcane ethanol as a function of international agricultural and energy markets. One source that evaluates trends and issues for U.S. energy markets is the U.S. Energy Information Administration's (EIA) Annual Energy Outlook (AEO).[30] This report projects U.S. net ethanol imports in 2013 to be 332 million gallons. Another source for U.S. and world commodity projections is the Food and Agricultural Policy Research Institute's (FAPRI) U.S. and World Agricultural Outlook. The most current version of the outlook, the FAPRI 2010 Agricultural Outlook, projects for the year 2013 that the U.S. will have net ethanol imports of 333 million gallons.[31] In comparison, for the RFS2 final rulemaking, we assumed 190 million gallons of imported sugarcane ethanol could be available in 2013 based on EIA's AEO2007.

Since ethanol supplies can flow to countries other than the U.S., an important part of understanding potential imports into the U.S. are the current and future biofuel mandates and goals of other nations. Such mandates include, for instance, Canada's 5% fuel ethanol mandate which started in late 2010, requiring approximately 500 million gallons per year. Another goal is that of the EU, the renewable energy directive, which includes a minimum target of 10% renewable energy use in transport by 2020, a portion of which is expected to be met with ethanol. Other countries with ethanol mandates and goals are India, Indonesia, Philippines, Costa Rica, Peru, and Argentina, to name a few. According to Hart Energy Consulting, most countries will be in a potential supply deficit for ethanol by 2020, and the primary country in a position to supply the global ethanol market will be Brazil.[32] Chief competitors for the U.S. to receive Brazilian ethanol are expected to be the EU, China, and Japan. This increasing international demand for biofuels may limit export supplies available for the U.S. in 2013.

The demand for ethanol in Brazil is also increasing, further limiting volumes that will likely be exported. For instance, the sales share of flex-fuel vehicles (FFVs) in Brazil are reported to have risen dramatically in the last decade, contributing to an in-use fleet that is increasingly capable of operating on pure ethanol. By 2014, 70% of the in-use fleet is expected to be FFVs, compared to only 33% in 2009. While the aforementioned FAPRI report projected that 2013 Brazilian demand for ethanol could be 7.7 billion gallons, S&D estimated that 2013 demand could potentially reach as high as 11 billion gallons, outpacing Brazilian production capacity.[33]

We believe that given the discussions above, it is reasonable to conclude that Brazilian sugarcane ethanol will continue to provide limited volumes of advanced biofuel in the U.S. in the near term due to other competitive uses. While imports of sugarcane ethanol into the U.S. in 2013 could exceed the 190 million gallons estimated in RFS2, they are unlikely to reach the historical high of 730 mill gallons for the reasons described above.

In addition to cellulosic biofuel and imported sugarcane ethanol, there is also some potential for other advanced biofuels that could be used to meet the advanced biofuel standard of 2.75 bill gallons. The most likely of these is sugar-based ethanol from domestic sugarcane. Several companies have announced plans for sugar-based ethanol production in California, Louisiana, and Florida. Two of these companies have announced plans for multiple ethanol production facilities, however none of these companies have yet begun construction. In addition, coprocessed renewable diesel is uncertain, though there could conceivably be up to a hundred million gallons by 2013. Potential production of other advanced biofuels such as renewable butanol or ethanol from non-corn starches in biomass-fueled facilities is even less certain for 2013. However, as described in Section II.D, companies such as Gevo, Solazyme, and LS9 are in the process of building or converting facilities to produce advanced biofuels in the form of butanol, jet fuel, and renewable diesel, respectively, that may count as advanced biofuel. We expect all these other sources of advanced biofuel to contribute about one or two hundred million gallons in 2013.

In summary, we believe that the total volume of cellulosic biofuel, imported sugarcane ethanol, and other advanced biofuels that may be available in 2013 is likely to be less than about 1 billion gallons. In order to reach an advanced biofuel volume of 2.75 billion gallons, then, it is likely that more than 1.0 bill gallons of biomass-based diesel (representing more than 1.5 billion ethanol-equivalent gallons) will be needed. The volume of biomass-based diesel that may be needed in excess of 1.0 bill gallons could potentially be on the order of hundreds of millions of gallons. This result is similar to the assumption made by IHS Global Insight in their recent report, in which they assume that an additional 300 million gallons of biodiesel will be needed over and above the 1.0 billion gallons mandate for biomass-based diesel in order for the advanced biofuel standard to be met.[34]

As mentioned above, we do not believe it would be prudent to set the biomass-based diesel applicable volume for 2013 such that the increment over 2012 volumes is excessive in comparison to the increments, and trajectory of increments, established by Congress for the years 2009–2012. As a result, we believe that a biomass-based diesel volume of 1.28 bill gallons would both reflect likely increased demand for biomass-based diesel in 2013 and provide an increment that is not excessive when compared to those established by Congress.

2. Availability of Feedstocks to Produce 1.28 Billion Gallons of Biodiesel

As described above, in the final rulemaking establishing the RFS2 program we developed renewable fuel volume scenarios for all years between 2010 and 2022. For 2013, we estimated a biomass-based diesel volume of 1.28 bill gallons. This volume was based primarily on a projection of the qualifying feedstocks that could be available, as summarized in Table IV.B.2–1.

TABLE IV.B.2–1—FEEDSTOCKS CONTRIBUTING TO 2013 VOLUME OF 1.28 BILL GAL

| Source | Volume (mill gal) |
|---|---|
| Yellow grease and other rendered fats | 380 |
| Corn oil | 300 |

[30] U.S. Energy Information Administration (EIA). ''AEO2011 Early Release,'' December 2010. *http://www.eia.doe.gov/forecasts/aeo/index.cfm.*

[31] Food and Agricultural Policy Research Institute. ''FAPRI 2010 U.S. and World Agricultural Outlook: World Biofuels,'' *http://www.fapri.iastate.edu/outlook/2010/text/15Biofuels.pdf.*

[32] Hart Energy Consulting. ''Global Biofuels Outlook: 2010–2020,'' October 2010.

[33] Sucres et Denrées (S&D), ''Ethanol Report,'' November 2010.

[34] ''Biodiesel Production Prospects for the Next Decade,'' IHS Global Insight, March 11, 2011.

TABLE IV.B.2–1—FEEDSTOCKS CONTRIBUTING TO 2013 VOLUME OF 1.28 BILL GAL—Continued

| Source | Volume (mill gal) |
|---|---|
| Virgin vegetable oil | 600 |
| Total | 1,280 |

We continue to believe that the feedstock volumes shown in Table IV.B.2–1 are reasonable projections for 2013. For instance, according to the U.S. Census Bureau, the total volume of yellow grease and other greases (most likely trap grease) produced in 2010 was about 340 mill gallons.[35] The volume of inedible tallow produced in the same period was over 400 mill gallons. Other potential sources could include edible tallow, lard, and poultry fats. Taken together, the total volume of available grease and fats for use in producing biomass-based diesel is in excess of the 380 mill gallons we projected in the RFS2 final rule.

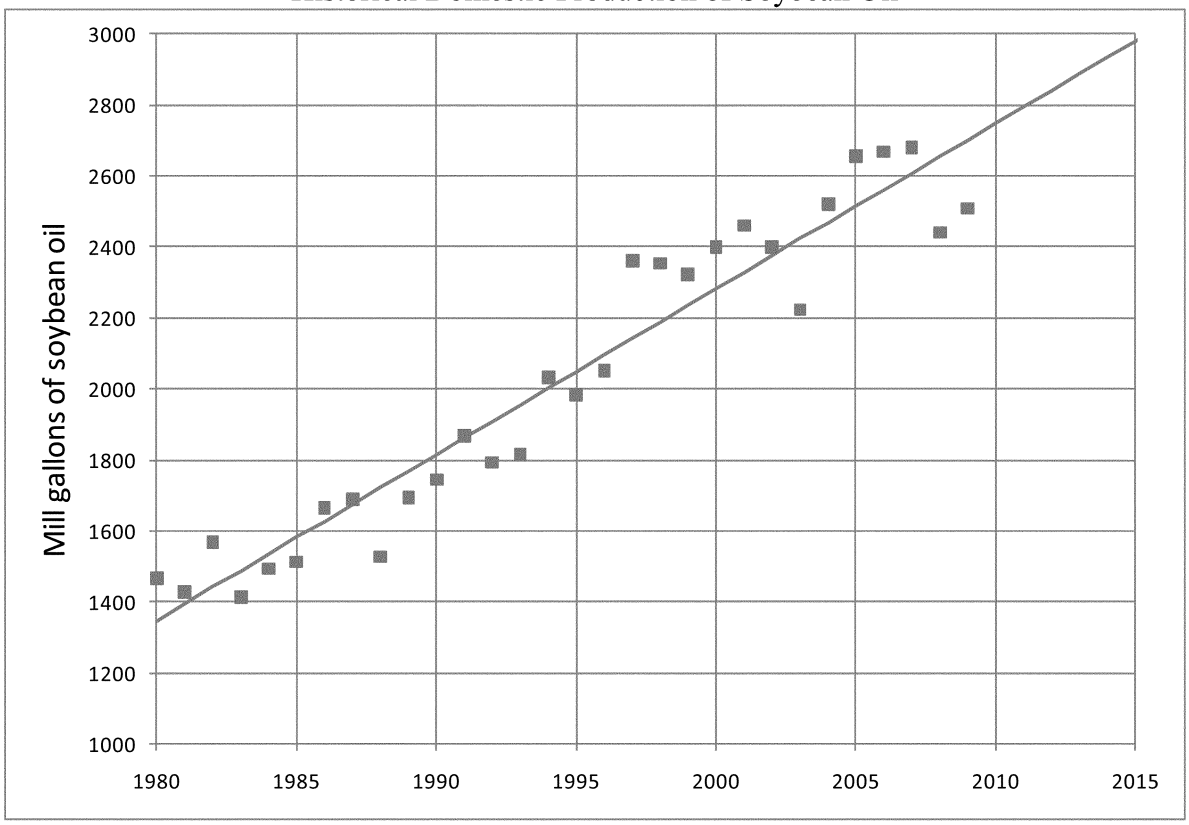
The 300 million gallons of biodiesel produced from corn oil extracted from distillers grains produced at ethanol facilities is based on projections of the percentage of the ethanol industry using corn oil extraction technology and the amount of oil extracted per bushel of corn in 2013. The RFS2 final rule projected that by 2013, 34% of all dry mill ethanol facilities would extract corn oil from the by-products of ethanol production. A recent survey of the ethanol industry found that by 2008 over 30% of all dry mill ethanol plants were already extracting corn oil from their co-products.[36] EPA expects that the percentage of dry mill ethanol facilities using some form of corn oil extraction technology will increase to 60% by 2013. The corn oil extraction technology currently being used at most dry mill ethanol facilities is capable of extracting approximately one third of the oil contained in the corn kernel from the whole stillage and/or its derivatives (a significantly reduced rate than the two thirds of oil extracted assumed to be technically feasible by 2022 in the RFS2 final rule). If 60% of all dry mill corn ethanol facilities were extracting one third of the oil in the corn kernel in 2013 the amount of corn oil available for biodiesel production would be approximately 270 million gallons. As corn oil extraction technology develops and higher oil extraction rates are achieved, corn ethanol producers are likely to adopt this new technology. EPA expects that by 2013 these technology improvements will increase corn oil production levels to the 300 million gallons projected in the RFS2 rule. Alternatively, additional corn oil could come from ethanol production facilities using corn fractionation or wet milling technology. This corn oil was not considered as a biodiesel feedstock in the RFS2 rule, but market conditions may result in its availability to the biodiesel industry. The high adoption rate of corn oil extraction and the promise of ever increasing oil extraction yields indicate that the 300 million gallons of corn oil extraction projected in the RFS2 rule in 2013 remains a reasonable projection.

With regard to virgin vegetable oil, the modeling we conducted for the RFS2 final rule assumed that it would be composed entirely of soybean oil. For the purposes of today's proposal we examined recent and historical soybean oil production and consumption volumes from the U.S. Census Bureau to verify that 600 million gallons was a reasonable potential volume for biodiesel production in 2013. As shown in Figure IV.B.2–1, soy oil production has increased steadily over the last 30 years, reaching 2.5 bill gal in 2009. If these production trends continue, domestic soy oil production could reach nearly 2.9 bill gal by 2013.

[35] Current Industrial Reports, U.S. Census Bureau, M311K—Fats and Oils: Production, Consumption, and Stocks, Table 2b. Assumes 7.5 lb/gal. December projection based on the average of January–November. *http://www.census.gov/manufacturing/cir/historical_data/m311k/index.html.*

[36] Mueller, Steffen. ''Detailed Report: 2008 National Dry Mill Corn Ethanol Survey.'' University of Illinois at Chicago Energy Resources Center (May 4, 2010). Available online: *http://ethanolrfa.3cdn.net/2e04acb7ed88d08d21_99m6idfc1.pdf.*

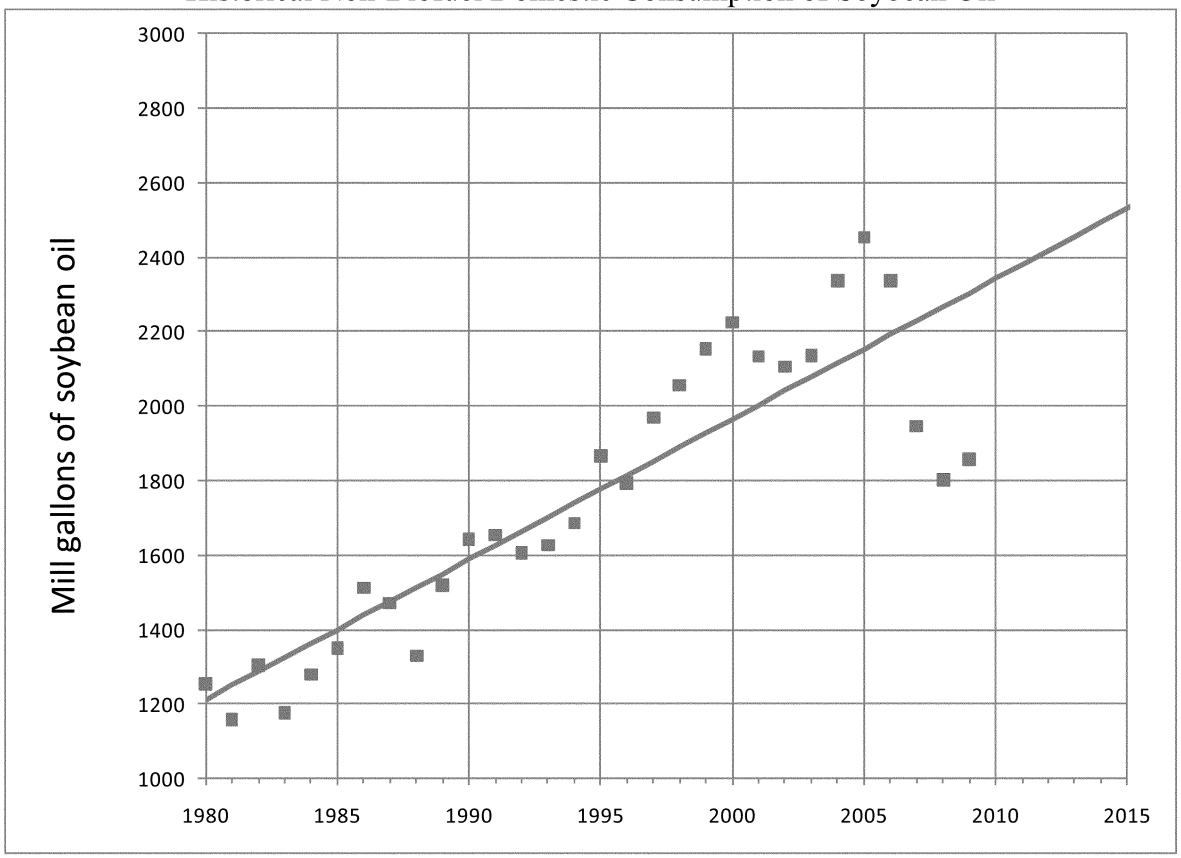
Figure IV.B.2-1
Historical Domestic Production of Soybean Oil




Source: Oil Crops Yearbook 2010, U.S. Department of Agriculture, Economic Research Service, Appendix Table 5. Assumes 7.68 lb/gal.

To determine what portion of domestically produced soy oil could be available for use in the production of biomass-based diesel in 2013, we also examined recent historical trends for domestic consumption and exports. Domestic consumption of soy oil for purposes other than biofuel has also increased steadily over the last 30 years, but was notably lower in the period 2007–2009 compared to previous years. If consumption returns to historical trends for years after 2009, consumption could be as high as 2.5 bill gal by 2013. However, as shown in Figure IV.B.2–2 below, this would require a significant increase in consumption from 2009 to 2010. Thus 2013 consumption could be lower than 2.5 bill gal.

Figure IV.B.2-2
Historical Non-Biofuel Domestic Consumption of Soybean Oil




Source: Oil Crops Yearbook 2010, U.S. Department of Agriculture, Economic Research Service, Appendix Table 5. Assumes 7.68 lb/gal.

Based on these projections, then, the volume of soy oil that would be available for the production of biomass-based diesel would be at least 400 million gallons (2.9–2.5 bill gal). However, soy oil that has historically been exported represents another potential source of soy oil for biodiesel production. Exports of soy oil have followed only a very weak increasing trend, averaging about 230 mill gal/year over the same 30 year period, and about 250 mill gal/year over the last 10 years. If these exports were diverted to the production of biomass-based diesel, the total volume of soy oil available for the production of biodiesel and/or renewable diesel would exceed 600 mill gallons.

Although we assumed that all virgin vegetable oils used in biomass-based diesel production would be soy oil in the RFS2 final rule, in fact other seed oils may contribute meaningful volumes to the pool available for the production of biomass-based diesel. For instance, on September 28, 2010 we approved a RIN-generating pathway for biodiesel made from canola oil.[37] The volume of biodiesel made from canola oil was 96 mill gallons in 2008.[38] In addition, we are evaluating other pathways for the production of biodiesel from oilseeds, such as camelina, which could potentially be approved for RIN generation by 2013. Algal oil could also provide additional feedstocks if promising technologies for production are commercialized.

IHS Global Insight recently released an independent report in which they conducted macroeconomic modeling to investigate biodiesel growth scenarios and related impacts on commodities such as oilseed crops. Their agricultural modeling indicated that a slightly more diverse mix of feedstocks would be used to meet a total domestic biodiesel production volume of 1.3 bill gallons in 2013. These volumes are shown in Table IV.B.2–2.

TABLE IV.B.2–2—FEEDSTOCKS CONTRIBUTING TO 2013 VOLUME OF 1.3 BILL GAL FROM IHS GLOBAL INSIGHT MODELING

| Source | Volume (mill gal) |
|---|---|
| Yellow grease and other rendered fats | 272 |
| Corn oil | 185 |
| Soybean oil | 624 |
| Canola oil | 68 |
| Palm oil | 7 |
| Other | 185 |
| Total | 1,340 |

Source: Table 2, "Biodiesel Production Prospects for the Next Decade," IHS Global Insight, March 11, 2011.

This modeling concluded that soy oil production would be lower than the trends shown in Figure IV.B.2–1, with a correspondingly lower volume of soy oil being used for domestic non-biofuel consumption as well. Nevertheless, their modeling concluded that soy oil availability for biodiesel production would be 624 mill gallons, slightly higher than what we assumed in the RFS2 final rule. While their modeling

[37] 75 FR 59622.

[38] EPA memorandum, "Summary of Modeling Input Assumptions for Canola Oil Biodiesel for the Notice of Supplemental Determination for Renewable Fuels Produced Under the Final RFS2 Program," Document # EPA–HQ–OAR–2010–0133–0049.

concluded that the volumes of greases, fats, and corn oil would be somewhat less than what we assumed in the RFS2 final rule, they were able to quantify the available volumes of other feedstocks that we did not explicitly investigate in the RFS2 final rule. As a result, this report supports our finding that sufficient feedstocks will be available to produce 1.28 bill gallons of biomass-based diesel in 2013.

3. Production Capacity

Total production capacity of the biodiesel industry has exceeded 1.28 bill gallons for a number of years. As of January 2011, total production capacity was more than 2.8 bill gallons for 168 plants [39]. According to the National Biodiesel Board, 90 of these plants had registered with the EPA under the RFS2 program as of February 4, 2011, and these plants had a combined production capacity of over 1.9 bill gallons. The remaining plants are either producing extremely low volumes that fall under the regulatory threshold for RIN generation, are producing products other than biodiesel such as soaps or cosmetics, or have shut down until such time as the demand for biodiesel rises.

Most of the 90 registered plants are currently producing at significantly under capacity, as evidenced by the fact that total production volumes in 2010 were 300–400 million gallons, and the registered plants have a capacity of over 1.9 billion gallons. If these plants increase production to meet the 800 million gallon volume requirement for 2011, on average, then, registered biodiesel producers will be producing at about half of their capacity this year. Nevertheless, we believe based on the registered capacity of existing plants and the relative ease of expanding current production within this capacity that the biodiesel industry can produce at least 1.28 bill gallons in 2013 with little leadtime needed for facilities to ramp up to higher production levels, and/or for currently idle facilities to come back online.

4. Consumption Capacity

Biodiesel is registered with the EPA under 40 CFR part 79 as a legal fuel for use in highway vehicles. Under this registration, it can legally be used at any blend level, from 1% (B1) to 100% (B100). However, other factors typically limit the concentration of biodiesel in conventional diesel fuel. Since the consumption of biodiesel at lower blend levels would tend to increase the geographic areas where biodiesel must be marketed, it is an important consideration in how much biodiesel can be consumed in the U.S. as a whole as well as how the infrastructure may need to change to accommodate 1.28 bill gallons in 2013.

Most engine manufacturers have explicit statements in their engine warranties regarding acceptable biodiesel blend levels. Although a few permit B100 to be used in their engines without any adverse impact on their warranties, most limit biodiesel blends to B20 or less, and about half allow no more than B5 [40]. For specific applications where a party knows which engines will be using biodiesel blends, higher concentrations of biodiesel may be possible. However, for general distribution such as at retail facilities, these warranty conditions create a disincentive to blend or sell biodiesel at higher concentrations, and would tend to drive most blends towards low concentrations of biodiesel such as B5.

Cold weather operability represents another reason for preferential use of B5 and even B2. The most common measure of cold weather operability is the fuel cloud point. The cloud point is the temperature at which gelling begins (as indicated by solid crystals beginning to form in the fuel), and thus is an indicator of when potential engine filter plugging issues could arise. The higher the cloud point temperature of the fuel, the more likely such problems are to be experienced in cold weather. Biodiesel generally has a higher cloud point than conventional, petroleum-based diesel fuel, with fat-based biodiesel such as tallow having a higher cloud point than virgin oil-based biodiesel such as a fuel made with soybean and canola oil. While cloud point issues with conventional, petroleum-based diesel are generally mitigated through blending with lighter grades (*i.e.* #1 diesel fuel), the cloud point of biodiesel generally requires more dramatic interventions such as heated storage tanks, lines, and blending equipment, as well as heating rail cars and tank trucks. However, some of these biodiesel cloud point mitigation efforts may be reduced through the use of low biodiesel blend levels such as B2 or B5, since cloud point is strongly correlated with biodiesel concentration in the final blend. Insofar as biodiesel is blended into conventional diesel before being transported to its final destination for sale, low biodiesel blend levels may reduce the need for heated equipment at the final destination.

Based on highway and nonroad diesel consumption projections for 2013 from the EIA, a biodiesel volume of 1.28 bill gallons would represent about 2.8% of all diesel fuel.[41] If all biodiesel were to be blended as B5, just over half of the diesel fuel consumed nationwide in 2013 would contain biodiesel. However, today some biodiesel is blended at concentrations higher than B5, and we expect that at least these same volumes would be blended at concentrations higher than B5 in the future. This would reduce the amount of diesel fuel that would contain some biodiesel, and thus would also reduce the geographical areas where biodiesel must be distributed.

We believe that distributing and consuming 1.28 bill gallons of biodiesel in 2013 is achievable. A number of states already have mandates for the use of biodiesel in 2013, and efforts are underway to ensure that these mandates can be met. These include Minnesota, Oregon, Washington, Pennsylvania, New Mexico, and Louisiana. Collectively, these states account for approximately 13 percent of the nationwide consumption of diesel. Other states have implemented other forms of incentives as shown in Table IV.B.4–1.

TABLE IV.B.4–1—STATES WITH REBATES, REFUNDS, REDUCED TAX RATES, OR CREDITS FOR BIODIESEL PRODUCTION OR BLENDING [42]

| |
|---|
| Illinois |
| Indiana |
| Kansas |
| Kentucky |
| Maine |
| Maryland |
| Michigan |
| Montana |
| North Dakota |
| Oklahoma |
| Rhode Island |
| South Carolina |
| South Dakota |
| Texas |
| Virginia |
| Washington |

* Conditions and exemptions for all incentive programs vary by state.

Collectively, these states account for approximately 37% of the nationwide consumption of biodiesel. A variety of states also have requirements for the use of biodiesel in state fleets, provisions that allow biodiesel to be used as an alternative to meeting alternative fuel vehicle mandates, and credits/rebates

[39] USA Plants, biodieselmagazine.com, as of January 27, 2011.

[40] ''Automaker's' and Engine Manufacturers' Positions of Support for Biodiesel Blends,'' Biodiesel.org.

[41] Annual Energy Outlook (AEO) 2011 Early Release, Table 2.

[42] U.S. Department of Energy, Alternative Fuels and Advanced Vehicles Data Center.

for the installation of biodiesel dispensing and blending equipment.

Altogether, therefore, more than half of the states in the U.S. have mandates and/or incentives that will induce them to address biodiesel infrastructure issues. Efforts in these areas will directionally help the nation to meet a 1.28 bill gal biomass-based diesel requirement in 2013.

5. Biomass-Based Diesel Distribution Infrastructure

Biodiesel/petroleum based diesel fuel blends have limited ability to be transported using the existing petroleum product distribution system. There has been limited transportation of up to B5 blends by certain pipelines that do not carry jet fuel. However, concerns over potential contamination of jet fuel with biodiesel currently prevent biodiesel blends from being transported by the majority of pipelines.[43] The predominant means of biodiesel distribution is to transport it separately by rail car, tank truck, or barge to a petroleum terminal where it is blended with petroleum diesel fuel to make B2, B5, B20 blends that are then transported by truck to retail or fleet operators. For this analysis, we have assumed that all biodiesel is transported in a segregated fashion to petroleum terminals. To the extent that biodiesel is transported by pipeline, this may tend to reduce the burden on the fuel distribution system.

Heated and insulated rail cars, tank trucks, barges, storage tanks, and blending equipment are required for biodiesel distribution to protect against fuel gelling during the cold season. Following are the cloud points of biodiesel manufactured from various feedstocks: Canola oil biodiesel 32F, soy biodiesel 34F, yellow grease biodiesel 41F, jatropha oil biodiesel 46F, tallow biodiesel 54F–63F, and palm oil biodiesel 63F.[44] Based on a review of these properties, climactic data, and the likelihood that downstream parties will need to accommodate biodiesel produced from various feedstocks, we believe that heated/insulated biodiesel infrastructure would be needed throughout most of the U.S.[45]

Approximately 82 petroleum terminals blended biodiesel into petroleum-based diesel fuel in 2010.[46] Our evaluation of the changes to the fuel distribution infrastructure that would be needed to support the use of 920 mill gallons/yr of biodiesel in 2012 and 1,200 mill gallons/yr in 2013 is based on the analysis conducted for the RFS2 final rule.[47] See Table IV.B.5–1.

TABLE IV.B.5–1—ADDITIONAL INFRASTRUCTURE NEEDED TO DISTRIBUTE BIODIESEL IN 2012 AND 2013

| | Additional distribution assets needed in 2012 relative to 2011 | Additional distribution assets needed in 2013 (with 1.28 bill gal) relative to 2012 | Total distribution assets needed to support the 2012 biodiesel volume | Total distribution assets needed to support 1.28 bill gal biodiesel volume |
|---|---|---|---|---|
| Petroleum Product Terminals with Biodiesel Blending Capability* | 74 | 130 | 428 | 558 |
| Rail Cars | 131 | 230 | 754 | 984 |
| Tank Trucks | 14 | 25 | 83 | 108 |
| Barges | 4 | 7 | 23 | 29 |

* There are approximately 853 petroleum terminals that offer diesel fuel in the U.S.

The RFS2 final rule estimated that additional manifest rail and barge receipt facilities would be needed to accept shipments of biofuels of all types including biodiesel.[48] We concluded that manifest rail and barge shipments of biodiesel would be able to utilize the manifest rail and barge receipt facilities that were initially constructed to handle increased ethanol volumes.

We assume that terminals adding biodiesel capability would install segregated biodiesel storage, in-line biodiesel blending equipment, and facilities to receive shipments of biodiesel by tank truck. In-line blending refers to the process of blending biodiesel into petroleum-based diesel fuel in the delivery line that feeds into the tank truck from the terminal storage tanks. This process ensures an accurate blend ratio and a fully mixed biodiesel/petroleum diesel batch. We also assume that all equipment at terminals as well as the vessels used to transport biodiesel would be heated and insulated to prevent gelling during the cold season. We anticipate that some terminals may splash blend biodiesel before installing in-line biodiesel injection equipment. Splash blending refers to the process of first loading petroleum-based diesel fuel into a tank truck followed by biodiesel so that the final blend meets the desired blend ratio. However, we expect that this approach will be temporary due to the heightened concerns over achieving a correct blend ratio and a fully mixed biodiesel blend that accompanies splash blending. Some terminals may also delay the need to install segregated/heated biodiesel storage by storing 50/50 blends of biodiesel/petroleum-based diesel fuel that is subsequently used to manufacture B2/B5/B20 blends for distribution to end users. These practices may provide additional flexibility if some terminals wish to temporarily defer installing in-line blending equipment and segregated biodiesel storage equipment.

The RFS2 FRM analysis concluded that industry would have the capability to add the necessary facilities to distribute biodiesel in a timely fashion to meet the envisioned volumes.[49] Based on industry input, we continue to believe that this is the case. Industry activities are currently progressing to ramp up biodiesel consumption from the approximately 380 mill gallons estimated to be used in the U.S. in 2010 to the 760 mill gallons that is estimated

[43] Biodiesel contamination of jet fuel can contribute to fuel gelling and engine deposits which can lead to jet engine operability problems.

[44] The cloud point refers to the temperature at which biodiesel begins to gell. Biodiesel cloud points are taken from the NC State University and A&T State University Cooperative Extension Web page, updated December 9, 2010, *http://www.extension.org/pages/Biodiesel_Cloud_Point_and_Cold_Weather_Issues,* and the Biodiesel cold weather blending study, Cold Flow Blending Consortium, National Biodiesel Board, 2001, *http://www.nrel.gov/vehiclesandfuels/npbf/pdfs/cftr_72805.pdf.*

[45] The ASTM International ''Standard Specification for Diesel Fuel Oils'', ASTM D975, contains tenth percentile minimum ambient air temperatures for the U.S.

[46] Communication from Larry Schafer of the National Biodiesel Board, March 2, 2011.

[47] Renewable Fuels Standard Program (RFS2), Regulatory Impact Analysis (RIA), EPA–420–R–10–006, February 2010.

[48] Manifest rail refers to the shipment of a product in rail cars in a train that includes rail cars containing other products.

[49] See sections 1.6 and 4.2.3 of the RIA to the RFS2 final rule.

to be used in 2011 to meet the biomass-based diesel volume requirement. For example, Kinder Morgan and the Renewable Energy Group opened a substantial biodiesel distribution facility to serve the Chicago area in December of 2010.[50] Magellan also recently announced that it plans to complete its biodiesel blending facility in Sioux Falls Minnesota in 2011.[51] In addition, just as there has been considerable biodiesel production capacity idled due to lack of demand which will be brought back on line as biodiesel volumes ramp up, we believe that there are also substantial idled biodiesel distribution assets that could be readily brought back into service.

Renewable diesel/petroleum diesel fuel blends can be transported in existing petroleum product transportation infrastructure from the point of production to the end-user.[52] The production facility that we expect will account for the renewable diesel produced through 2013 currently ships its product short distances by tank truck to facilities that produce blends with petroleum-based diesel fuel. To estimate the infrastructure impacts of renewable diesel, we used the estimate from the RFS2 final rule of 80 mill gallons of renewable diesel in 2013.[53] This volume is close to the production volume estimated for the Dynamic Fuels facility in Geismar, Louisiana that we referenced in the final rulemaking setting the 2011 RFS standards. However, more recently the U.S. Department of Energy awarded a $241 million loan guarantee for the construction of a renewable diesel facility by Diamond Green. Construction on this 137 million gallon per year project is scheduled to begin in Norco, LA this year and fuel production is scheduled for the first quarter of 2013. EPA does not expect that the production from this facility will have a significant impact on overall biomass-based diesel distribution infrastructure in the U.S. given that the renewable diesel blends can be transported in existing petroleum product transportation infrastructure. For the purposes of this analysis we assumed 80 mill gallons of renewable diesel for consistency with the RFS2 final rule and the final rule setting the RFS standards for 2011.

We estimate that a total of 5 tank trucks will be needed to transport 80 mill gallons/yr of renewable diesel to the locations where it is blended with petroleum-based diesel fuel in 2012 and 2013.[54] For the purposes of this analysis, we assumed that approximately one half of this volume will be produced in 2011. We estimate that an additional 2–3 tank trucks would be needed to transport renewable diesel fuel in 2012/2013 compared to 2011. Once renewable diesel fuel blends are created, further distribution is accomplished in the same fashion as petroleum-based diesel fuel. In the future, the renewable diesel fuel production facility identified may be connected by a short pipeline directly to the Colonial pipeline and/or begin shipping by barge/rail. If shipment by pipeline develops, then no additional transportation vessels would be needed to ship renewable diesel fuel compared to petroleum-based diesel fuel. We anticipate that the infrastructure at petroleum terminals necessary to blend the 80 mill gallons/yr of renewable diesel fuel projected for 2012/2013 with petroleum-based diesel fuel will have been put in place by 2011.[55]

Based in the above discussion, we believe that sufficient fuel distribution infrastructure will be available to support the use of 1 bill gal of biomass-based diesel in 2012 and 1.28 bill gal in 2013.

### *C. Impacts of 1.28 Billion Gallons of Biomass-Based Diesel*

In order to evaluate the impacts of a biomass-based diesel volume of 1.28 bill gal in the areas required under the statute (see Section IV.A), we first considered what the appropriate reference would be. Since the statute requires that the biomass-based diesel volume we set for 2013 be no lower than 1.0 bill gal, this would appear to be a reasonable reference point. Therefore, in the discussion that follows, we have focused on either a volume of 1.28 bill gal biomass-based diesel, or an increment of 0.28 bill gal biomass-based diesel, depending on the specific sources of information and analyses available.

As described in Section IV.B.1 above, even if we set the applicable volume for biomass-based diesel at 1.0 bill gal, the demand for biomass-based diesel in 2013 is likely to be on the order of 1.28 bill gal or more due to the limited projected availability of other advanced biofuels (including cellulosic biofuel, imported sugarcane ethanol, and others). Since the actual demand for biomass-based diesel would likely be 1.28 bill gal or higher regardless of whether we set the biomass-based diesel requirement at 1.0 or 1.28 bill gal, the net impact of setting the biomass-based diesel volume requirement at 1.28 bill gallons in 2013 could be seen as zero.

We recognize that this conclusion is based on an applicable advanced biofuel volume of 2.75 bill gallons. While we will be considering the possibility of lowering the 2013 advanced biofuel applicable volume below 2.75 bill gal in next year's rulemaking, we have not presumed any such reduction in today's NPRM. Such reductions in advanced biofuel must occur in the context of determining the applicable volume of cellulosic biofuel for 2013, and using information available at that time regarding advanced biofuel volumes that are projected to be available in 2013.

Nevertheless, the statute requires that we analyze specified environmental and other impacts in deriving an applicable biomass-based diesel volume for 2013 and other years, and these analyses can be conducted for 1.28 bill gal biomass-based diesel (or an increment of 0.28 bill gal). Most of the areas we are required to analyze were covered in the RFS2 final rule in some form, and we believe that we can use this information in satisfying our statutory obligations to analyze specified factors in determining the applicable volume of biomass-based diesel for 2013.

Some of the analyses presented in the RFS2 final rule were for the specific case of 1.28 bill gallons in 2013. These analyses included an investigation of the expected annual rate of commercial production of biomass-based diesel in 2013, impacts on agricultural commodity supply and price, and the cost to consumers of transportation fuel. Some of these were discussed in Section IV.B above. Most of the analyses in the RFS2 final rule, however, were conducted to represent full implementation of the RFS2 program in 2022. In these analyses, the biomass-based diesel volume was estimated to be 1.82 bill gallons, and was compared to

[50] Biodiesel Magazine, November 17, 2010. *http://www.biodieselmagazine.com/articles/4568/chicago-area-terminal-soon-to-offer-biodiesel.*

[51] Report to the Legislature, Annual Report on Biodiesel, Minnesota Department of Agriculture, January 15, 2011. *http://www.mda.state.mn.us/en/news/government/~/media/Files/news/govrelations/legrpt-biodiesel2011.ashx.*

[52] Colonial Pipeline began allowing shipment of 5% renewable diesel fuel blends beginning January 3, 2011. Colonial pipeline codes and specifications: *http://www.colpipe.com/pdfs/Sect%203%20Prod%20Spec%20Jan%201%202011%20update%20ver%202.pdf.*

[53] Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis, EPA–420–R–10–006, February 2010, Table 1.2–3.

[54] This is based on each tank truck carrying 7,800 gallons of renewable diesel fuel making 6 deliveries per day. We anticipate that the renewable diesel fuel will be blended directly into storage tanks containing petroleum-based diesel fuel.

[55] To manufacture a renewable diesel fuel blend at a petroleum terminal, renewable diesel fuel may be delivered directly into storage tanks that contain petroleum-based diesel fuel or injected into a petroleum-based diesel fuel stream during delivery into a tank truck or pipeline.

a reference case in which biodiesel volume was 380 mill gallons. These cases are shown in Table IV.C–1.

TABLE IV.C–1—PRIMARY REFERENCE AND CONTROL CASES FROM RFS2 FINAL RULEMAKING (BILLION GALLONS)

| | Advanced biofuel | | | | | | Non-advanced biofuel | Total renewable fuel |
|---|---|---|---|---|---|---|---|---|
| | Cellulosic biofuel | | Biomass-based diesel | | Other advanced biofuel | | | |
| | Cellulosic ethanol | Cellulosic diesel | FAME [a] biodiesel | NCRD [b] | Other biodiesel [c] | Imported ethanol | Corn ethanol | |
| Reference | 0.25 | 0 | 0.38 | 0 | 0 | 0.64 | 12.29 | 13.56 |
| Control | 4.92 | 6.52 | 0.85 | 0.15 | 0.82 | 2.24 | 15.00 | 30.50 |

[a] Fatty acid methyl ester (FAME) biodiesel.
[b] Non-Co-processed Renewable Diesel (NCRD).
[c] Other Biodiesel is biodiesel produced in addition to the amount needed to meet the biomass-based diesel standard.

The biomass-based diesel volume of 1.82 bill gallons analyzed for 2022 in the RFS2 final rule is higher than the 1.28 bill gallons we chose to evaluate for today's NPRM for 2013. More importantly, the change in biodiesel production due to EISA mandates for biomass-based diesel plus other diesel anticipated to meet the advanced biofuel volume (a total increase of 1.44 billion gallons compared to the reference case without the EISA mandates) is much larger than the change we are evaluating for 2013 (0.28 billion gallons). Additionally, many of the impacts analyzed for the RFS2 final rule reflected the whole biofuel mandate, not the relatively smaller portion just due to biodiesel. Other changes in renewable fuels analyzed for 2022 were also larger than what would likely occur in 2013. Therefore, the impacts we would expect in 2013 compared to a case without RFS2 in place would likely be similar to or smaller than those we estimated for 2022. Given these considerations, we believe that the impacts assessments in the RFS2 final rule can be used to determine the directional impacts, and therefore the reasonableness, of a 1.28 billion gallon volume requirement for biomass-based diesel in 2013.

1. Climate Change

Since biodiesel has a GHG benefit exceeding 50% compared to the petroleum-based diesel it is replacing, an increase in biomass-based diesel of 0.28 Bill gal from 2012 to 2013 would lead to a displacement of conventional diesel fuel, with corresponding GHG emissions reductions. This increased use of biomass-based diesel will contribute to lower climate change impacts in comparison to the petroleum-based diesel it is replacing.

However, due to the nested nature of the RFS2 standards, biomass-based diesel is also used to meet the advanced biofuel standard. Moreover, both biomass-based diesel and advanced biofuel must meet a GHG reduction threshold of 50%. If the 2013 advanced biofuel standard were to remain at the 2.75 bill gal specified in the statute, an increase in the biomass-based diesel volume requirement from 1.0 to 1.28 bill gal would not change the total volume of advanced biofuel, and thus the total volume of biofuels that must meet a 50% reduction in GHGs would remain unchanged. Under such circumstances, a standard of 1.28 bill gal of biomass-based diesel would have essentially no impact on climate change in the context of the full mix of biofuels used to meet the RFS2 requirements.

2. Energy Security4

An analysis of the energy security impacts of the increased use of renewable fuels was conducted in support of the RFS2 rulemaking. Based on that analysis, increasing usage of renewable fuels including biomass-based diesel helps to reduce U.S. petroleum imports. A reduction of U.S. petroleum imports reduces both financial and strategic risks associated with a potential disruption in supply or a spike in cost of a particular energy source. This reduction in risks is a measure of improved U.S. energy security. In the RFS2 final rule, we described in detail the methodology and the Agency's estimate of the energy security impacts of the RFS2 rule. While EPA's analysis of energy security benefits of the RFS2 volumes considered the full volume of biofuels mandated by 2022 (of which biodiesel was only a part), the production of biodiesel is largely from domestic feedstocks. In contrast, the diesel fuel displaced is produced from petroleum sources which are increasingly from foreign sources. Therefore biodiesel production and use will contribute to a U.S. energy security benefit.

3. Agricultural Commodities and Food Prices

For the RFS2 rule, we examined the impacts of increased renewable fuels production on commodity prices, food prices and trade in agricultural products. This analysis considered the impacts of all the biofuel feedstock sources anticipated to meet the 2022 biofuel volume requirements, not just biodiesel. For the RFS2, EPA used two primary models for its agricultural economic impacts analysis, the Food and Agriculture Sector Optimization Model (FASOM), and the Food and Agricultural Policy Research Institute-Center for Agriculture and Rural Development (FAPRI–CARD) models. The FASOM model is a long-term economic model of the U.S. forest and agriculture sectors that maximizes the net present value of the sum of producer and consumer surplus across the two sectors over time subject to market, technology, and other constraints. The FAPRI–CARD models are a system of econometric models covering many agricultural commodities in the U.S. and internationally. They are based on historical data analysis, current academic research, and a reliance on accepted economic, agronomic, and biological relationships in agricultural production and markets.[56]

To meet the RFS2 renewable fuel volumes, a number of price effects on the agricultural commodities were estimated for 2022. For instance, FASOM estimates that an increase in renewable fuel volumes to meet the RFS2 would result in an increase in the U.S. soybean prices of $1.02 per bushel (10.3 percent) above the Reference Case price in 2022. FASOM also projected the price of soybean oil would increase by $183 per ton (37.9 percent) over the 2022 Reference Case price (all prices are

[56] (Add reference to FAPRI description document used in RFS2 FRM.)

in 2007$). Most of the additional soybeans needed for increased biodiesel production are diverted from U.S. exports to the rest of the world. In FASOM, soybean exports decrease by 135 million bushels (−13.6 percent) in 2022 relative to the AEO2007 Reference Case. This change represents a decrease of $453 million (−4.6 percent) in the total value of U.S. soybean exports in 2022. However, these price effects are not attributed to the demand for biodiesel feedstocks alone, rather the compounding affect of all changes in feedstock demand estimated to result from the total biofuel mandate in 2022. Since the impact on soybeans due to biodiesel demand was only a portion of this total feedstock impact and since the impact in 2013 will be less than considered in 2022 (since the 2013 biodiesel volumes anticipated are less than those for 2022), the impact on soybean prices and exports from an increase to 1.28 bill gall in 2013 could also be less.

A recent report by IHS Global Insight [57] also discusses potential agricultural and economic impacts from increasing vegetable oil demand for biodiesel production. According to this study, existing soybean yield technologies are expected to be applied increasingly across the U.S., resulting in roughly a 10% higher growth rate in soybean yields than USDA's projections from 2010–2016 which were used by EPA in its RFS2 analyses. Similarly, Global Insight predicts these higher yield technologies to be implemented in other large soybean-producing countries, such as Brazil and Argentina. If higher yields than modeled for RFS2 indeed are realized, then it is likely the price increases for soybean oil will be less than estimated for RFS2. Likewise, other price impacts, such as those on food prices, would still move in the same direction (*i.e.,* an increase in price resulting from an increase in demand) but could be smaller than in the RFS2 analysis.

For the analyses performed for the RFS2 final rule, EPA estimated a $10 per person per year increase in food costs due to the total annual impact of the RFS2 program by 2022 compared to a Reference case that assumed no RFS2 renewable fuel requirements. Again, the biodiesel impacts would represent only a small portion of these overall impacts and would like be even smaller in 2013 due to the smaller volume of feedstock required.

4. Air Quality

This section discusses our assessment of the impacts of 1.28 bill gal of biomass-based diesel on emissions and air quality. We are relying on the analyses of renewable fuel impacts conducted in support of the RFS2 rule [58] to qualitatively discuss the expected impacts of this biomass-based diesel volume. The RFS2 analyses reflect EPA's most current assumptions regarding biodiesel emission impacts.[59]

In the RFS2 rule, we analyzed both changes in pollutant emissions (measured in tons) and changes in ambient air quality associated with the changes in pollutant emissions. The changes in pollutant emissions were calculated by comparing the 2022 RFS2 renewable fuel volumes to volumes if the RFS2 mandate was not in place (the reference scenario).[60] The analysis reflected full implementation of the RFS2 program in 2022 and accounted for impacts from multiple types of renewable fuels, of which biodiesel was only one type. Specifically, the RFS2 emissions inventory analysis assumed 1.82 bill gal of biodiesel in the RFS2 scenario compared to 0.38 bill gal of biodiesel in the reference scenario, reflecting a 1.44 bill gal increase in biodiesel with the rule in place.

Biodiesel emission impacts from the RFS2 rule emissions inventory analysis are presented in Table IV.C.4–1. A complete discussion of the emissions inventory analysis conducted for the RFS2 rule can be found in Chapter 3 of the RFS2 Regulatory Impact Analysis (RIA).[61] These biomass-based diesel emission impacts, which reflect a 1.44 bill gal increase in biodiesel, are all less than 1% of the total U.S. emissions inventory for each pollutant. We expect the impacts of the 1.28 bill gal of biomass-based diesel, as compared to the 1.0 bill gal statutory minimum volume, to be smaller.

TABLE IV.C.4–1—BIODIESEL EMISSION IMPACTS OF THE RFS2 RENEWABLE FUEL VOLUMES (1.82 BILL GAL) RELATIVE TO THE REFERENCE CASE (0.38 BILL GAL)

| | Biodiesel impacts of RFS2 rule emissions inventory analysis (Δ 1.44 bill gal Biodiesel) | | | Percent RFS2 total U.S. inventory |
|---|---|---|---|---|
| | Upstream [a] (tons) | Downstream [b] (tons) | Total (tons) | |
| VOC | −1,049 | −2,422 | −3,471 | −0.03% |
| CO | 913 | −4,104 | −3,191 | −0.01% |
| NOx | −290 | 1,346 | 1,056 | 0.01% |
| PM10 | 4,268 | −569 | 3,699 | 0.10% |
| PM2.5 | 632 | −315 | 317 | 0.01% |
| SO2 | 1,580 | 0 | 1,580 | 0.02% |
| NH3 | 4,171 | 0 | 4,171 | 0.10% |
| Benzene | 10 | −30 | −20 | −0.01% |
| Ethanol | 0 | 0 | 0 | 0.00% |
| 1,3-Butadiene | 0 | −16 | −17 | −0.10% |
| Acetaldehyde | 2 | −66 | −65 | −0.14% |
| Formaldehyde | 1 | −182 | −181 | −0.21% |
| Naphthalene | −1 | 0 | −1 | −0.01% |

[57] "Biodiesel Production Prospects for the Next Decade," IHS Global Insight, March 11, 2011.

[58] 75 FR 14670, March 26, 2010.

[59] U.S. EPA 2010, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006. February 2010. Docket EPA–HQ–OAR–2009–0472–11332. Section 3.1.1.2.4

[60] In the RFS2 Regulatory Impact Analysis, we analyzed the mandated 2022 RFS2 renewable fuel volumes relative to volumes required by two reference scenarios: RFS1 mandate (7.1 billion gallons of renewable fuels) and AEO 2007 (13.6 billion gallons of renewable fuels). Both reference scenarios assumed the same volume of biodiesel, so the emission and air quality impacts described in this section are the same for both reference scenarios.

[61] U.S. EPA 2010, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006. February 2010. Docket EPA–HQ–OAR–2009–0472–11332.

TABLE IV.C.4–1—BIODIESEL EMISSION IMPACTS OF THE RFS2 RENEWABLE FUEL VOLUMES (1.82 BILL GAL) RELATIVE TO THE REFERENCE CASE (0.38 BILL GAL)—Continued

| | Biodiesel impacts of RFS2 rule emissions inventory analysis (Δ 1.44 bill gal Biodiesel) | | | Percent RFS2 total U.S. inventory |
|---|---|---|---|---|
| | Upstream [a] (tons) | Downstream [b] (tons) | Total (tons) | |
| Acrolein | 63 | −9 | 54 | 0.84% |

[a] U.S. EPA 2010, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006. February 2010. Docket EPA–HQ–OAR–2009–0472–11332. Table 3.2–11. Note: units in Table 3.2–11 were mislabeled as tons/mmBTU. Actual units are tons.
[b] U.S. EPA 2010, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006. February 2010. Docket EPA–HQ–OAR–2009–0472–11332. Table 3.2–9.

The air quality analysis for the RFS2 rule used photochemical modeling to characterize primary pollutants that are emitted directly into the atmosphere and secondary pollutants that are formed as a result of complex chemical reactions within the atmosphere. Included in the air quality modeling scenarios for the RFS2 rule were large volumes of ethanol as well as other renewable fuels, and the nature of these complex chemical interactions makes it difficult to determine the air quality impacts of biodiesel alone. Specifically, the RFS2 air quality analysis reflects a roughly 21 bill gal increase in ethanol, far outweighing the volume increase in biodiesel (0.43 bill gal). A complete discussion of the RFS2 air quality analysis and its limitations can be found in Chapter 3 of the RFS2 Regulatory Impact Analysis (RIA).[62]

The RFS2 air quality analysis was completed earlier than the final emissions inventory analysis because of the length of time needed to conduct photochemical modeling.[63] The air quality analysis assumed 0.81 bill gal of biodiesel in the RFS2 scenario compared to 0.38 bill gal of biodiesel in the reference scenario, reflecting a 0.43 bill gal increase in biodiesel use with the rule in place.

Given the small emissions impact of a 0.43 bill gal increase in biodiesel on the total U.S. emissions inventory (the basis for our air quality modeling scenarios), we would expect the portion of air quality impacts attributable to a move from 1.0 to 1.28 bill gal (a 0.28 bill gal biodiesel increase) to be small enough that on a nationwide basis the air quality impact would likely not be noticeable.

We note that Clean Air Act section 211(v) requires EPA to analyze and mitigate, to the greatest extent achievable, adverse air quality impacts of the renewable fuels required by the RFS2 rule. We intend to address any potential adverse impacts from increased renewable fuel use through that study and will promulgate appropriate mitigation measures separate from today's NPRM.

5. Transportation Fuel Cost

For the RFS2 final rulemaking, we estimated the year-by-year per-gallon costs for diesel fuel due to the RFS2 biofuel requirements. For 2013, we based our diesel fuel cost estimate on the production and use of biodiesel, renewable diesel fuel and some cellulosic diesel fuel. The unsubsidized cost increase is 0.2 cents per gallon, but accounting for the subsidy, we estimated a cost savings to consumers for diesel fuel of 1.7 cents per gallon. This assumes a crude oil price of 81 dollars per barrel, which is within the range of crude oil prices over the last several years which have ranged from $35 per barrel to $147 per barrel.

6. Deliverability and Transport Costs of Materials, Goods, and Products Other Than Renewable Fuel

EPA evaluated in the RFS2 final rule the impacts on the U.S. transportation network from the distribution of the total additional volume of biofuels that would be used to meet the RFS2 standards. Oakridge National Laboratory (ORNL) conducted an analysis of biofuel transportation activity from production plants to petroleum terminals by rail, barge, and tank truck to identify potential distribution constraints to help support the assessment in the RFS2 final rule.[64] The ORNL analysis concluded that the increase in biofuel shipments due to the RFS2 standards would have a minimal impact on U.S. transportation infrastructure. The majority of biofuel transportation is projected to be accomplished by rail. Nevertheless, it was estimated that the biofuels transport would constitute only 0.4% of the total freight tonnage for all commodities transported by the rail system through 2022.[65] Given the small increase in freight shipments due to the transport of biofuels to meet the RFS2 standards, we believe that the distribution of biofuels will not adversely impact the deliverability and transport costs of materials, goods, and products other than renewable fuels.

7. Wetlands, Ecosystems, and Wildlife Habitats

As directed by CAA section 211(o)(2)(B)(ii), in setting the 2013 biodiesel volume requirements, EPA is to consider the impacts of biodiesel production and use on wetlands, ecosystems and wildlife habitat.

The most complete and up-to-date assessment of these impacts is contained in the draft analysis prepared by EPA in response to the requirements set out in CAA section 204. This report has been released in draft form in order to allow interested parties to provide comments on the analyses and policy implications. Concluding this review and the peer review, updates will be made to the report, and then the final report will be published in 2012 on the EPA Biofuels Web site. Nevertheless, since this draft report includes an assessment of the impact of biofuels on a number of the areas that we are required to analyze in the process of determining the 2013 biomass-based

[62] U.S. EPA 2010, Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis. EPA–420–R–10–006. February 2010. Docket EPA–HQ–OAR–2009–0472–11332.

[63] Emissions serve as inputs to the air quality modeling analysis. However, the final fuel volume assumptions (upon which the emission estimates were based) increased between the time that emissions were estimated to support the air quality modeling analysis and the time emissions were estimated to reflect the final rulemaking.

[64] "Analysis of Fuel Ethanol Transportation Activity and Potential Distribution Constraints", Oakridge National Laboratory, March 9, 2009. To simplify the ORNL analysis, biomass-based diesel volumes were assumed to originate at the same points of production and to be shipped to the same petroleum terminals as the ethanol projected to be used to meet the RFS2 standards. This may tend to overstate the potential impact on the transportation system from the shipment of biomass-based diesel fuels since biomass-based diesel production plants were projected to be more geographically dispersed than ethanol production facilities. In any event, the simplifying assumption was assessed to have little impact on the results from the analysis given that biomass-based diesel represented only 8% of the total projected biofuel volumes.

[65] See sections 1.6.4 and 1.6.5 of the RFS2 RIA.

diesel volume, we believe it is appropriate to make use of this information as it represents the most current EPA assessments available.[66]

This draft report relies on information available as of July 2010. The report does not attempt to quantify the impacts of biofuel production and use as these impacts are dependent on local or regional conditions. Nevertheless the draft provides qualitative assessments and reasonable expectations of trends which can be used to consider the environmental impacts of increases in biodiesel production and use. These trends are only summarized here while the draft report provides extensive detail.

The draft assessment focuses on the use of oil from soy beans as the feedstock for biodiesel production. Other oil seed feedstock sources represent a very small portion of biofuel production in 2013 so would be expected to have much less of an impact than soy oil. Corn oil extracted during the ethanol production process is increasing, adds a very small increment of process GHG and will offset demands for soy and other oil seed crops, thus reducing potential agricultural impact of biodiesel production and adding to the net reduction in GHG emissions. Finally, waste fats, oils and greases would be expected to have negligible environmental impact as a feedstock since they do not impact agricultural land use and would otherwise be used for some lower value purpose or simply discarded.

Wetlands can be adversely affected by agricultural production through runoff that can result in nutrient loading (particularly from fertilizers) or from sedimentation (from erosion). Soy production tends to use less fertilizer than corn production (the most likely alternative crop) and can reduce the amount of fertilizer required for corn when planted in rotation with corn. However, compared to other crops, erosion can be higher from fields planted in row crops such as corn and soy beans. While the impacts of nutrient loading and erosion tend to be site specific, good farming practices including the optimum fertilizer use and the set aside of sensitive lands via the CRP program can significantly help control these adverse affects. Wetlands can also be adversely affected through diversion of surface and ground water for agricultural irrigation. Soy bean production less frequently relies on irrigation than corn and some other crops. More discussion on water usage is included below in the section on water use and water quality impacts.

Ecosystems and wildlife habitat can be adversely affected if CRP lands are converted to crop production, if row crops such as soy beans replace grassy crops and in general if new lands with diverse vegetation are converted to crop production. As noted in the RFS2 rule, we do not expect the RFS program production to result in an increase in total acres of agricultural land under production in the US compared to a reference case without the impact of the RFS2 volumes. The relatively small increase of 0.28 bill gall should not appreciably affect the amount of land devoted to oil seed production. Further, since soy beans are traditionally planted in rotation with other crops such as corn, this small increase in soy oil demand for biodiesel production is unlikely to replace grassy crops or result in the indirect increase in land under crop production. Additionally, the USDA commitment to support the CRP program should minimize the likelihood of any significant change in the amount of CRP land. Therefore, while some very local changes may result due to an individual farmer's planting decisions, since no new crop land are expected in the U.S. due to this increase in biodiesel production and sensitive lands will be protected via programs such as CRP, no measureable impact in aggregate ecosystems or wildlife habitat is expected.

8. Water Quality and Quantity

The water quality and quantity impacts of biodiesel are primarily related to the type of feedstock and the production practices used to both produce the feedstock and to convert the feedstock into biodiesel. Soybeans are the principal feedstock used for biodiesel production and are predicted to account for 600 million gallons of the 1.28 billion gallons evaluated for 2013. Non-food grade corn oil extracted during ethanol production, animal fats and recycled fats account for most of the remaining biodiesel feedstocks. Since these fats are the byproduct of another use and not produced specifically for biodiesel manufacture and since corn oil extracted is a by-product of corn ethanol production, this analysis will focus on soybeans.

From a water quality perspective, the primary pollutants of concern from soybean production are fertilizers (nitrogen and phosphorus) and sediment. There are three major pathways for these potential pollutants to reach water from agricultural lands: runoff from the land's surface, subsurface tile drains, or leaching to ground water. Climate, hydrological, and management factors influence the potential for these contaminants to reach water from agricultural lands.

a. Impacts on Water Quality and Water Quantity Associated With Soybean Production

After corn, soybeans are the second largest agricultural crop in terms of acreage in the U.S. As with the production of any agricultural crop, the impact on water quality depends on a variety of factors including production practices, use of conservation practices and crop rotations by farmers, and acreage and intensity of tile drained lands. Additional factors outside agricultural producers' control include soil characteristics, climate, and proximity to water bodies.

Soybeans are typically grown in the same locations as corn since farmers commonly rotate between the two crops. In 2005, the latest year for which USDA collected data, the U.S. average nitrogen fertilization rate for soybeans was 16 pounds per acre. In contrast, the average nitrogen fertilization rate for corn was 138 pounds per acre.[67] Soybeans fix nitrogen, so they do not require substantial added fertilizer for adequate yields. Only 18 percent of soybean acres are fertilized with nitrogen compared to 96 percent of corn acres.[68] Since significantly less nitrogen fertilizer is applied to soybeans, less nitrogen is available for runoff or leaching into water. Water quality generally benefits when soybeans are rotated with corn, since the next corn crop requires less fertilizer and fewer pesticides. Therefore, crop rotation is one practice that is part of an effective system to limit water quality impacts. However, soybeans have less residue remaining on the field after harvest compared to corn, so sediment runoff could be more of a concern.

Agricultural conservation systems can reduce the impact of soybean production on the environment. The systems components include (1) controlled application of nutrients and pesticides through proper rate, timing, and method of application, (2) controlling erosion in the field (*i.e.,*

[66] U.S. EPA. Biofuels and the Environment: the First Triennial Report to Congress (External Review Draft). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R–10/183A, 2011. *http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=217443.*

[67] U.S. Department of Agriculture, Economic Research Service. Fertilizer Use and Price. *http://www.ers.usda.gov/Data/FertilizerUse.*

[68] U. S. Department of Agriculture, National Agricultural Statistics Service. 2007. Agricultural chemical usage 2006 field crops summary. Available at: *http://usda.mannlib.cornell.edu/usda/nass/AgriChemUsFC//2000s/2007/AgriChemUsFC-627 05–16–2007_revision.pdf.*

reduced tillage, terraces, or grassed waterways), and (3) trapping losses of soil and fertilizer runoff at the edge of fields or in fields through practices such as cover crops, riparian buffers, controlled drainage for tile drains, and constructed/restored wetlands.[69]

The effectiveness of conservation practices, however, depends upon their adoption. The USDA's Conservation Effects Assessment Project (CEAP) quantified the effects of conservation practices used on cultivated cropland in the Upper Mississippi River Basin. It found that, while erosion control practices are commonly used, there is considerably less adoption of proper nutrient management to mitigate nitrogen loss to water bodies.[70] However, as noted above, the relatively low amount of fertilizer used for soy bean production tends to lessen the potential for nitrogen loss to water bodies

Water for soybean cultivation predominately comes from rainfall, although about 11 percent of soybean acres in the U.S. are irrigated.[71] Water use for irrigated soybean production in the U.S. varies from 0.2 acre-feet per acre in Pennsylvania to about 1.4 acre-feet per acre in Colorado, with a national average of 0.8 acre-feet of water.[72]

b. Impacts on Water Quality and Water Quantity Associated With Biodiesel Production

Biological oxygen demand (BOD), total suspended solids, and glycerin pose the major water quality concerns in wastewater discharged from biodiesel facilities. Actual impacts depend on a range of factors, including the type of feedstock processed, biorefinery technology, effluent controls, and water re-use/recycling practices, as well as the facility location and source and receiving water.

Despite the existing commercial market for glycerin and the likely expanded uses for glycerin as discussed in the RFS2 final rule, the rapid development of the biodiesel industry has caused a temporary glut of glycerin production, resulting in some instances of facilities disposing glycerin. Glycerin disposal may be regulated under several EPA programs, depending on the practice. However, there have been incidences of glycerin dumping, including an incident in Missouri that resulted in a large fish kill.[73] Some biodiesel facilities discharge their wastewater to municipal wastewater treatment systems for treatment and discharge. There have been several cases of municipal wastewater treatment plant upsets due to high BOD loadings from releases of glycerin.[74] To mitigate wastewater issues, some production systems reclaim glycerin from the wastewater. Closed-loop systems in which water and solvents can be recycled and reused can reduce the quantity of water that must be pretreated before discharge.

Biodiesel can also impact water bodies as a result of spills. However, biodiesel degrades approximately four times faster than petroleum diesel including in aquatic environments.[75] Results of aquatic toxicity testing of biodiesel indicate that it is less toxic than regular diesel.[76] Biodiesel does have a high oxygen demand in aquatic environments, and can cause fish kills as a result of oxygen depletion. Water quality impacts associated with spills at biodiesel facilities generally result from discharge of glycerin, rather than biodiesel itself.

Biodiesel facilities use much less water than ethanol facilities to produce biofuel. The primary consumptive water use at biodiesel plants is associated with washing and evaporative processes. Water use is variable, but is usually less than one gallon of water for each gallon of biodiesel produced; some facilities recycle wash water, which reduces overall water consumption.[77]

9. Job Creation and Rural Economic Development

The RFS2 is anticipated to increase employment and spur income expansion in rural areas and farming communities. Income expansion in rural areas from renewable fuel production will contribute to rural economic development. As mentioned above, industry activities are currently progressing to ramp up biodiesel consumption from the approximately 380 mill gallons estimated to be used in the U.S. in 2010 to the 800 mill gallons that is estimated to be used in 2011 to meet the RFS2 biomass-based diesel volume requirement. In addition, it is anticipated that biodiesel production capacity idled due to lack of demand will be brought back on line as biodiesel volumes ramp up. Also, expansions to the fuel distribution infrastructure (*i.e.,* more fuel terminals, rail cars, tank trucks, barges *etc.*) will be needed to support the use of 1 bill gal/yr of biodiesel in 2012 and 1.28 bill gal/yr in 2013 based on the analysis conducted for the RFS2 final rule.[78] Bringing online idle biodiesel plants and expanding biodiesel distribution infrastructure in the U.S. will increase both employment and promote rural economic development. These increases in employment are similar to what EPA anticipated when it analyzed the RFS2 rule.

*D. Proposed 2013 Volume for Biomass-Based Diesel*

We are proposing an applicable volume of 1.28 bill gal biomass-based diesel for 2013, consistent with our projection for 2103 in the RFS2 final rule. The 0.28 bill gal increment over the 2012 applicable volume that is reflected in this proposal does not deviate substantially from the trend in annual increments that Congress established in specifying applicable volumes for biomass-based diesel for 2009 through 2012. As noted in Section IV.B, because we are not proposing to change the 2013 advanced biofuel applicable volume in this rulemaking, we have used the 2.75 bill gallon applicable volume for the analyses in today's proposal. Given an advanced biofuel applicable volume of 2.75 bill gallons for 2013, the proposed 1.28 bill gal biomass-based diesel volume requirement is not expected to force any additional biomass-based diesel

[69] Dinnes, DL; Karlen, DL; Jaynes, DB; Kaspar, TC; Hatfield, JL; Colvin, TS; Cambardella, CA. 220 2002. Nitrogen management strategies to reduce nitrate leaching in tile-drained 221 midwestern soils. Agronomy Journal 94(1): 153–171.

[70] U.S. Department of Agriculture, National Resources Conservation Service. 2010. Assessment of the effects of conservation practices on cultivated cropland in the Upper Mississippi River Basin. Available at: *http://www.nrcs.usda.gov/technical/NRI/ceap/umrb/index.html.*

[71] U.S. Department of Agriculture. 2010. 2007 Census of agriculture, Farm and ranch irrigation survey (2008). *http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Farm_and_Ranch_Irrigation_Survey/fris08.pdf.*

[72] U. S. Department of Energy. 2006. Energy demands on water resources: Report to Congress on the interdependency of energy and water. Available at: *http://www.sandia.gov/energy-water/docs/121-RptToCongress-EWwEIAcomments-FINAL.pdf.*

[73] U.S. EPA. 2010b. Renewable fuel standard program (RFS2) regulatory impact analysis. EPA–420–R–10–006. Available at: *http://www.epa.gov/otaq/renewablefuels/420r10006.pdf.*

[74] U.S. EPA. 2010b. Renewable fuel standard program (RFS2) regulatory impact analysis. EPA–420–R–10–006. Available at: *http://www.epa.gov/otaq/renewablefuels/420r10006.pdf.*

[75] Kimble, J. n.d. Biofuels and emerging issues for emergency responders. U.S. EPA. Available at: *http://www.epa.gov/oem/docs/oil/fss/fss09/kimblebiofuels.pdf.*

[76] Kahn, N; Warith, MA; Luk, G. 2007. A comparison of acute toxicity of biodiesel, biodiesel blends, and diesel on aquatic organisms. Journal of the Air and Waste Management Association 57(3): 286–296.

[77] Renewable Fuels Standard Program (RFS2), Regulatory Impact Analysis (RIA). EPA–420–R–10–006. Available at: *http://www.epa.gov/otaq/renewablefuels/420r10006.pdf.*

[78] Renewable Fuels Standard Program (RFS2), Regulatory Impact Analysis (RIA), EPA–420–R–10–006, February 2010. Available at: *http://www.epa.gov/otaq/renewablefuels/420r10006.pdf.*

volumes into the market in 2013. As a result, the increase in biomass-based diesel from the statutory minimum of 1.0 bill gal to 1.28 bill gal could be seen as not having any impact beyond what is anticipated to result from meeting the current 2.75 bill gal advanced biofuel applicable volume.

However, compared to a reference case without the RFS2 mandates, 1.28 bill gal of biomass-based diesel will lead to displacement of fossil-based fuel, which will result in reduced GHG emissions from the transportation sector and increased energy security. There are likely to be some negative consequences associated with increased air and water pollution, increased food prices, impacts to wetlands, *etc.,* as discussed above. However, EPA does not believe that these impacts outweigh the benefits of moving to an applicable volume of 1.28 bill gal for 2013. By requiring somewhat more biomass based diesel use in 2013 than the statutory minimum, we are also making it more likely that we will not need to modify the advanced biofuel mandate in 2013 and, therefore, that the Congressional goal for advanced biofuel use in 2013 can either be satisfied, or at least come closer to satisfaction. EPA solicits comment on all issues related to this proposal.

*E. 2014 and Beyond*

EPA is directed under CAA 211(o)(2) to determine the required biomass-based diesel volumes no less than 14 months ahead of the first year that they would be applicable, and thus we could propose biomass-based diesel volumes for 2014 and beyond in today's NPRM. Doing so would provide certainty for the industry and stability for future investments and contracts. However, we are not proposing biomass-based diesel standards for 2014 and beyond in today's NPRM since we believe we will be in a better position in the future to evaluate all of the factors related to establishing an applicable volume for 2014 and later years.

We are aware of two sources that provide projections of biomass-based diesel for years after 2013: the RFS2 final rulemaking, and a recent report released by the IHS Global Insight.[79] The projections from both of these sources are shown in Table IV.E–1

TABLE IV.E–1—PROJECTIONS OF BIOMASS-BASED DIESEL AFTER 2012 (BILL GALLONS)

| | RFS2 final rule | IHS global insight report |
|---|---|---|
| 2013 | 1.28 | 1.34 |
| 2014 | 1.39 | 1.50 |
| 2015 | 1.53 | 1.81 |
| 2016 | 1.56 | 2.18 |
| 2017 | 1.60 | 2.53 |
| 2018 | 1.64 | 2.74 |
| 2019 | 1.68 | 3.00 |
| 2020 | 1.72 | 3.14 |
| 2021 | 1.77 | 3.23 |
| 2022 | 1.82 | 3.30 |

We will consider these and other sources when we determine the required biomass-based diesel volumes for 2014 and beyond, whether in this or a future rulemaking.

## V. Proposed Changes to RFS2 Regulations

As the RFS2 program got underway in the second half of 2010, we discovered that a number of regulatory provisions were causing confusion among regulated parties. In some cases the confusion was due to a lack of specificity in terms, while in others it was due to unique circumstances that were not sufficiently addressed in the RFS2 regulations. A few amendments are being proposed in order to correct regulatory language that inadvertently misrepresented our intent as reflected in the preamble to the final RFS2 regulations. Finally, as we have worked with regulated parties to ensure that the RFS program is operating as intended, we identified areas in the regulations that could benefit from clarification and/or streamlining. We also identified one provision in the gasoline benzene regulations that misrepresented our intent as stated in the preamble. As a result, we are proposing a number of amendments to the RFS regulations, and one amendment to the gasoline benzene regulations, in 40 CFR part 80.

*A. Summary of Amendments*

Below is a table listing the provisions that we are proposing to amend in today's action. We have provided additional explanation for several of these amendments in Sections V.B through V.F below.

TABLE V.A–1—SUMMARY OF TECHNICAL AMENDMENTS

| Section | Description |
|---|---|
| 80.1275(d)(3) | Removed to allow for the inclusion of transferred blendstocks in the calculation of benzene early credits. |
| 80.1401 | Amended definition of ''annual cover crop'' to clarify that the crop has no existing market to which it can be sold except for its use as feedstock for the production of renewable fuel. |
| 80.1401 | Amended definition of ''naphtha'' to clarify that it applies to hydrocarbons only, must be commonly or commercially known as naphtha, and is used for producing gasoline. |
| 80.1405(a), (b), and (d) | Amended to state the standards for 2012 and the date of the annual standards calculation. |
| 80.1405(c) | Amended terms ''$GE_i$'' and ''$DE_i$'' to reference the amount of gasoline and/or diesel produced by small refineries and small refiners that are exempt pursuant to §§ 80.1441 and 80.1442. |
| 80.1415(c)(2) | Amended to state the specific requirements needed for technical justifications for applications for Equivalence Values. |
| 80.1426, Table 1 | Amended to add ID letters to pathways to facilitate references to specific pathways and to change the reference to ''canola'' to ''canola/rapeseed''. |
| 80.1426(f)(1) | Corrected typographical error in cross reference to paragraph (f)(6) of § 80.1426. |
| 80.1426(f)(5)(ii) | Amended requirements so that the separated yard waste plans and separated food waste plans need not be approved by EPA, but instead only need to be accepted by EPA under the registration provisions. |
| 80.1429(b)(2) | Amended to clarify that ''fossil-based'' diesel fuel is different from renewable diesel fuel. |
| 80.1429(b)(9) | Amended to include RIN separation limitations on parties whose non-export RVOs are solely related to imports of gasoline and diesel or the use of blendstocks to produce gasoline or diesel. |
| 80.1449(a) | Amended Production Outlook Report due date; added allowance for unregistered renewable fuel producers and importers to submit Production Outlook Reports. |

[79] ''Biodiesel Production Prospects for the Next Decade,'' IHS Global Insight, March 11, 2011.

TABLE V.A–1—SUMMARY OF TECHNICAL AMENDMENTS—Continued

| Section | Description |
|---|---|
| 80.1450(b)(1)(vi) | Amended to require submission of additional evidence as part of registration to verify eligibility for exemptions in § 80.1403(c) or (d). |
| 80.1450(d)(1)–(d)(3) | Amended to add more specificity on when updates, addenda, or resubmittals are required for engineering reviews and to include references to foreign ethanol producers. |
| 80.1451(a)(1)(xi) | Amended to clarify that this section references RFS1 RINs retired for compliance. |
| 80.1452(b)(2) | Corrected typographical error. |
| 80.1452(b)(4) | Amended to clarify that a RIN-generating importer must submit to EMTS the EPA facility registration number of the facility at which the renewable fuel producer or foreign ethanol producer produced the batch. |
| § 80.1452(b)(5) | Amended to clarify that for imports of renewable fuel, the RIN-generator must submit to EMTS the EPA facility registration number of the importer that imported the batch. |
| 80.1460(b)(6) | Added to clarify that RINs cannot be generated more than once for a single batch of renewable fuel. |
| 80.1464(a)(2)(iii), (a)(2)(iv), (b)(2)(iii), (b)(2)(iv), (c)(1)(iii), and (c)(1)(iv). | Added to clarify that auditors must verify that product transfer documents for RIN transactions contain the required information for obligated parties/exporters and for renewable fuel producers/importers. |
| 80.1464(a)(2)(i), (a)(3)(ii), (b)(2)(i), (b)(3)(ii) | Amended to clarify that auditors must validate RIN separations for obligated parties/exporters and for renewable fuel producers/importers; amended to correct typographical error. |
| 80.1465(h)(2); 80.1466(h)(2); and 80.1467(e)(1), (e)(2), and (g)(2). | Amended to remove the option of using an alternative commitment in lieu of paying a bond and to clarify the amount of bond a foreign entity must post. |

*B. Technical Justification for Equivalence Value Application*

A producer or importer of renewable fuels is required to submit an equivalence value (EV) application in accordance with § 80.1415(c) for any renewable fuel that does not have an EV listed in § 80.1415(b). In addition, a producer or importer could apply for an alternative EV if the producer or importer has reason to believe that a different EV than that listed in § 80.1415(b) is warranted. Section 80.1415(c) provides the calculation equation for the EV of the renewable fuel and the requirements for the technical justification to be submitted in the EV application.

We have received many inquiries from producers and importers of renewable fuels requesting clarification of the specific requirements for the technical justification listed in § 80.1415(c). In addition, based on the many EV applications we have evaluated, we have found that we needed to request additional information from producers and importers to better understand the composition of the renewable fuel they produced, such as intermediate steps and energy inputs in production process, sources of renewable and non-renewable feedstock, and so forth, to better evaluate and assign the correct EV to the producer or importer's renewable fuel.

Therefore, we are proposing to amend § 80.1415(c)(2) to provide clarification to the current requirements and to include additional requirements for the technical justification to be submitted in the EV application. The proposed amendments to § 80.1415(c)(2) include:

—A calculation for the requested equivalence value according to the equation in § 80.1415(c)(1), including supporting documentation for the energy content (EC) of the renewable fuel such as a certificate of analysis from a laboratory that verifies the lower heating value in Btu per gallon of the renewable fuel produced.

—For each feedstock, component or additive used to make the renewable fuel, provide a description, the percent input and identify whether or not it is renewable biomass or is derived from renewable biomass.

—For each feedstock that could independently qualify as a renewable fuel, state whether or not RINs have been previously generated for the feedstock.

—A description of renewable fuel and the production process, including a block diagram that shows quantities of all inputs and outputs required at each step of the production process for the production of one batch of renewable fuel.

*C. Changes to Definitions of Terms*

1. Definition of Annual Cover Crop

As explained in the preamble of the RFS2 final rulemaking, EPA extended modeling for cellulosic biofuel made from corn stover and biodiesel/renewable diesel made from waste oils/fats/greases to annual cover crops, based on the expectation that cultivation of annual cover crops, as defined in § 80.1401, will have little impact on the agricultural commodity markets and therefore little or no land use impact associated with them. Therefore, certain fuels (as specified in Table 1 to § 80.1426) derived from annual cover crop feedstocks qualify for D-codes under the advanced biofuel, biomass-based diesel, and cellulosic renewable fuel categories.

Section 80.1401 of the final RFS2 rule defines ''annual cover crop.'' We are proposing to amend the definition of annual cover crop in order to more clearly define those feedstocks that meet the intent of including cover crops in several pathways in Table 1 to § 80.1426.

In order to extend our modeling to cover crops, we used the rationale that annual cover crops would have no land use impact since they are planted on land otherwise used for crop production. Greenhouse gas emissions would only be associated with growing, harvesting and transporting the cover crop, and then processing into biofuel. (See 75 FR 14794 col. 3.) Thus, we assumed that no additional land would be required to plant annual cover crops, that cover crops would not displace primary crop production, and that the use of the cover crop as a feedstock for renewable fuels would not have secondary impacts on other agricultural commodity markets. This implies that annual cover crops would not be planted and harvested for the purpose of being sold to existing markets. If a cover crop already had an existing market, then the increased use of cover crops as feedstocks for renewable fuel production could potentially impact the existing markets. Therefore, we propose to amend the current definition for ''annual cover crop'' to clarify that for purposes of the RFS program the term only includes crops that have no existing market to which they can be sold except for the use of the feedstock

for renewable fuel. This will ensure that no unintended land use or significant indirect effects result from the use of annual cover crops as feedstocks for renewable fuel production.

EPA recognizes that there may be additional fuel pathways requiring lifecycle greenhouse gas (GHG) assessments and the assignment of appropriate RIN D–Codes, including those using feedstocks that do not meet the proposed amended definition of annual cover crop. For further guidance on the process for requesting EPA evaluation of new fuel pathways, please refer to the following sites:

*http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfs2-lca-pathways.htm.*

*http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/lca-petition-instructions.htm#1.*

2. Definition of ''Naphtha''

In the RFS2 final rule, we included several RIN-generating pathways in Table 1 for naphtha made from renewable biomass. We also provided a definition of naphtha in § 80.1401. However, the definition we finalized was overly broad and did not adequately represent our intent to limit naphtha to gasoline blendstocks. As a result, some biofuel producers have expressed interest in interpreting the term ''naphtha'' to include materials that, while falling within the boiling range of gasoline, are not used as a blendstock to produce gasoline.

To remedy this situation, we are proposing to revise the definition of naphtha to also specify that it applies only to blendstocks which are composed of only hydrocarbons, are commonly or commercially known as naphtha, and are used to produce gasoline.

*D. Technical Amendments Related to RIN Generation and Separation*

1. RIN Separation Limit for Obligated Parties

We propose to amend section 80.1429 to limit the amount of RINs a company who is an obligated party solely by virtue of importation of obligated fuel can separate to their Renewable Volume Obligation (RVO). This change would address the instance where a party may import a small amount of obligated volumes and then separate all the RINs that it owns. This change is designed to prevent abuse of the obligated party RIN separation provision by a company that imports a relatively small amount of an obligated volume, but then separates a large amount of RINs. The proposed provision is also designed to help prevent the hoarding of RINs by parties that do not need them for compliance purposes, and to generally increase liquidity of RINs.. EPA structured the original RFS1 separation regulations around facilitating compliance by obligated parties meeting their RVOs. The proposed change keeps with the original design and also ensures that importers can separate enough RINs to meet their obligations.

2. RIN Retirement Provision for Error Correction

In some instances, renewable fuel producers or importers may improperly generate RINs in EMTS as a result of calculation errors, meter malfunctions or clerical errors. Pursuant to § 80.1431(a), improperly generated RINs are invalid, and cannot be used to achieve compliance with any Renewable Volume Obligations (RVOs). The regulations also prohibit any party from creating or transferring invalid RINs. These invalid RIN provisions apply regardless of the good faith belief of a party that the RINs are valid. Because of the ''buyer beware'' aspect of the RIN program, RIN generators should take all appropriate actions to ensure that they are properly generating RINs, and all parties in the RIN distribution system should take all appropriate actions to ensure that they are not trading invalid RINs or using invalid RINs for compliance purposes.

The ''buyer beware'' aspect of the RIN program provides an important incentive for the regulated community to comply with the regulations. Although EPA believes that these self-policing mechanisms are a critical component of the RFS2 regulations, we seek comment on the possibility of amending § 80.1431 to provide the regulated community with limited flexibility to allow certain RINs that were improperly generated to nevertheless be transferred and used for compliance. We envision that this type of flexibility could reduce disruptions to the RIN market while, if appropriately limited, continuing to apply appropriate pressure on parties that generate, transfer and use RINs to comply with the regulations. Parties that improperly generate RINs would remain liable for generating invalid RINs.

We believe that the following general limitations should apply to any flexibility to allow improperly generated RINs to be transferred and used for compliance: (1) The RINs must have been improperly generated as a result of an inadvertent error, (2) the improperly generated RINs must have the correct D code, (3) the RIN generator must correct the information submitted to EMTS and retire an equivalent number and type of any excess RINs that were generated as a result of the error within fixed time period, (4) the flexibility to allow improperly generated RINs to be used for compliance would only apply if the number of excess RINs generated for a particular batch exceeds the number of RINs that should have been generated by some fixed percentage, and (5) the flexibility to allow improperly generated RINs to be used for compliance could not be repeatedly used by a renewable fuel producer.

We are seeking comment on whether EPA should amend the regulations to include this flexibility, whether the conditions set forth above are appropriate, and whether there are additional or alternative conditions that should be imposed if the flexibility is granted. We seek comment on specifying a 60-day time period for a RIN-generator to correct RIN information submitted to EMTS and limiting the availability of this flexibility to situations where the number of excess RINs generated for a particular batch exceeds the number of RINs that should have been generated by no more than 2%. In addition, we seek comment on the possibility of establishing a limit on the number of times this flexibility could be used within a compliance period by a given RIN generator. Such a limitation could encourage RIN generators to take appropriate measures to avoid generating invalid RINs, and limit the possibility that RIN generators would intentionally generate invalid RINs to take advantage of short term RIN price spikes. EPA seeks comment on all aspects of this proposal

3. Production Outlook Reports Submission Deadline

In the final RFS2 regulations, in § 80.1449(a), EPA set the annual deadline for submitting Production Outlook Reports as March 31 of each year. However, EPA has determined that, in order for the information contained in the Production Outlook Reports to be most useful when setting the RFS2 volume requirements and associated percentage standards for the following calendar year, the reports should contain the most accurate projections possible. Since the accuracy of projections tends to increase the closer those projections are made to the following calendar year, we believe that the March 31 deadline should be moved to June 1. This revised deadline would still allow the information contained in the Production Outlook Reports to be used in the development of the final

rulemaking setting the standards for the following year.

4. Attest Procedures

In the final RFS2 regulations, EPA required in § 80.1464(c)(1)(i) and (c)(2)(ii) that RIN owners conduct attest procedures for RIN transaction and RIN activity reports that involve RIN separations. This requirement was intended to be included in the attest procedures for obligated parties and exporters as well as for renewable fuel producers and RIN-generating importers, in order to confirm that RINs are being properly separated by all parties participating in the RIN market. Thus, today's rule proposes amendments to § 80.1464(a)(2)(i) and (a)(3)(ii) for obligated parties and exporters as well as to § 80.1464(b)(2)(i) and (3)(ii) for renewable fuel producers and RIN-generating importers to include attest procedures concerning verification of RIN separation.

Additionally, in the final RFS2 regulations, EPA required in § 80.1464 that auditors of RIN generation reports verify that product transfer documents (PTDs) include the required information. EPA believes it would be beneficial for auditors to verify the required information is present on PTDs for RIN transactions for all parties, including obligated parties, renewable fuel producers and importers and RIN owners. Thus, today's rule proposes amendments to § 80.1464(a)(2), (b)(2) and (c)(1) to require auditors to verify that the PTDs for a representative sample of RINs sold and purchased contains the information required in § 80.1453.

5. Treatment of Canola and Rapeseed

On September 28, 2010, EPA published a ''Supplemental Determination for Renewable Fuels Produced Under the Final RFS2 Program from Canola Oil'' (FR Vol. 75, No. 187, pg 59622–59634). We are proposing to clarify two aspects of the supplemental determination. First we propose to amend the regulatory language in Table 1 to 40 CFR 80.1426 to clarify that the currently-approved pathway for canola also applies more generally to rapeseed. While ''canola'' was specifically described as the feedstock evaluated in the supplemental determination, we had not intended the supplemental determination to cover just those varieties or sources of rapeseed that are identified as canola, but to all rapeseed. We currently interpret the reference to ''canola'' in Table 1 to 40 CFR 1426 to include any rapeseed. To eliminate ambiguity caused by the current language, however, we propose to replace the term ''canola'' in that table with the term ''canola/rapeseed''. Canola is a type of rapeseed. While the term ''canola'' is often used in the American continent and in Australia, the term ''rapeseed'' is often used in Europe and other countries to describe the same crop. We believe that this change will enhance the clarity of the regulations regarding the feedstocks that qualify under the approved canola biodiesel pathway.

Second, we wish to clarify that although the GHG emissions of producing fuels from canola feedstock grown in the U.S. and Canada was specifically modeled as the most likely source of canola (or rapeseed) oil used for biodiesel produced for sale and use in the U.S., we also intended that the approved pathway cover canola/rapeseed oil from other countries, and we interpret our regulations in that manner. We expect the vast majority of biodiesel used in the U.S. and produced from canola/rapeseed oil will come from U.S. and Canadian crops. Incidental amounts from crops produced in other nations will not impact our average GHG emissions for two reasons. First, our analyses considered world-wide impacts and thus considered canola/rapeseed crop production in other countries. Second, other countries most likely to be exporting canola/rapeseed or biodiesel product from canola/rapeseed are likely to be major producers which typically use similar cultivars and farming techniques. Therefore, GHG emissions from producing biodiesel with canola/rapeseed grown in other countries should be very similar to the GHG emissions we modeled for Canadian and U.S. canola, though they could be slightly (and insignificantly) higher or lower. At any rate, even if there were unexpected larger differences, EPA believes the small amounts of feedstock or fuel potentially coming from other countries will not impact our threshold analysis. Therefore, EPA interprets the approved canola pathway as covering canola/rapeseed regardless of country origin.

*E. Technical Amendments Related to Registration*

1. Construction Discontinuance & Completion Documentation

The registration requirements in § 80.1450(b)(1)(vi) state that for facilities claiming the exemption described in § 80.1403(c) or (d), evidence must be submitted demonstrating the date that construction commenced. However, the registration requirements do not explicitly require the submission of evidence demonstrating that they meet certain of the other requirements described in § 80.1403(c)(1) and (2) or (d)(1), (2) and (3).

In order to verify that facilities which claim to qualify for an exemption under § 80.1403(c) or (d) in fact meet all of the qualification requirements for such an exemption, we are proposing to amend § 80.1450(b)(1)(vi) to include requirements that the owner or operator of facilities claiming exemption under § 80.1403(c) submit evidence demonstrating that construction was not discontinued for a period of 18 months after construction began, and that construction was completed by December 19, 2010. Similarly, we are proposing that for facilities claiming the exemption under § 80.1403(d), evidence be submitted demonstrating that construction was not discontinued for a period of 18 months after construction began and that construction was completed within 36 months of the date that construction commenced.

In addition, we are proposing to add a general provision in (§ 80.1450(b)(1)(vi)(D) requiring the submission of additional documentation and information as requested by the Administrator. This authority would be used in the event that documents submitted in accordance with requirements § 80.1450(b)(1)(vi)(A) and (B) are not sufficient for EPA to verify that the facility has met all requirements described in § 80.1403(c) or (d).

2. Third-Party Engineering Reviews

The regulations stipulate that producers of renewable fuels and foreign ethanol producers are required to update their registration information, and submit an updated independent third-party engineering review, every 3 years after their initial registration in accordance with § 80.1450(d)(3). We have received many inquiries regarding the start date that EPA uses to determine the 3 year period after which the producer must submit an updated independent third party engineering review (such as the registration acceptance date, the third-party professional engineer's signature date on the engineering review report, or when the engineering review is due for grandfathered and non-grandfathered facilities).

Given the lack of clarity in the current regulations, we are proposing amendments to specify the time frame for submission of updated independent third-party engineering reviews. We are proposing, a simplified method that would group producers according to the calendar year they were or will be registered, and setting a fixed time

frame for registration updates for each group. Therefore, we are proposing to amend § 80.1450(d)(3), to stipulate that for all producers of renewable fuel and foreign ethanol producers in which their registration was accepted by EPA in calendar year 2010, that the updated registration information and independent third-party engineering review shall be submitted to EPA within the three months prior to January 1, 2014, and within three months prior to January 1 of every third calendar year thereafter. For all producers of renewable fuel and foreign ethanol producers registered in any calendar year after 2010, the updated registration information and independent third-party engineering review shall be submitted to EPA within three months prior to January 1 of every third calendar year after the first year the producer's registration was accepted by EPA. For example, a producer registered in 2011 would be required to submit an updated independent third-party engineering review by January 1, 2015, and by January 1 every three calendar years thereafter.

3. Foreign Ethanol Producers

We are proposing that the amendments to the registration requirements in § 80.1450 also apply to foreign ethanol producers. As defined in § 80.1401, foreign ethanol producers are foreign producers that produce ethanol for use in transportation fuel, heating oil or jet fuel but who do not add denaturant to their product. Therefore, foreign ethanol producers do not technically produce ''renewable fuel'' as defined in our regulations. As discussed in the preamble to the Direct Final Rule published on May 1, 2010 (see 75 FR 26032), the result of the amendments made in the Direct Final Rule is to require foreign ethanol facilities that produce ethanol that ultimately becomes part of a renewable fuel for which RINs are generated to provide EPA the same registration information as foreign renewable fuel facilities that export their product to the United States. In both cases the required registration information is important for enforcement purposes, including verifying the use of renewable biomass as feedstock and the assignment of appropriate D codes. Therefore, we believe amendments to the registration requirements that we make in this proposed rule should also be applicable to foreign ethanol producers for same reasons.

*F. Additional Amendments and Clarifications*

1. Third-Party Engineering Review Addendum

We have received many inquires as to whether an addendum to the existing independent third-party engineering review is sufficient to meet the requirement that all producers of renewable fuel and foreign ethanol producers submit an updated independent third-party engineering review if they make changes to their facility that will qualify the renewable fuel that is produced for a renewable fuel category or D code that is not already reflected in the producer's registration information. In some circumstances the majority of the information verified in the existing independent third-party engineering review would remain the same, and duplicating the entire effort does not appear necessary. We believe the concept of allowing the submission of an addendum in lieu of a updated independent third-party engineering review is reasonable and therefore we are proposing to amend the requirements in § 80.1450(d)(1) to state that a producer of renewable fuel or foreign ethanol producer may submit an addendum to the existing independent third-party engineering review on file with EPA provided the addendum meets all the requirements in § 80.1450(b)(2) and verifies for EPA the most up-to-date information at the producer's existing facility. The updated independent third-party engineering review or addendum shall be submitted at least 60 days prior to producing the new type of renewable fuel and must meet all the same requirements stipulated in § 80.1450(b)(2) for the independent third-party engineering review, including a new site visit conducted by the third-party to verify any changes to the facility that allows it to produce a different renewable fuel that is not currently reflected in their registration on file with EPA.

2. RIN Generation for Fuel Imported From a Registered Foreign Producer

In RFS2, EPA finalized provisions allowing importers to generate RINs for renewable fuel imported from a foreign producer only under certain circumstances. The importer may only generate RINs for fuel imported from a foreign renewable fuel producer or foreign ethanol producer if that producer is registered with EPA and has received EPA company and facility identification numbers pursuant to § 80.1450. Pursuant to § 80.1426(c)(4), the importer is prohibited from generating RINs for fuel imported from a foreign producer that is not registered with EPA. In today's rule, EPA is clarifying that when an importer is generating RINs for fuel imported from a registered foreign renewable fuel producer or foreign ethanol producer, the importer must submit to EPA via EMTS the importer's company identification number, the facility identification number of the import facility where the batch was imported, and the facility identification number for the foreign renewable fuel or ethanol producer that produced the batch of fuel for which the importer is generating RINs. These clarifications are being made in § 80.1452(b)(4) and (5).

3. Bond Posting

We are proposing to amend paragraphs (e)(1), (e)(2) and (g)(2) of § 80.1467 to make them consistent with § 80.1467(g)(1). These amendments attempt to clarify that the amount of the posted bond must post must cover the number of gallon RINs that are sold and/or transferred, and also those RINs held and/or obtained by the foreign entity, including those held and/or obtained to comply with a foreign importer's RVO requirements. We are also proposing to amend §§ 80.1465–80.1467 by striking §§ 80.1465(h)(2)(iii), 80.1466(h)(2)(iii) and 80.1467(e)(2)(iii), which allowed entities to make alternative commitments in lieu of posting bonds. EPA believes that this method is vague, unnecessary, and unenforceable.

4. Acceptance of Separated Yard Waste and Food Waste Plans

We are proposing to amend § 80.1426(f)(5)(ii)(A) to remove the requirement that the separated yard waste plan and separated food waste plan must be approved by EPA, and instead only require that these two plans be submitted and accepted by EPA under the registration procedures specified in § 80.1450(b)(1)(vii). The details and information required to be submitted in the separated yard waste plan and separated food waste plan are not overly burdensome or complex, and therefore we believe it does not warrant a specific EPA approval, but that EPA acceptance of these plans through the registration procedures is sufficient.

5. Transferred Blendstocks in Early Benzene Credit Generation Calculations

Today's rule also proposes one minor correction to the gasoline benzene regulations which would clarify how refiners should account for transferred blendstocks in their early benzene credit generation calculations. Under current rules, refineries which generated early

benzene credits are required to reduce gasoline benzene during an early credit generation period by at least 10% compared to the refinery's benzene baseline, and are also required to make specific operational changes and/or improvements in benzene control technology to reduce gasoline benzene levels.[80] Refineries which reduce their gasoline benzene by at least 10%, in part by transferring reformate to another refinery, could also generate early benzene credits, provided the transferee refinery treated the reformate in specific benzene-reduction processing units.[81] See 72 FR 8486–87 (Feb. 26, 2007). However, the gasoline benzene regulations also contain an additional provision that requires all blendstock streams transferred to, from or between refineries to be excluded from a refinery's early credit generation calculations (except for reformate as described previously). This led to an inconsistent comparison of a refinery's benzene during an early credit generation period with a refinery's benzene baseline (which included blendstocks transferred to the refinery), which was not EPA's intent.

As described in the preamble of the gasoline benzene final rule, EPA intended that refineries not be allowed to generate early benzene credits exclusively through blendstock trading, without making any other qualifying reductions (see 72 FR 8487), but that refineries could generate early benzene credits in part through qualifying reductions and ''in part'' through other means such as blendstock transfers (see 72 FR 8496–97). However, the current regulations do not allow this approach, and this inconsistency has caused confusion among refiners about how to calculate the amount of early credits generated. Refiners have generally followed the approach set out in the preamble (as EPA in fact intended), and included all blendstocks transferred to a refinery in the refinery's early credit generation calculations. Refiners typically keep records on transferred blendstocks for 1–2 years, and thus do not have sufficient data to exclude transferred blendstocks from their early credit generation calculations.

EPA recently became aware of this inconsistency and is proposing to change the regulations to make them consistent with EPA's intent as described in the preamble. Today's proposed rule would amend the gasoline benzene regulations at 40 CFR 80.1275(d)(3) by deleting that provision. This would allow a refinery to include blendstocks transferred to the refinery in the refinery's early benzene credit generation calculations (all other conditions, including treatment which removes benzene in transferred reformate streams still applying, of course). Consistent with EPA's original intent, today's rule also allows a refinery to include transferred blendstocks in past early credit generation calculations, provided the refinery met all of the other requirements for generating early benzene credits. EPA is proposing to include transferred blendstocks in past early credit generation calculation not only because this was EPA's intent at the time of the benzene gasoline rulemaking, but because some refiners have reasonably relied upon that stated intent in devising their compliance strategies.

## VI. Petition for Reconsideration

On February 7, 2011, the American Petroleum Institute (API) and the National Petrochemical and Refiners Association (NPRA) jointly submitted a Petition for Reconsideration of EPA's final rule establishing the RFS standards for 2011.[82] EPA is proposing to deny the petition for the reasons described below, and solicits comment on this proposal.

The petition is available in docket EPA HQ OAR 2010–0133. It makes three primary assertions:

1. EPA's 2011 cellulosic biofuel volume requirement of 6.6 million gallons (6.0 million ethanol-equivalent gallons) is unrealistically high. At the most, EPA should have used the estimate of 3.94 mill gallons provided by the Energy Information Administration (EIA).

2. EPA's determination that there are sufficient sources of advanced biofuel to warrant not reducing the advanced biofuel standard lacks adequate factual support.

3. EPA's treatment of delayed RINs injects undesirable uncertainty into the regulatory environment, and is contrary to the basic regulatory framework established by Congress.

The petition requests that EPA reconsider the regulatory requirements in all three areas.

### *A. Legal Considerations of Petition*

The API/NPRA petition was submitted under the reconsideration provisions of section 307(d)(7)(B) of the Clean Air Act (CAA). This section strictly limits petitions for reconsideration both in time and scope. It states that:

> Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. If the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within such time or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule, the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed. If the Administrator refuses to convene such a proceeding, such person may seek review of such refusal in the United States court of appeals for the appropriate circuit (as provided in subsection (b)). Such reconsideration shall not postpone the effectiveness of the rule. The effectiveness of the rule may be stayed during such reconsideration, however, by the Administrator or the court for a period not to exceed three months.

Thus the requirement to convene a proceeding to reconsider a rule is based on the petitioner demonstrating to EPA: (1) That it was impracticable to raise the objection during the comment period, or that the grounds for such objection arose after the comment period but within the time specified for judicial review (*i.e.,* within 60 days after publication of the final rulemaking notice in the **Federal Register**, see CAA section 307(b)(1); and (2) that the objection is of central relevance to the outcome of the rule.

Regarding the first procedural criterion for reconsideration, a petitioner must show why the issue could not have been presented during the comment period, either because it was impracticable to raise the issue during that time or because the grounds for the issue arose after the period for public comment (but within 60 days of publication of the final action). Thus, CAA section 307(d)(7)(B) does not provide a forum to request EPA to reconsider issues that actually were raised, or could have been raised, prior to promulgation of the final rule.

Regarding the second procedural criterion for reconsideration, in EPA's view, an objection is of central relevance to the outcome of the rule only if it provides substantial support

[80] Early credit generation periods were July 1, 2007 through December 31, 2007, and calendar years 2008, 2009 and 2010.

[81] Refineries produce gasoline by combining several different blendstocks produced by various refinery processing units. Reformate is a blendstock which contains approximately 80% of all benzene found in gasoline, per the MSAT2 regulatory impact analysis.

[82] 75 FR 76790, December 9, 2010.

for the argument that the regulation should be revised.[83]

*B. Advanced Biofuel Standard and Delayed RINs*

For the concerns raised in the petition related to the treatment of the advanced biofuel requirement for 2011 and the provision for delayed RINs, API and NPRA essentially restate the positions that they took in their comments in response to the 2010 NPRM. For instance, with regard to advanced biofuels, the petitioners did not reference any new data on imports of sugarcane ethanol or the production potential of biodiesel to demonstrate that the statutory applicable volume of 1.35 bill gallons of advanced biodiesel cannot be met in 2011. Likewise with regard to delayed RINs, the petitioners did not cite new circumstances or new information in their assertion that this provision will inject uncertainty into the regulatory system and RIN market. Thus the petition does not provide new information with regard to these two issues or assert arguments that could not have been raised during the comment period. As a result, we do not believe that the petition's request for a reconsideration of these regulatory requirements is justified under CAA 307(d)(7)(B), and we propose to deny the petition with respect to these two issues. We believe that our approach to these matters in the final rulemaking establishing the 2011 RFS standards was appropriate, for the reasons described in the preamble to that rule.

*C. 2011 Cellulosic Biofuel Requirement*

Regarding the 2011 cellulosic biofuel requirement of 6.0 million ethanol-equivalent gallons, petitioners make two principal arguments: (1) That the statutory requirement that the cellulosic biofuel requirement be ''based on'' the estimate provided by the EIA requires EPA to use the 3.94 million ethanol-equivalent gallon EIA estimate regardless of any other information, and (2) that EPA lacked a reasonable basis for its projection of 6.0 million ethanol-equivalent gallons.

The first issue raised by petitioners was discussed in the RFS2 proposed rule. In the preamble to the 2010 RFS2 Notice of Proposed Rulemaking, we stated that when projecting cellulosic biofuel production volumes annually ''[w]e intend to examine EIA's projected volumes and other available data including the production outlook reports * * * '' that EPA proposed to require renewable fuel producers to submit annually.[84] EPA further explained that the production outlook reports ''would be used * * * to set the annual cellulosic biofuel'' standard.[85] Neither API nor NPRA submitted comments stating, as they do now, that EPA must in all cases rely on the EIA projection and cannot consider or rely upon other information in establishing the annual cellulosic biofuel standard. After evaluating the comments that EPA did receive, we issued a final rule, including applicable volumes and corresponding percentage standards consistent with the proposal. We stated in the preamble to the final rule that ''[w]e will examine EIA's projected volumes and other available data including the required production outlook reports to decide the appropriate standard for the following year. The outlook reports from all renewable fuel producers will assist EPA in determining what the cellulosic biofuel standard should be * * * ''[86]

Petitioners had another opportunity to raise this same issue in the context of the rulemaking establishing the 2011 standards. EPA again made it clear in its proposed rule that the projection that would be provided to us by the EIA would only be one of several sources of information we would use to determine the applicable cellulosic biofuel volume for 2011:

> We will complete our evaluation based on comments received in response to this proposal, the Production Outlook Reports due to the Agency on September 1, 2010, the estimate of projected biofuel volumes that the EIA is required to provide to EPA by October 31, and other information that becomes available, and will finalize the standards for 2011 by November 30, 2010.[87]

These standards are to be based in part on transportation fuel volumes estimated by the Energy Information Administration (EIA) for the following year.[88]

> As described in the final rule for the RFS2 program, we intend to examine EIA's projected volumes and other available data including the Production Outlook Reports required under § 80.1449 in making the determination of the appropriate volumes to require for 2011.[89]

> * * * each year by October 31 EIA is required to provide an estimate of the volume of cellulosic biofuel they expect to be sold or introduced into commerce in the United States in the following year. EPA will consider this information as well when finalizing a single volume for use in setting the 2011 cellulosic biofuel standard.[90]

After considering all of the information before it, EPA proposed a level for the cellulosic biofuel volume that was different from that contained in the EIA projections. Once again, neither API nor NPRA provided comments in response to the 2010 NPRM on this subject. Accordingly, EPA proposes to deny the petition with respect to the contention that EPA must rely exclusively on the EIA projections in establishing the annual cellulosic biofuel volumes. That argument does not satisfy the criteria for a petition for reconsideration specified under CAA 307(d)(7)(B) since the issue could have been raised during the comment period of the 2010 standards rule, but was not.

As a substantive matter, even if the petitioners were not foreclosed from raising this argument at this time, EPA would propose to deny their claim because the statute specifies that it is EPA, not EIA, that is to make the determination of projected cellulosic biofuel volumes. EPA's decision is to be ''based on'' the EIA estimate (as, indeed it was), but EPA interprets the statute to allow it to consider other available information as well in making its determination. EPA looked at all available information, including public comments on its proposal, and decided that 6.0 million ethanol-equivalent gallons was a reasonable projection for 2011. This is a reasonable interpretation of an ambiguous statutory provision, where Congress said ''based on'' the estimate provided by EIA but did not mandate that the determination be based solely upon this information. EPA carefully considered EIA's projection and explained why EPA's determination was different. See, for example, *Nuclear Energy Institute* v. *EPA,* 373 F.2d 1251, 1269 (DC Cir. 2004).

The petition also contends that EPA is required to project the volume of cellulosic biofuel that will ''actually'' be

[83] See Denial of Petitions to Reconsider Endangerment and Cause or Contribute Findings for Greenhouse Gases under section 202(a), 75 FR 49556, 49560 (August 13, 2010); Denial of Petition to Reconsider, 68 FR 63021 (November 7, 2003), Technical Support Document for Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Reconsideration at 5 (Oct. 30, 2003) (EPA–456/R–03–005) (available at *http://www.epa.gov/nsr/documents/petitionresponses10-30-03.pdf*); Denial of Petition to Reconsider NAAQS for PM, 53 FR 52698, 52700 (December 29, 1988), citing Denial of Petition to Revise NSPS for Stationary Gas Turbines, 45 FR 81653–54 (December 11, 1980), and decisions cited therein. Also see EPA's February 17, 2011 denial of petitions by Clean Air Taskforce, World Wildlife Fund, National Wildlife Federation, and Friends of the Earth's to reconsider certain elements of the RFS2 program.

[84] 74 FR 24966.

[85] 74 FR 24970.

[86] 75 FR 14726. See also 75 FR 14729 (production outlook reports ''will help EPA set the annual cellulosic biofuel standard * * * '' and ''essential to our annual cellulosic biofuel standard setting * * *'').

[87] 75 FR 42240.

[88] Ibid.

[89] Ibid.

[90] 75 FR 42246.

sold or introduced into commerce in the following year, but that EPA instead established the cellulosic biofuel volume at an ''aspirational'' level. EPA believes that petitioners' allegations are not supported by either the statute or the facts. Under CAA 211(o)(7)(D)(i), for any calendar year for which EPA determines that the projected volume of cellulosic biofuel production is less than the minimum applicable volume established under the statute, EPA is to reduce the applicable volume of cellulosic biofuel to the volume that is projected to be available. The statute specifies that the projection of cellulosic biofuel production is to be ''determined by the Administrator based on the estimate provided by [EIA],'' and that it must be made in time to set the annual standards by November 30 preceding the applicable compliance year. To fulfill its mandate under this provision, EPA undertook an exhaustive evaluation of every existing and potential cellulosic biofuel production facility that could potentially supply cellulosic biofuel for use in the U.S., and projected a production volume for 2011 that reflected a balance between the uncertainty inherent in the projections and the objective of avoiding unnecessary reductions in the applicable volume set forth in the statute.

The requirement to make a projection of cellulosic biofuel volumes for the following year necessarily means that the projection will be an estimate, and may not be exactly the volume that is ''actually'' produced. As described in the 2010 NPRM, there are many factors that may result in the actual volume deviating from the projected volume:

- Difficulty/delays in securing necessary funding.
- Delays in permitting and/or construction.
- Difficulty in scale up, especially for 1st of their kind technologies.
- Volumes from pilot and demonstration plants may not be sold commercially.
- Not all feedstocks may qualify to produce cellulosic Renewable Identification Numbers (RINs); some still awaiting evaluation of lifecycle impacts.
- Likelihood that fuels produced internationally will be exported to the United States rather than consumed locally.[91]

We do not believe that the statute requires our projection to be 100% accurate, or that it requires that EPA project only what is absolutely or highly certain of production, as the petitioners would prefer. Rather, as described in Section II.B.4, we believe that our projection must be reasonable based on the information that is available at the time that the cellulosic biofuel standard is set. The applicable volume established by Congress for cellulosic biofuel is 250 mill gallons for 2011, and in projecting 6 mill gallons of production we lowered the applicable volume by about 98%. The volume of 3.94 mill gallons projected by EIA, and favored by petitioners, also represents a reduction of about 98% from the statutory applicable volume of 250 mill gallons. Moreover, with only one exception (Range Fuel, discussed below), the petitioners do not present any new evidence to refute the projected production estimates that EPA made for the various facilities it anticipated would produce fuel in 2011. Their primary arguments are that we are compelled to use EIA's projection which, as noted above, the statute does not require, and that we are required to project a level with a high degree of certainty.

As discussed in the rule that set the 2011 cellulosic standard, we believe that the volume of cellulosic biofuel actually produced in a given year is likely to be strongly influenced by the standard we set. At this early point in the RFS program, the volume of cellulosic biofuel actually made available will in general not exceed the standard that we set, and there is no recourse for increasing the cellulosic biofuel standard if our projection were to fall short of actual production. Therefore, setting a standard that is lower than what the industry could reasonably achieve could strand investments and/or further delay the industry's ability to move towards the higher levels of commercial production envisioned in the statute. We believe it is appropriate to consider these factors in projecting production volumes, and that we are not compelled to rely solely on volumes actually in production at the time we make our decision, as petitioners would prefer.

In the final rule establishing the 2011 projected volume of cellulosic biofuel, we explained our approach to recognizing and accounting for uncertainty in the projections:

> In directing EPA to project cellulosic biofuel production for purposes of setting the annual cellulosic biofuel standard, Congress did not specify what degree of certainty should be reflected in the projections. We believe that the cellulosic biofuel standard should provide an incentive for the industry to grow according to the goals that Congress established through EISA. However, we also believe that the cellulosic biofuel standard that we set should be within the range of what can be attained based on projected domestic production and import potential. Any estimate we use to set the biofuel standard for 2011 will have some uncertainty in terms of actual attainment, and the level of such uncertainty generally rises with the volume mandate. Our intention is to balance such uncertainty with the objective of providing an incentive for growth in the industry. To this end we explored the 2011 volumes for individual companies as projected by EIA to determine not only what volumes might be anticipated, but more importantly what volumes were potentially attainable. Our final projected available volume of cellulosic biofuel for 2011 reflects these considerations. [92]

Thus, our projection was not ''aspirational,'' as petitioners allege. Instead, we projected a volume that we believed could be reasonably achieved based on the information available at the time the standard was finalized. We acknowledged there were uncertainties, but balanced our consideration of that uncertainty against the goal of avoiding unnecessarily lowering the applicable volume in the statute. This is a reasonable approach to achieving Congress' goal of promoting the growth of the use of cellulosic biofuel, taking into account the interests of both the obligated parties and the producers of cellulosic biofuels.

The API/NPRA petition does not suggest that the projection of 6.0 mill ethanol-equivalent gallons of cellulosic biofuel was not achievable or was not a reasonable balance as discussed above, based on the information available at the time of the final rule. Instead, the petition focuses on balancing these interests in a manner that places the highest priority on achieving a low or very low degree of uncertainty in whether the projected volumes will in fact be produced. The petition focuses almost solely on the uncertainties associated with this volume and requests that the uncertainties be reduced by lowering the applicable volume of cellulosic biofuel to no more than the EIA projection of 3.94 mill gallons. Little if any priority or emphasis is placed on the importance of establishing conditions that reasonably can promote the growth in the production of cellulosic renewable fuel. EPA disagrees that this would be the appropriate balance to draw in implementing this provision, at least in these early years of the RFS2 program.

In arguing for a lower volume based on the uncertainties, the petition highlights the recent history for three companies: Bell BioEnergy, Cello Energy, and Range Fuels. The

[91] 75 FR 42245.

[92] 75 FR 76794.

discussion of Bell BioEnergy and Cello Energy in the petition is an update of the discussion of these same two companies in API's comments submitted in response to the 2010 NPRM. As the petition points out, while the information available at the time of the 2010 NPRM suggested that these two companies could produce cellulosic biofuel in 2011, by the time of the final rulemaking we had obtained updated information and determined that it would not be reasonable to project any 2011 volume from these two companies. At the same time, we added two companies in the final rule that were not included in the 2010 NPRM list of companies that we projected could produce volume in 2011: KiOr and Range Fuels. The changes between the proposed and final lists of companies on which we based our projections for 2011 highlight the fact that, in the emergent cellulosic biofuel industry, any projection of cellulosic biofuel production is highly dependent upon the information available at the time of the projection, and that for any given company this information may change in one direction or another. Nevertheless, changes in the projected volume from one company may be counterbalanced or mitigated by production changes for other companies.

With regard to Range Fuels, we reasonably projected a 2011 volume production of 2.3 mill ethanol-equivalent gallons out of the 6.0 mill ethanol-equivalent gallon volume that we determined was achievable in 2011. Information made available since issuance of the final rule indicates that the facility was idled early in 2011. Nevertheless, this fact does not invalidate the projection of 6.0 mill gallons we made in December 2010, since their facility was complete, operational, and had produced some volume at that time. As indicated by the removal of Bell BioEnergy and Cello Energy from the list of companies we considered in the final rule, and the addition of KiOr and Range Fuels to this same list, it is clear that projections made at any point in time for some companies may ultimately prove too high while the projections for other companies may ultimately prove too low.

This petition for reconsideration under CAA section 307(d) should be considered in the context of the specific statutory provisions related to the annual standard-setting process for the RFS program and the compliance flexibilities in the program. Congress established a standard-setting process for cellulosic biofuel that creates a considerably shorter leadtime than in most other EPA programs, and a standard that applies for only a single year. We are required to project volumes of cellulosic biofuel and determine the applicable percentage standard by November 30 of the year before the annual standard applies. This structure is well designed to facilitate use of the most up-to-date information available before the standard goes into effect. In other contexts, API and NPRA have argued that it is important that EPA not miss this November 30 deadline for setting the annual standards, so as to provide industry with all of the lead time in advance of the compliance year that is afforded by the statute.[93] Since the standard only applies for one year, a petition to reconsider can in practice affect only that single year's obligation, and given the late date at which it is established, necessarily would involve a modification of the annual standard during the year in which it is applicable. Importantly, the statute contains a number of safeguards in the event that an annual standard cannot be achieved. Under CAA section 211(o)(7)(D)(ii) and (iii), Congress established a mechanism through which obligated parties can purchase credits from the EPA in lieu of acquiring cellulosic biofuel RINs. Obligated parties can also carry a deficit for cellulosic biofuel into 2012 under certain conditions as stipulated in § 80.1427(b). Finally, up to 20% of the 2011 cellulosic biofuel standard (1.2 million gallons) can be met with excess cellulosic biofuel RINs from 2010 under the rollover provisions of § 80.1427(a)(5). Indeed, we have determined that at least 1.2 million excess cellulosic biofuel RINs from 2010 do exist, based on reports of renewable fuel production in the first half of 2010 under the RFS1 regulations.

The panoply of compliance flexibilities provided in the statute provides meaningful options for industry in the event that that actual production of cellulosic biofuel in 2011, or any year, falls below EPA projected levels. This, combined with the relatively short period of time at issue for a petition to reconsider a one-year volume standard, and the fact that any change in the standards would occur within the year in which it applies, impacts the kind of circumstances under which it would be appropriate to reconsider the standard. The compliance flexibilities, the short time period at issue, and the disruption that would occur from a change in the standard within the compliance year, indicate that a relatively larger change in circumstances with respect to cellulosic production would need to occur before EPA would determine that new circumstances provide substantial support for revising the volume standard for cellulosic biofuel for a specific year.

EPA believes that the single change that petitioners have identified in their petition, closure of the Range Fuels plant, is not of a sufficiently large magnitude to warrant a standard revision. It may be a substantial percentage of the volume standard, but it remains a relatively minor change compared to the total volume that Congress mandated for 2011. After reducing that volume by 98%, the remaining change in circumstances amounts to a generally small change in an absolute sense, compared to the total volume of renewable fuel and the transportation fuel covered by the RFS2 program. In addition, it can be reasonably addressed by industry through utilization of program flexibilities, including use of carry over credits from 2010, use of cellulosic biofuel RINs for 2011, and deficit carryover into 2012. This approach will avoid the disruption and lack of certainty in the program that could follow if EPA readily re-opened the annual standard to revision during the single year it applied based on relatively small modifications resulting from an individual company's plans. For all of the reasons described above, EPA proposes to deny the petition for reconsideration of the 2011 cellulosic biofuel standard. EPA requests comment on this proposal.

While we are proposing to deny the petition to reconsider the cellulosic biofuel volume requirement for 2011, we nevertheless must take into account the current status of the cellulosic biofuel industry when making our projections for 2012. This includes a review of the progress being made in 2011 by the five companies we used to project the cellulosic biofuel volume of 6.0 mill gallons, including Range Fuels. As noted in Section II.B.1, based on the information we have obtained to date on the status of their facility in Soperton, Georgia, we have not included Range Fuels in the list of companies that we project could produce cellulosic biofuel in 2012. We do not believe that this is inconsistent with our proposal to deny the API/NPRA petition for reconsideration. Our proposal to deny the petition is based on the availability of program flexibilities to allow industry to comply with the unadjusted 2011 standard, the relative magnitude of the

[93] See *NPRA* v. *EPA,* (DC Cir., No 10–1071). slip op. at 37–39.

change, and the desire to avoid disruption in program implementation that would follow from EPA too readily re-opening the standard based on modifications in individual companies' operation plans. Our proposed 2012 projections, on the other hand, are based on the best information available to us at this time, which includes the fact that the Range Fuel facility is not currently operating and we have been unable to confirm its future operational status.

In a similar fashion, we do not believe that identifying the low end of the range of 2012 projected cellulosic biofuel volumes as 3.55 mill gallons is inconsistent with our proposal to deny the API/NPRA petition for reconsideration. As described in Section II.B, we based the low end of the range for applicable 2012 volumes on consideration of only those facilities that are structurally complete at the time of this proposal and which anticipate commercial production of cellulosic biofuels by the end of 2011. While Range Fuel is structurally complete, they have not explicitly provided information to date indicating that they anticipate commercial production in 2011. Absent such information, for today's proposal we have excluded Range Fuels from the low end of the range of potential volumes for 2012.

## VII. Public Participation

We request comment on all aspects of this proposal. This section describes how you can participate in this process.

### *A. How do I submit comments?*

We are opening a formal comment period by publishing this document. We will accept comments during the period indicated under **DATES** in the first part of this proposal. If you have an interest in the proposed standards and technical amendments to the RFS regulations described in this document, we encourage you to comment on any aspect of this rulemaking. We also request comment on specific topics identified throughout this proposal.

Your comments will be most useful if you include appropriate and detailed supporting rationale, data, and analysis. Commenters are especially encouraged to provide specific suggestions for any changes that they believe need to be made. You should send all comments, except those containing proprietary information, to our Air Docket (see **ADDRESSES** in the first part of this proposal) before the end of the comment period.

You may submit comments electronically, by mail, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments received after the close of the comment period will be marked ''late.'' EPA is not required to consider these late comments. If you wish to submit Confidential Business Information (CBI) or information that is otherwise protected by statute, please follow the instructions in Section VII.B.

### *B. How should I submit CBI to the agency?*

Do not submit information that you consider to be CBI electronically through the electronic public docket, *http://www.regulations.gov,* or by e-mail. Send or deliver information identified as CBI only to the following address: U.S. Environmental Protection Agency, Assessment and Standards Division, 2000 Traverwood Drive, Ann Arbor, MI, 48105, Attention Docket ID EPA–HQ–OAR–2010–0133. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

In addition to one complete version of the comments that include any information claimed as CBI, a copy of the comments that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit the copy that does not contain CBI on disk or CD ROM, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

## VIII. Statutory and Executive Order Reviews

### *A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review*

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a ''significant regulatory action.'' Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

The economic impacts of the RFS2 program on regulated parties, including the impacts of the required volumes of renewable fuel, were already addressed in the RFS2 final rule promulgated on March 26, 2010 (75 FR 14670). This action proposes the percentage standards applicable in 2012 based on the volumes that were analyzed in the RFS2 final rule. This action also proposes technical amendments to the RFS2 regulations that have been determined to have no adverse economic impact on regulated parties since they generally clarify existing requirements.

### *B. Paperwork Reduction Act*

This action does not impose any new information collection burden. While there are three proposed regulatory changes in today's NPRM that affect the recordkeeping and reporting burdens for regulated parties, we believe that the information collections already approved for the RFS2 program's general recordkeeping and reporting requirements, or the information collection already under review, would also cover the proposed changes in today's NPRM.

The proposed regulatory changes are listed in Table VIII.B–1.

TABLE VIII.B–1—PROPOSED TECHNICAL AMENDMENTS AFFECTING RECORDKEEPING AND REPORTING

| Section | Description |
|---|---|
| 80.1449(a) | Amended Production Outlook Report due date; added allowance for unregistered renewable fuel producers and importers to submit Production Outlook Reports. |
| 80.1450(b)(1)(vi) | Amended to require submission of additional evidence as part of registration to verify eligibility for exemptions in § 80.1403(c) or (d). |

TABLE VIII.B–1—PROPOSED TECHNICAL AMENDMENTS AFFECTING RECORDKEEPING AND REPORTING—Continued

| Section | Description |
|---|---|
| 80.1450(d)(1)–(d)(3) | Amended to add more specificity on when updates, addenda, or resubmittals are required for engineering reviews and to include references to foreign ethanol producers. |

With regard to production outlook reports, the change in due date is not expected to have any impact on the reporting burden. In addition, EPA recently prepared an Information Collection Request (ICR) document to permit the submission of voluntary production outlook reports by domestic and foreign renewable fuels producers. The parties affected by the ICR are not regulated parties under the RFS2 program. The ICR has been submitted for approval to OMB under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* and may be identified by EPA ICR number 2409.01. Documents related to the ICR have been placed in docket number EPA–HQ–OAR–2005–0161, which is accessible at *http://www.regulations.gov.*

On October 14, 2010, EPA published a notice in the **Federal Register** announcing our intent to submit the proposed ICR for voluntary production outlook reports to OMB for approval. (See 75 FR 63173). The 60-day comment period closed on December 14, 2010. No comments were received. On February 8, 2011, EPA published a **Federal Register** notice announcing submission of the ICR to OMB. Additional comments were solicited via an additional comment period through March 10, 2011.[94]

The Office of Management and Budget (OMB) has previously approved the information collection requirements contained in the existing regulations at 40 CFR part 80, Subpart M under the provisions of the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* This would include the following approved information collections (with OMB control numbers and expiration dates listed in parentheses): ''Renewable Fuels Standard Program: Petition and Registration'' (OMB Control Number 2060–0367, expires March 31, 2013); ''Renewable Fuels Standard (RFS2)'' (OMB Control Number 2060–0640, expires July 31, 2013); ''Regulations of Fuels and Fuel Additives: 2011 Renewable Fuels Standard—Petition for International Aggregate Compliance Approach'' OMB Control Number 2060–0655, expires February 28, 2014). Detailed and searchable information about these and other approved collections may be viewed on the Office of Management and Budget (OMB) Paperwork Reduction Act Web site, which is accessible at *http://www.reginfo.gov/public/do/PRAMain.* With regard to the proposed changes in § 80.1450, we believe that these information collections already approved for the RFS2 program's general recordkeeping and reporting requirements would also cover the proposed changes in today's NPRM.

*C. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise, which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's proposed rule on small entities, we certify that this proposed action will not have a significant economic impact on a substantial number of small entities. This rule proposes the annual standard for cellulosic biofuels for 2012 and biomass-based diesel for 2013, regulatory provisions for new RIN-generating pathways, and clarifying changes and minor technical amendments to the regulations. However, the impacts of the RFS2 program on small entities were already addressed in the RFS2 final rule promulgated on March 26, 2010 (75 FR 14670). Therefore, this proposed rule will not impose any additional requirements on small entities. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

*D. Unfunded Mandates Reform Act*

This rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any one year. Thus, this action is not subject to the requirements of sections 202 or 205 of UMRA.

This action is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments.

*E. Executive Order 13132: Federalism*

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This action only applies to gasoline, diesel, and renewable fuel producers, importers, distributors and marketers and makes relatively minor corrections and modifications to the RFS2 regulations. Thus, Executive Order 13132 does not apply to this rule.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

*F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

This action does not have Tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). This proposed rule will be implemented at the Federal level and impose compliance costs only on

[94] See ''Agency Information Collection Activities; Submission to OMB for Review and Approval; Comment Request; Production Outlook Reports for Un-Registered Renewable Fuel Producers (New Collection),'' 76 FR 6781 (February 8, 2011). The document identification number for this notice is EPA–HQ–OAR–2005–0161–3221. The document identification number for the supporting statement is EPA–HQ–OAR–2005–0161–3222.

transportation fuel refiners, blenders, marketers, distributors, importers, exporters, and renewable fuel producers and importers. Tribal governments would be affected only to the extent they purchase and use regulated fuels. Thus, Executive Order 13175 does not apply to this action.

EPA specifically solicits additional comment on this proposed action from Tribal officials.

*G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks*

EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it does not establish an environmental standard intended to mitigate health or safety risks and because it implements specific standards established by Congress in statutes.

*H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use*

This rule is not a ''significant energy action'' as defined in Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355 (May 22, 2001)) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

*I. National Technology Transfer Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This proposed rulemaking does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

*J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations*

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not affect the level of protection provided to human health or the environment. This action does not relax the control measures on sources regulated by the RFS2 regulations and therefore will not cause emissions increases from these sources.

## IX. Statutory Authority

Statutory authority for this action comes from section 211 of the Clean Air Act, 42 U.S.C. 7545. Additional support for the procedural and compliance related aspects of today's proposal, including the proposed recordkeeping requirements, come from sections 114, 208, and 301(a) of the Clean Air Act, 42 U.S.C. 7414, 7542, and 7601(a).

## List of Subjects in 40 CFR Part 80

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Diesel fuel, Fuel additives, Gasoline, Imports, Labeling, Motor vehicle pollution, Penalties, Petroleum, Reporting and recordkeeping requirements.

Dated: June 21, 2011.

**Lisa P. Jackson,**

*Administrator.*

For the reasons set forth in the preamble, 40 CFR part 80 is proposed to be amended as follows:

## PART 80—REGULATION OF FUELS AND FUEL ADDITIVES

1. The authority citation for part 80 continues to read as follows:

**Authority:** 42 U.S.C. 7414, 7542, 7545, and 7601(a).

### § 80.1275 [Amended]

2. In § 80.1275, remove paragraph (d)(3).

## Subpart M [Amended]

3. Section 80.1401 is amended by revising the definitions of ''Annual cover crop'' and ''Naphtha'' to read as follows:

### § 80.1401 Definitions.

* * * * *

*Annual cover crop* means an annual crop, planted as a rotation between primary planted crops, or between trees and vines in orchards and vineyards, typically to protect soil from erosion and to improve the soil between periods of regular crops. An annual cover crop has no existing market to which it can be sold except for its use as feedstock for the production of renewable fuel.

* * * * *

*Naphtha* means a blendstock falling within the boiling range of gasoline which is composed of only hydrocarbons, is commonly or commercially known as naphtha, and is used to produce gasoline.

* * * * *

4. Section 80.1405 is amended by revising paragraphs (a) through (c) to read as follows:

### § 80.1405 What are the Renewable Fuel Standards?

(a) (1) *Renewable Fuel Standards for 2011.*

(i) The value of the cellulosic biofuel standard for 2011 shall be 0.003 percent.

(ii) The value of the biomass-based diesel standard for 2011 shall be 0.69 percent.

(iii) The value of the advanced biofuel standard for 2011 shall be 0.78 percent.

(iv) The value of the renewable fuel standard for 2011 shall be 8.01 percent.

(2) *Renewable Fuel Standards for 2012.*

(i) The value of the cellulosic biofuel standard for 2012 shall be 0.002–0.010 percent.

(ii) The value of the biomass-based diesel standard for 2012 shall be 0.91 percent.

(iii) The value of the advanced biofuel standard for 2012 shall be 1.21 percent.

(iv) The value of the renewable fuel standard for 2012 shall be 9.21 percent.

(b) EPA will calculate the value of the annual standards and publish these values in the **Federal Register** by November 30 of the year preceding the compliance period.

(c) EPA will calculate the annual renewable fuel percentage standards using the following equations:

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

$$Std_{BBD,i} = 100 * \frac{RFV_{BBD,i} \times 1.5}{(G_i - RG_i) + (GS_i - RGS_i) - GE_i + (D_i - RD_i) + (DS_i - RDS_i) - DE_i}$$

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

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

Where:

$Std_{CB,i}$ = The cellulosic biofuel standard for year i, in percent.

$Std_{BBD,i}$= The biomass-based diesel standard for year i, in percent.

$Std_{AB,i}$= The advanced biofuel standard for year i, in percent.

$Std_{RF,i}$= The renewable fuel standard for year i, in percent.

$RFV_{CB,i}$= Annual volume of cellulosic biofuel required by 42 U.S.C. 7545(o)(2)(B) for year i, or volume as adjusted pursuant to 42 U.S.C. 7545(o)(7)(D), in gallons.

$RFV_{BBD,i}$= Annual volume of biomass-based diesel required by 42 U.S.C. 7545 (o)(2)(B) for year i, in gallons.

$RFV_{AB,i}$= Annual volume of advanced biofuel required by 42 U.S.C. 7545(o)(2)(B) for year i, in gallons.

$RFV_{RF,i}$= Annual volume of renewable fuel required by 42 U.S.C. 7545(o)(2)(B) for year i, in gallons.

$G_i$= Amount of gasoline projected to be used in the 48 contiguous states and Hawaii, in year i, in gallons.

$D_i$= Amount of diesel projected to be used in the 48 contiguous states and Hawaii, in year i, in gallons.

$RG_i$= Amount of renewable fuel blended into gasoline that is projected to be consumed in the 48 contiguous states and Hawaii, in year i, in gallons.

$RD_i$= Amount of renewable fuel blended into diesel that is projected to be consumed in the 48 contiguous states and Hawaii, in year i, in gallons.

$GS_i$= Amount of gasoline projected to be used in Alaska or a U.S. territory, in year i, if the state or territory has opted-in or opts-in, in gallons.

$RGS_i$= Amount of renewable fuel blended into gasoline that is projected to be consumed in Alaska or a U.S. territory, in year i, if the state or territory opts-in, in gallons.

$DS_i$= Amount of diesel projected to be used in Alaska or a U.S. territory, in year i, if the state or territory has opted-in or opts-in, in gallons.

$RDS_i$= Amount of renewable fuel blended into diesel that is projected to be consumed in Alaska or a U.S. territory, in year i, if the state or territory opts-in, in gallons.

$GE_i$= The amount of gasoline projected to be produced by exempt small refineries and small refiners, in year i, in gallons in any year they are exempt per §§ 80.1441 and 80.1442.

$DE_i$= The amount of diesel fuel projected to be produced by exempt small refineries and small refiners in year i, in gallons, in any year they are exempt per §§ 80.1441 and 80.1442.

* * * * *

5. Section 80.1415 is amended by revising paragraph (c)(2) to read as follows:

**§ 80.1415 How are equivalence values assigned to renewable fuel?**

* * * * *

(c) * * *

(2) The application for an equivalence value shall include a technical justification that includes all the following:

(i) A calculation for the requested equivalence value according to the equation in paragraph (c)(1) of this section, including supporting documentation for the value of EC used in the calculation such as a certificate of analysis from a laboratory that verifies the lower heating value in Btu per gallon of the renewable fuel produced.

(ii) For each feedstock, component, or additive that is used to make the renewable fuel, provide a description, the percent input, and identify whether or not it is renewable biomass or is derived from renewable biomass.

(iii) For each feedstock that also qualifies as a renewable fuel, state whether or not RINs have been previously generated for such feedstock.

(iv) A description of the renewable fuel and the production process, including a block diagram that shows all inputs and outputs at each step of the production process with a sample quantity of all inputs and outputs for one batch of renewable fuel produced.

* * * * *

6. Section 80.1426 is amended as follows:

a. By revising paragraph (f)(1).

b. By revising Table 1 to § 80.1426.

c. By revising paragraphs (f)(5)(ii)(A) and (f)(5)(ii)(B).

**§ 80.1426 How are RINs generated and assigned to batches of renewable fuel by renewable fuel producers or importers?**

* * * * *

(f) * * *

(1) *Applicable pathways.* D codes shall be used in RINs generated by producers or importers of renewable fuel according to the pathways listed in Table 1 to this section, paragraph (f)(6) of this section, or as approved by the Administrator. 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. Tables 1 and 2 to this section do not apply to, and impose no requirements with respect to, volumes of fuel for which RINs are

generated pursuant to paragraph (f)(6) of this section.

TABLE 1 TO § 80.1426—APPLICABLE D CODES FOR EACH FUEL PATHWAY FOR USE IN GENERATING RINS

| | Fuel type | Feedstock | Production process requirements | D–Code |
|---|---|---|---|---|
| A | Ethanol | Corn starch | All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least two advanced technologies from Table 2 to this section. | 6 |
| B | Ethanol | Corn starch | All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least one of the advanced technologies from Table 2 to this section plus drying no more than 65% of the distillers grains with solubles it markets annually. | 6 |
| C | Ethanol | Corn starch | All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and drying no more than 50% of the distillers grains with solubles it markets annually. | 6 |
| D | Ethanol | Corn starch | Wet mill process using biomass or biogas for process energy. | 6 |
| E | Ethanol | Starches from crop residue and annual covercrops. | Fermentation using natural gas, biomass, or biogas for process energy. | 6 |
| F | Biodiesel, and renewable diesel. | Soy bean oil; Oil from annual covercrops; Algal oil; Biogenic waste oils/fats/greases; Non-food grade corn oil. | One of the following: Trans-Esterification Hydrotreating Excluding processes that co-process renewable biomass and petroleum. | 4 |
| G | Biodiesel | Canola/Rapeseed oil | Trans-Esterification using natural gas or biomass for process energy. | 4 |
| H | Biodiesel, and renewable diesel. | Soy bean oil; Oil from annual covercrops; Algal oil; Biogenic waste oils/fats/greases; Non-food grade corn oil. | One of the following: Trans-Esterification Hydrotreating Includes only processes that co-process renewable biomass and petroleum. | 5 |
| I | Ethanol | Sugarcane | Fermentation | 5 |
| J | Ethanol | Cellulosic Biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual covercrops, switchgrass, and miscanthus; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW. | Any | 3 |
| K | Cellulosic Diesel, Jet Fuel and Heating Oil. | Cellulosic Biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual covercrops, switchgrass, and miscanthus; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW. | Any | 7 |
| L | Butanol | Corn starch | Fermentation; dry mill using natural gas, biomass, or biogas for process energy. | 6 |
| M | Cellulosic Naphtha | Cellulosic Biomass from crop residue, slash, pre-commercial thinnings and tree residue, annual covercrops, switchgrass, and miscanthus; cellulosic components of separated yard waste; cellulosic components of separated food waste; and cellulosic components of separated MSW. | Fischer-Tropsch process | 3 |
| N | Ethanol, renewable diesel, jet fuel, heating oil, and naphtha. | The non-cellulosic portions of separated food waste. | Any | 5 |
| O | Biogas | Landfills, sewage waste treatment plants, manure digesters. | Any | 5 |

* * * * *

(5) * * *

(ii)(A) A feedstock qualifies under paragraph (f)(5)(i)(A) or (f)(5)(i)(B) of this section only if it is collected according to a plan submitted to and accepted by U.S. EPA under the registration procedures specified in § 80.1450(b)(1)(vii).

(B) A feedstock qualifies under paragraph (f)(5)(i)(C) of this section only if it is collected according to a plan submitted to and approved by U.S. EPA.

* * * * *

7. Section 80.1429 is amended by revising paragraphs (b)(2) and (b)(9) introductory text to read as follows:

**§ 80.1429 Requirements for separating RINs from volumes of renewable fuel.**

* * * * *

(b) * * *

(2) Except as provided in paragraph (b)(6) of this section, any party that owns a volume of renewable fuel must separate any RINs that have been assigned to that volume once the volume is blended with gasoline or fossil-based diesel to produce a transportation fuel, heating oil, or jet fuel. A party may separate up to 2.5 RINs per gallon of blended renewable fuel.

* * * * *

(9) Except as provided in paragraphs (b)(2) through (b)(5) and (b)(8) of this section, parties whose non-export renewable volume obligations are solely related to either the importation of products listed in § 80.1407(c) or § 80.1407(e) or to the addition of blendstocks into a volume of finished gasoline, finished diesel fuel, RBOB, or CBOB, can only separate RINs from volumes of renewable fuel if the number of gallon-RINs separated in a calendar year is less than or equal to a limit set as follows:

* * * * *

8. Section 80.1449 is amended by revising paragraph (a) introductory text to read as follows:

**§ 80.1449 What are the Production Outlook Report requirements?**

(a) By June 1 of each year (September 1 for the report due in 2010), a registered renewable fuel producer or importer must submit and an unregistered renewable fuel producer may submit all of the following information for each of its facilities, as applicable, to EPA:

* * * * *

9. Section 80.1450 is amended as follows:

a. By revising paragraph (b)(1)(vi).

b. By revising paragraphs (d)(1)–(d)(3).

**§ 80.1450 What are the registration requirements under the RFS program?**

* * * * *

(b) * * *

(1) * * *

(vi) For facilities claiming the exemption described in § 80.1403(c) or (d), evidence demonstrating all of the following:

(A) The date that construction commenced (as defined in § 80.1403(a)(1)), including all the following:

(*1*) Contracts with construction and other companies.

(*2*) Applicable air permits issued by the U.S. Environmental Protection Agency, state, local air pollution control agencies, or foreign governmental agencies that governed the construction and/or operation of the renewable fuel facility during construction and when first operated.

(B) That construction was not discontinued for a period of 18 months after commencement of construction.

(C) That construction was completed by December 19, 2010, for facilities claiming an exemption pursuant to § 80.1403(c); or within 36 months of commencement of construction for facilities claiming an exemption pursuant to § 80.1403(d).

(D) Other documentation and information as requested by the Administrator.

* * * * *

(d) * * *

(1) Any producer of renewable fuel, and any foreign ethanol producer who makes changes to his facility that will allow him to produce renewable fuel, as defined in § 80.1401 that is not reflected in the producer's registration information on file with EPA must update his registration information and submit a copy of an updated independent third-party engineering review on file with EPA at least 60 days prior to producing the new type of renewable fuel. The producer may also submit an addendum to the independent third-party engineering review on file with EPA provided the addendum meets all the requirements in paragraph (b)(2) of this section and verifies for EPA the most up-to-date information at the producer's existing facility.

(2) Any producer of renewable fuel and any foreign ethanol producer who makes any other changes to a facility that will affect the producer's registration information but will not affect the renewable fuel category for which the producer is registered per paragraph (b) of this section must update his registration information 7 days prior to the change.

(3) All producers of renewable fuel and foreign ethanol producers must update registration information and submit an updated independent third-party engineering review according to the schedule in paragraph (d)(3)(i) or (d)(3)(ii) of this section, and including the information specified in paragraph (d)(3)(iii) of this section:

(i) For all producers of renewable fuel and foreign ethanol producers registered in calendar year 2010, the updated registration information and independent third-party engineering review shall be submitted to EPA by October 1, 2013, and by October 1 of every third calendar year thereafter; or

(ii) For all producers of renewable fuel and foreign ethanol producers registered in any calendar year after 2010, the updated registration information and independent third-party engineering review shall be submitted to EPA by October 1 of every third calendar year after the first year of registration.

(iii) In addition to conducting the engineering review and written report and verification required by paragraph (b)(2) of this section, the updated independent third-party engineering review shall include a detailed review of the renewable fuel producer's calculations used to determine $V_{RIN}$ of a representative sample of batches of each type of renewable fuel produced since the last registration. The representative sample shall be selected in accordance with the sample size guidelines set forth at § 80.127.

* * * * *

10. Section 80.1451 is amended by revising paragraph (a)(1)(xi) to read as follows:

**§ 80.1451 What are the reporting requirements under the RFS program?**

(a) * * *

(1) * * *

(xi) A list of all RINs generated prior to July 1, 2010 that were retired for compliance in the reporting period.

* * * * *

11. Section 80.1452 is amended revising paragraphs (b)(2), (b)(4), and (b)(5) to read as follows:

**§ 80.1452 What are the requirements related to the EPA Moderated Transaction System (EMTS)?**

* * * * *

(b) * * *

(2) The EPA company registration number of the renewable fuel producer or foreign ethanol producer, as applicable.

* * * * *

(4) The EPA facility registration number of the facility at which the renewable fuel producer or foreign ethanol producer produced the batch, as applicable.

(5) The EPA facility registration number of the importer that imported the batch, if applicable.

* * * * *

12. Section 80.1460 is amended by adding a new paragraph (b)(6) to read as follows:

**§ 80.1460 What acts are prohibited under the RFS program?**

* * * * *

(b) * * *

(6) Generate a RIN for fuel for which RINs have previously been generated.

* * * * *

13. Section 80.1464 is amended as follows:

a. By revising paragraphs (a)(2) introductory text and (a)(2)(i).

b. By adding paragraphs (a)(2)(iii) and (a)(2)(iv).

c. By revising paragraph (a)(3)(ii).

d. By revising paragraphs (b)(2) introductory text and (b)(2)(i).

e. By adding paragraphs (b)(2)(iii) and (b)(2)(iv).

f. By revising paragraph (b)(3)(ii).

g. By revising paragraph (c)(1) introductory text.

h. By adding paragraphs (c)(1)(iii) and (c)(1)(iv).

**§ 80.1464 What are the attest engagement requirements under the RFS program?**

* * * * *

(a) * * *

(2) *RIN Transaction Reports and Product Transfer Documents.*

(i) Obtain and read copies of a representative sample, selected in accordance with the guidelines in § 80.127, of each RIN transaction type (RINs purchased, RINs sold, RINs retired, RINs separated, RINs reinstated) included in the RIN transaction reports required under § 80.1451(a)(2) for the compliance year.

* * * * *

(iii) Verify that the product transfer documents for the representative samples under paragraph (a)(2)(i) of this section of RINs sold and the RINs purchased contain the applicable information required under § 80.1453 and report as a finding any product transfer document that does not contain the required information.

(iv) Verify the accuracy of the information contained in the product transfer documents reviewed pursuant to paragraph (a)(2)(iii) of this section and report as a finding any exceptions.

(3) * * *

(ii) Obtain the database, spreadsheet, or other documentation used to generate the information in the RIN activity reports; compare the RIN transaction samples reviewed under paragraph (a)(2) of this section with the corresponding entries in the database or spreadsheet and report as a finding any discrepancies; compute the total number of current-year and prior-year RINs owned at the start and end of each quarter, purchased, separated, sold, retired and reinstated, and for parties that reported RIN activity for RINs assigned to a volume of renewable fuel, the volume and type of renewable fuel (as defined in § 80.1401) owned at the end of each quarter; as represented in these documents; and state whether this information agrees with the party's reports to EPA.

(b) * * *

(2) *RIN Transaction Reports and Product Transfer Documents.*

(i) Obtain and read copies of a representative sample, selected in accordance with the guidelines in § 80.127, of each transaction type (RINs purchased, RINs sold, RINs retired, RINs separated, RINs reinstated) included in the RIN transaction reports required under § 80.1451(b)(2) for the compliance year.

* * * * *

(iii) Verify that the product transfer documents for the representative samples under paragraph (b)(2)(i) of this section of RINs sold and the RINs purchased contain the applicable information required under § 80.1453 and report as a finding any product transfer document that does not contain the required information.

(iv) Verify the accuracy of the information contained in the product transfer documents reviewed pursuant to paragraph (b)(2)(iii) of this section and report as a finding any exceptions.

(3) * * *

(ii) Obtain the database, spreadsheet, or other documentation used to generate the information in the RIN activity reports; compare the RIN transaction samples reviewed under paragraph (b)(2) of this section with the corresponding entries in the database or spreadsheet and report as a finding any discrepancies; report the total number of each RIN generated during each quarter and compute and report the total number of current-year and prior-year RINs owned at the start and end of each quarter, purchased, separated, sold, retired and reinstated, and for parties that reported RIN activity for RINs assigned to a volume of renewable fuel, the volume of renewable fuel owned at the end of each quarter, as represented in these documents; and state whether this information agrees with the party's reports to EPA.

* * * * *

(c) * * *

(1) *RIN Transaction Reports and Product Transfer Documents.*

* * * * *

(iii) Verify that the product transfer documents for the representative samples under paragraph (c)(1)(i) of this section of RINs sold and RINs purchased contain the applicable information required under § 80.1453 and report as a finding any product transfer document that does not contain the required information.

(iv) Verify the accuracy of the information contained in the product transfer documents reviewed pursuant to paragraph (c)(1)(iii) of this section and report as a finding any exceptions.

* * * * *

14. Section 80.1465 is amended by revising paragraph (h)(2) to read as follows:

**§ 80.1465 What are the additional requirements under this subpart for foreign small refiners, foreign small refineries, and importers of RFS–FRFUEL?**

* * * * *

(h) * * *

(2) Bonds shall be posted by any of the following methods:

(i) Paying the amount of the bond to the Treasurer of the United States.

(ii) Obtaining a bond in the proper amount from a third party surety agent that is payable to satisfy United States administrative or judicial judgments against the foreign refiner, provided EPA agrees in advance as to the third party and the nature of the surety agreement.

* * * * *

15. Section 80.1466 is amended by revising paragraph (h)(2) to read as follows:

**§ 80.1466 What are the additional requirements under this subpart for RIN-generating foreign producers and importers of renewable fuels for which RINs have been generated by the foreign producer?**

* * * * *

(h) * * *

(2) Bonds shall be posted by any of the following methods:

(i) Paying the amount of the bond to the Treasurer of the United States.

(ii) Obtaining a bond in the proper amount from a third party surety agent that is payable to satisfy United States administrative or judicial judgments against the foreign producer, provided EPA agrees in advance as to the third party and the nature of the surety agreement.

* * * * *

16. Section 80.1467 is amended by revising paragraphs (e)(1), (e)(2), and (g)(2) to read as follows:

**§ 80.1467 What are the additional requirements under this subpart for a foreign RIN owner?**

* * * * *

(e) * * *

(1) The foreign entity shall post a bond of the amount calculated using the following equation:

$$Bond = G * \$ 0.01$$

Where:

Bond = Amount of the bond in U.S. dollars.

G = The total of the number of gallon-RINs the foreign entity expects to obtain, sell, transfer or hold during the first calendar

year that the foreign entity is a RIN owner, plus the number of gallon-RINs the foreign entity expects to obtain, sell, transfer or hold during the next four calendar years. After the first calendar year, the bond amount shall be based on the actual number of gallon-RINs obtained, sold, or transferred so far during the current calendar year plus the number of gallon-RINs obtained, sold, or transferred during the four calendar years immediately preceding the current calendar year. For any year for which there were fewer than four preceding years in which the foreign entity obtained, sold, or transferred RINs, the bond shall be based on the total of the number of gallon-RINs sold or transferred so far during the current calendar year plus the number of gallon-RINs obtained, sold, or transferred during any immediately preceding calendar years in which the foreign entity owned RINs, plus the number of gallon-RINs the foreign entity expects to obtain, sell or transfer during subsequent calendar years, the total number of years not to exceed four calendar years in addition to the current calendar year.

(2) Bonds shall be posted by any of the following methods:

(i) Paying the amount of the bond to the Treasurer of the United States.

(ii) Obtaining a bond in the proper amount from a third party surety agent that is payable to satisfy United States administrative or judicial judgments against the foreign RIN owner, provided EPA agrees in advance as to the third party and the nature of the surety agreement.

* * * * *

(g) * * *

(2) Any RIN that is obtained, sold, transferred, or held that is in excess of the number for which the bond requirements of this section have been satisfied is an invalid RIN under § 80.1431.

* * * * *

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