Part III - Administrative, Procedural, and Miscellaneous

Sustainable Aviation Fuel Credit; Lifecycle Greenhouse Gas Emissions Reduction Percentage and Certification of Sustainability Requirements Related to the Clean Air Act; Safe Harbors

Notice 2024-6

SECTION 1. PURPOSE

The Department of the Treasury (Treasury Department) and the Internal Revenue Service (IRS) provided initial guidance on December 19, 2022, regarding the sustainable aviation fuel (SAF) credits in Notice 2023-6, 2023-2 I.R.B. 328. Such credits are collectively referred to as a "SAF credit" or the "SAF credits." This notice provides additional guidance with respect to the SAF credits under §§ 40B and 6426(k) of the Internal Revenue Code.[1]

Section 2 of this notice provides relevant background and an overview. Section 3 of this notice provides safe harbors for calculating the lifecycle greenhouse gas emissions reduction percentage under § 40B(e)(2) and for certifying the related requirements under § 40B(f)(2)(A) (sustainability requirements). Section 4 of this notice describes Appendix A of this notice, which contains a Model Certificate for SAF Synthetic Blending Component and supersedes Appendix B of Notice 2023-6. A certificate is required under section 6.04(2) of Notice 2023-6 in order to make a claim

[1] Unless otherwise specified, all references to "section" or "§" are references to sections of the Internal Revenue Code.

with respect to a SAF qualified mixture under § 34(a)(3), 40B, 6426(k), or 6427(e)(1). Section 5 of this notice explains that the existing Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model of the Argonne National Laboratory (ANL-GREET model)[2] is a methodology that does not satisfy the requirements to calculate the emissions reduction percentage under § 40B(e)(2). To date, no GREET-based model has been identified as satisfying the applicable requirements.[3]

Finally, section 6 of this notice announces that the Department of Energy (DOE) is collaborating with other federal agencies to develop a modified version of the GREET model that would satisfy the requirements of § 40B(e)(2) (§ 40B(e)(2) GREET model). The agencies developing the § 40B(e)(2) GREET model currently anticipate it to be released in early 2024.

SECTION 2. BACKGROUND AND OVERVIEW

.01 Applicable law generally. Section 13203 of Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022, added § 40B and amended §§ 38(b), 40A, 87, 4101(a), 6426, and 6427(e)(1), to establish the SAF credits, effective for certain fuel mixtures containing SAF sold or used after December 31, 2022. The SAF credit is equal to the product of (1) the number of gallons of SAF in a qualified mixture and (2) the sum of (A) $1.25 and (B) the "applicable

[2] The "ANL-GREET model" refers to the following lifecycle analysis model: Wang, Michael, et al. (2022). Greenhouse gases, Regulated Emissions, and Energy use in Technologies Model ® (2022 Excel). Computer Software. USDOE Office of Energy Efficiency and Renewable Energy (EERE). 10 Oct. 2022. Web. *https://www.osti.gov/doecode/biblio/80997*.

[3] Letter from Joseph Goffman, Principal Deputy Assistant Administrator for the Office of Air and Radiation, U.S. Environmental Protection Agency, to Lily Batchelder, Assistant Secretary for Tax Policy, U.S. Department of Treasury (December 13, 2023), (EPA Letter), *available at* *https://home.treasury.gov/system/files/136/Final-EPA-letter-to-UST-on-SAF-signed.pdf*.

supplementary amount" with respect to such SAF. In general, the applicable supplementary amount increases the $1.25 base credit by $0.01 for each percentage point by which the emissions reduction percentage of the SAF exceeds 50 percent, for a maximum increase of $0.50. *See* §§ 40B(b) and 6426(k).

Among a number of requirements, under § 40B(d)(1)(D) and (e), SAF must be certified to have a lifecycle greenhouse gas emissions reduction percentage of at least 50 percent. Section 40B(e) defines the term "lifecycle greenhouse gas emissions reduction percentage" (emissions reduction percentage) to mean, with respect to any sustainable aviation fuel, the percentage reduction in lifecycle greenhouse gas emissions achieved by such fuel, as compared with petroleum-based jet fuel, as defined in accordance with (1) the most recent Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) that has been adopted by the International Civil Aviation Organization (ICAO) with the agreement of the United States or (2) any similar methodology that satisfies the criteria under § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on August 16, 2022 (CAA).

Section 40B(f)(2)(A) requires a producer or importer of SAF to provide certification (in the form and manner prescribed by the Secretary of the Treasury or her delegate (Secretary)) from an unrelated party demonstrating compliance with (i) any general requirements, supply chain traceability requirements, and information transmission requirements established under CORSIA as described in § 40B(e)(1), or (ii) in the case of any similar methodology established under § 40B(e)(2), requirements similar to the sustainability requirements described in § 40B(f)(2)(A)(i). Section 40B(f)(2)(B) requires SAF producers or importers to provide such other information with

respect to such fuel as the Secretary may require for purposes of carrying out § 40B.

.02 Notice 2023-6. Notice 2023-6 provides guidance on the SAF credits and related credit and payment rules under §§ 34(a)(3), 38, 87, and 6427(e)(1). Notice 2023-6 also provides guidance related to the registration requirements under § 4101 for persons producing or importing SAF. For definitions of terms used in this notice and procedures for claiming a SAF credit, *see* Notice 2023-6.

Sections 4.04 and 5.01(4) of Notice 2023-6 include CORSIA-based safe harbors for determining the emissions reduction percentage under § 40B(e)(1) and for providing an unrelated party certification of sustainability requirements under § 40B(f)(2)(A)(i). However, Notice 2023-6 does not provide guidance regarding the calculation of the emissions reduction percentage under § 40B(e)(2) or the associated unrelated party certification of sustainability requirements under § 40B(f)(2)(A)(ii).

.03 Sections 3 through 6 of this notice. The Treasury Department and the IRS developed the guidance set forth in sections 3 through 5 of this notice, in consultation with the Environmental Protection Agency (EPA) and other agencies, to provide safe harbors for using the EPA's Renewable Fuel Standard (RFS) program to calculate the emissions reduction percentage under § 40B(e)(2) and RFS guidance to certify related sustainability requirements under § 40B(f)(2)(A)(ii), and to address other models. Section 6 of this notice announces the § 40B(e)(2) GREET model is expected in early 2024.

SECTION 3. LIFECYCLE GREENHOUSE GAS EMISSIONS REDUCTION PERCENTAGE UNDER § 40B(e)(2) AND CERTIFICATION OF SUSTAINABILITY REQUIREMENTS UNDER § 40B(f)(2)(A)(ii); RENEWABLE FUEL STANDARD PROGRAM; SAFE HARBORS

.01 Calculating the lifecycle greenhouse gas emissions reduction percentage under § 40B(e)(2).

(1) Renewable Fuel Standard program. Section 40B(e)(2) provides that the emissions reduction percentage may be calculated in accordance with any methodology similar to the most recent CORSIA that satisfies the criteria under § 211(o)(1)(H) of the CAA (CAA § 211(o)(1)(H) criteria). Section 211(o)(1)(H) of the CAA defines the term "lifecycle greenhouse gas emissions" to mean "the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the [EPA] Administrator, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential." Section 211(o)(2)(A) of the CAA, as added by § 1501(a)(2) of the Energy Policy Act of 2005, Public Law 109-58, 119 Stat. 594, 1067 (2005) and amended by § 202(a)(1) of the Energy Independence and Security Act of 2007, Public Law 110-140, 121 Stat. 1492, 1521-22 (2007), requires the Administrator of the EPA to promulgate regulations implementing the statutory requirements of the RFS program, which include requirements related to greenhouse gas emissions reduction thresholds for renewable fuels. Regulations for the RFS program are codified under 40 CFR Part 80: Regulation of Fuels and Fuel Additives. Under the RFS program, the EPA evaluates a biofuel's lifecycle greenhouse gas emissions to determine whether a

particular fuel meets a 20-percent, a 50-percent, or a 60-percent emissions reduction from a gasoline or diesel fuel baseline, as applicable.[4] *See* 42 U.S.C. 7545(o)(1)(B) – (E); 40 CFR 80.2.

The EPA's methodology for determining lifecycle greenhouse gas emissions under the RFS program was specifically designed to satisfy the statutory definition in § 211(o)(1)(H) of the CAA. The methodology employed by the RFS program, consistent with that definition, is similar to the CORSIA methodology as both are methodologies that evaluate the "full fuel lifecycle, including all states of fuel and feedstock production" through to the end use of the finished fuel.[5]

(2) Safe harbor based on certain RFS program determinations. With respect to any SAF qualified mixture produced under ASTM International (ASTM) D7566, the IRS will accept an emissions reduction percentage of the SAF synthetic blending component for a jet fuel that qualifies as renewable fuel under the RFS program. Rows F, G, H, L, M, and P in Table 1 to 40 CFR 80.1426 list the generally applicable fuel pathways and the D-codes under the RFS program for jet fuel, which are available at *https://www.epa.gov/renewable-fuel-standard-program/approved-pathways-renewable-fuel#generally*.

Specifically, a SAF synthetic blending component that has generated biomass-based diesel (D-code 4) or advanced biofuel (D-code 5) renewable identification numbers (RINs) under the RFS program that have been validated under a quality

[4] Although § 40B(e) requires use of a petroleum-based jet fuel baseline, the Treasury Department and the IRS conclude that it is reasonable to use the RFS program's diesel fuel baseline for purposes of the safe harbor in section 3.01(2) of this notice because the differences are small compared to the inherent lack of precision with respect to lifecycle greenhouse gas emissions calculations.

[5] EPA Letter, *available at https://home.treasury.gov/system/files/136/Final-EPA-letter-to-UST-on-SAF-signed.pdf*.

assurance plan (QAP) will be assigned a 50-percent emissions reduction percentage. *See* 40 CFR 80.2. A SAF synthetic blending component that has generated valid cellulosic biofuel (D-code 3) or cellulosic diesel (D-code 7) RINs under the RFS program that have been validated under a QAP will be assigned a 60-percent emissions reduction percentage. *See* 40 CFR 80.2 and 80.1425(g).

The EPA has also made facility-specific determinations for renewable jet fuel pathways under the RFS program, which are available at *https://www.epa.gov/renewable-fuel-standard-program/approved-pathways-renewable-fuel#completed*. The IRS will also accept the emissions reduction percentage for a SAF synthetic blending component for a jet fuel that has generated a D-code 3, 4, 5, or 7 RIN and that has been validated under a QAP pursuant to these approved facility-specific pathways.

(3) Emissions reduction percentages other than 50 percent or 60 percent described in the safe harbor will not be accepted. For some fuel pathways, the EPA has published specific lifecycle analysis point estimates (or a range of estimates) to support its determinations under the RFS program. Those estimates are only used to determine whether a particular fuel meets either the 50-percent threshold or the 60-percent threshold under the RFS program. Using those point estimates to calculate an emissions reduction percentage beyond 50 percent or 60 percent would extend those estimates beyond their intended uses. Therefore, the IRS will not accept those point estimates (or range of estimates) for the safe harbor provided in section 3.01(2) of this notice.

(4) Example for calculating the amount of the SAF credit using the RFS safe harbor in section 3.01(2) of this notice. A blender used 100,000 gallons of a SAF synthetic blending component to produce a SAF qualified mixture. The SAF synthetic blending component has generated cellulosic diesel (D-code 7) RINs under a pathway that qualifies under the RFS program, and these RINs were validated under a QAP. The final rule that added the pathway to the list of approved renewable fuel production pathways in the RFS regulations states that the jet fuel's emissions reduction percentage compared to the baseline is 64 percent. However, for purposes of calculating the applicable supplementary amount, the emissions reduction percentage will be deemed to be 60 percent under the safe harbor described in section 3.01(2) of this notice, which corresponds to the emissions reduction threshold the fuel was required to meet to qualify as cellulosic diesel and thus generate D-code 7 RINs.

The per-gallon amount of the SAF credit with respect to the SAF qualified mixture described above is calculated by adding $1.25 and the applicable supplementary amount, if any, with respect to the SAF synthetic blending component used to produce the SAF qualified mixture. Here, the SAF synthetic blending component qualifies for the applicable supplementary amount, because the emissions reduction percentage is deemed to be 60 percent. The applicable supplementary amount is calculated by subtracting 50 from the emissions reduction percentage (60), and then multiplying by the applicable rate ($0.01): (60 – 50) × $0.01 = $0.10 per gallon.

The total amount of the SAF credit is calculated as follows: 100,000 gallons × ($1.25 + $0.10) = $135,000.00.

.02 Unrelated party certification of sustainability requirements under § 40B(f)(2)(A)(ii); RFS Q-RIN safe harbor. In the case of a methodology established under § 40B(e)(2) (relating to the CAA), § 40B(f)(2)(A)(ii) provides that no SAF credit is allowed with respect to any SAF unless the producer or importer of such fuel provides certification from an unrelated party demonstrating compliance with requirements similar to the requirements described in § 40B(f)(2)(A)(i) (relating to the CORSIA methodology). *See also* § 6426(k)(3). A Q-RIN is a RIN verified by a registered independent third-party auditor using a QAP that has been approved under 40 CFR 80.1469(c) following the audit process described in 40 CFR 80.1472. *See generally* 40 CFR Part 80: Subpart M. A Q-RIN signifies that the fuel has been produced pursuant to an EPA-approved pathway that the EPA has determined meets the specified lifecycle greenhouse gas emissions reduction threshold requirement.

With respect to any SAF qualified mixture produced under ASTM D7566, the IRS will consider a producer of a SAF synthetic blending component to meet the certification of sustainability requirements of § 40B(f)(2)(A)(ii) if the SAF synthetic blending component has generated a Q-RIN with an eligible D-code. For this purpose, an eligible D-Code means that a D-code 3, 4, 5 or 7 RIN was generated for the SAF synthetic blending component and the RIN has been verified under a QAP.

To demonstrate compliance with § 40B(f)(2)(A)(ii), the registered producer of the SAF synthetic blending component must record a valid Q-RIN or Q-RINs on the Certificate for SAF Synthetic Blending Component required under section 4 of this notice and sections 6.04(2) and 7.02 of Notice 2023-6 for the particular volume of fuel to which the certificate relates.

SECTION 4. CERTIFICATE FOR SAF SYNTHETIC BLENDING COMPONENT

Appendix B of Notice 2023-6 contains a Model Certificate for SAF Synthetic Blending Component. Appendix A of this notice supersedes the model certificate in Appendix B of Notice 2023-6. For claims filed after December 15, 2023, claimants must submit with their claim a Certificate for SAF Synthetic Blending Component in substantially the same form as the model certificate in Appendix A of this notice.

SECTION 5. ANL-GREET

There are different methodologies that may be used to calculate lifecycle greenhouse gas emissions, such as those established by CORSIA and RFS. A widely used model for calculating an emissions reduction percentage is the GREET model. There are several existing GREET-based models such as CA-GREET used by the California Air Resources Board for the California Low Carbon Fuel Standard, and ICAO-GREET used by CORSIA,[6] but the core version is the ANL-GREET model developed by Argonne National Laboratory, with DOE support, in 1994. The ANL-GREET model is updated annually and produces a lifecycle greenhouse gas emissions value that is comparable to the lifecycle greenhouse gas emissions of petroleum-based fuels, including jet fuel.

Section 40B(e)(2) allows the emissions reduction percentage to be determined in accordance with a methodology that is "similar" to CORSIA and satisfies the CAA § 211(o)(1)(H) criteria. The EPA has previously determined, in the context of the RFS program in which it has interpreted and implemented § 211(o)(1)(H) of the CAA, that the 2010 version of the ANL-GREET model by itself is not sufficient to calculate lifecycle

[6] Other existing GREET-based models include, but are not limited to, Washington GREET and Oregon GREET.

greenhouse gas emissions. The EPA has further advised that, as relevant to § 40B(e)(2), the only current methodology that it has determined satisfies the CAA § 211(o)(1)(H) criteria is the methodology, modeling, and analysis the EPA developed in 2010 for the RFS program and applied in subsequent RFS rulemakings.[7] Based on those consultations, the Treasury Department and the IRS conclude that the ANL-GREET model and other existing GREET-based models do not satisfy the applicable requirements.

SECTION 6. § 40B(e)(2) GREET MODEL

The DOE is collaborating with other federal agencies to develop the §40B(e)(2) GREET model to calculate the emissions reduction percentage under § 40B(e)(2). The collaborating agencies anticipate that the § 40B(e)(2) GREET model will be available in early 2024, and will satisfy the statutory requirements of § 40B(e)(2). After the § 40B(e)(2) GREET model is released, and subject to any further guidance from the Treasury Department and the IRS, it is anticipated that taxpayers will be able to use the § 40B(e)(2) GREET model to calculate the emissions reduction percentage for SAF sold or used after December 31, 2022, and prior to January 1, 2025. A registration applicant using the § 40B(e)(2) GREET model would also need to meet all statutory requirements under § 40B, including registration, sustainability, traceability, and unrelated party certification.

SECTION 7. EFFECT ON OTHER DOCUMENTS

Appendix B of Notice 2023-6 is superseded by Appendix A of this notice.

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[7] EPA Letter, *available at* https://home.treasury.gov/system/files/136/Final-EPA-letter-to-UST-on-SAF-signed.pdf.

SECTION 8. PAPERWORK REDUCTION ACT

Sections 3 and 4 of this notice set forth a collection of information to be provided to the IRS to determine whether a claimant qualifies for a SAF credit. Any third-party disclosure burden associated with this notice is accounted for in the Office of Management and Budget (OMB) Control Number 1545-1835 that is associated with Form 637, *Application for Registration (For Certain Excise Tax Activities)*. This notice does not substantially alter any previously accounted for information collection requirements within OMB Control Number 1545-1835 and does not create new collection requirements not already approved by the OMB. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the collection of information displays a valid OMB control number.

SECTION 9. DRAFTING INFORMATION

The principal authors of this notice are Camille Edwards Bennehoff and Jennifer Golden of the Office of the Associate Chief Counsel (Passthroughs & Special Industries). For further information regarding this notice, call the energy security guidance contact number at (202) 317-5254 (not a toll-free call).

Appendix A – Model Certificate for SAF Synthetic Blending Component

CERTIFICATE FOR SAF SYNTHETIC BLENDING COMPONENT

Certificate Identification Number: _____

(To support a claim related to sustainable aviation fuel (SAF)
under the Internal Revenue Code (Code))

Note: In the case of a claimant that is also the producer or importer of the SAF synthetic blending component, the information required on lines 2, 4, and 10 of the model certificate is not applicable and those lines do not need to be completed.

The undersigned producer or importer of a SAF synthetic blending component (Producer) hereby certifies the following under penalties of perjury:

1. Producer's name, address, and employer identification number (EIN).

_____

_____

_____

2. Name, address, and EIN of person buying the SAF synthetic blending component from Producer.

_____

_____

_____

3. Name and address of the unrelated party certifying compliance with the general requirements, supply chain traceability requirements, and information transmission requirements established under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) or similar requirements for methodologies established under section 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)).

_____

_____

_____

4. Date and location of sale to buyer.

_____

5. This certificate applies to _____ gallons of a SAF synthetic blending component.

6. Producer certifies that the SAF synthetic blending component to which this certificate relates:

(A) Meets the requirements of an ASTM International (ASTM) D7566 Annex (the certificate of analysis reference number demonstrating conformance with such standard is _____, dated _____);

(B) Is not derived from co-processing an applicable material (monoglycerides, diglycerides, triglycerides, free fatty acids, or fatty acid esters) or materials derived from an applicable material with a feedstock that is not biomass (as defined in section 45K(c)(3) of the Code);

(C) Is not derived from palm fatty acid distillates or petroleum; and

(D) Has been certified in accordance with section 40B(e) of the Code as having a lifecycle greenhouse gas emissions reduction percentage of at least 50 percent.

7. The lifecycle greenhouse gas emissions reduction percentage of the SAF synthetic blending component to which this certificate relates is _____. (This percent must be rounded down to the nearest whole percent.)

(Check one)

_____ The lifecycle greenhouse gas emissions reduction percentage is calculated from the “Default Life Cycle Emissions Values for CORSIA Eligible Fuels” in the most recently published version by the International Civil Aviation Organization (ICAO).

_____ The lifecycle greenhouse gas emissions reduction percentage is calculated from the “CORSIA Methodology for Calculating Actual Life Cycle Emission Values” in the most recently published version by the ICAO.

_____ The lifecycle greenhouse gas emissions reduction percentage is deemed to be 50% because the fuel is biomass-based diesel (D-code 4) or advanced biofuel (D-code 5) under the Renewable Fuel Standard program for which a Q-RIN was generated.

_____ The lifecycle greenhouse gas emissions reduction percentage is deemed to be 60% because the fuel is cellulosic biofuel (D-code 3) or cellulosic diesel (D-code 7) under the Renewable Fuel Standard program for which a Q-RIN was generated.

_____ The lifecycle greenhouse gas emissions reduction percentage is calculated according to a methodology that satisfies the requirements of section 40B(e) of the Code. Describe method:

_____

_____

_____

8. The applicable supplementary amount with respect to the SAF synthetic blending component to which this certificate relates is _____. In no event can the applicable supplementary amount exceed $0.50.

9. This certificate applies to the following sale:

_____ Invoice or delivery ticket number

_____ Total number of gallons of the SAF synthetic blending component sold under that invoice or delivery ticket number (including SAF synthetic blending component not covered by this certificate)

_____ Total number of certificates issued for that invoice or delivery ticket number

10. Name, address, and EIN of reseller to whom certificate is issued (only in the case of certificates reissued to a reseller after the return of the original certificate).

_____

_____

_____

11. _____ Original Certificate Identification Number (only in the case of certificates reissued to a reseller after return of the original certificate)

12. Producer is registered as a sustainable aviation fuel (activity letter SA) producer or importer with registration number _____. Producer's registration has not been suspended or revoked by the Internal Revenue Service.

13. Q-RIN or Q-RINs (only in the case where the lifecycle greenhouse gas emissions reduction percentage is deemed because of the fuel's qualification under the Renewable Fuel Standard program)

_____

Producer understands that the fraudulent use of this certificate may subject Producer and all parties making any fraudulent use of this certificate to a fine or imprisonment, or both, together with the costs of prosecution.

_____
Printed or typed name of person signing this certificate

_____
Title of person signing

_____
Signature and date signed