

Part III - Administrative, Procedural, and Miscellaneous

Section 45Z Clean Fuel Production Credit; Emissions Rates

Notice 2026-53

SECTION 1. PURPOSE

This notice provides guidance on the establishment of emissions rates under § 45Z(b)(1)(B) of the Internal Revenue Code (Code)¹ for the clean fuel production credit determined under § 45Z (§ 45Z credit) and clarifies the application of certain amendments to § 45Z made by § 70521 of Public Law 119-21, 139 Stat. 72, 276 (July 4, 2025), commonly known as the One, Big, Beautiful Bill Act (OBBBA). Specifically, this notice addresses the establishment of emissions rates for transportation fuel derived from animal manure. This notice also describes how certain regenerative agricultural feedstock practices may be taken into account for purposes of § 45Z. The Appendix to this notice provides the annual emissions rate table for calendar year 2026 for purposes of § 45Z.

The Department of the Treasury (Treasury Department) and the Internal Revenue Service (IRS) developed this notice in consultation with the Department of

¹ Unless otherwise specified, all references to “section” or “§” are references to sections of the Code or the Income Tax Regulations (26 CFR part 1).

Energy (DOE), the United States Department of Agriculture (USDA), the Federal Aviation Administration (FAA), and other federal agencies.

SECTION 2. BACKGROUND

.01 In general.

Section 45Z, as amended by § 70521 of the OBBBA, provides an income tax credit for clean transportation fuel produced domestically after December 31, 2024, and sold by December 31, 2029. Among other requirements to qualify for the § 45Z credit, a taxpayer must produce a “transportation fuel” that meets certain suitability, emissions rate, anti-coprocessing, and anti-double-crediting requirements. See § 45Z(a)(1) and (d)(5)(A). Under § 45Z(d)(5)(A)(ii), the emissions rate requirement is met if a transportation fuel has an emissions rate² that is not greater than a statutory baseline of 50 kilograms (kg) of carbon dioxide equivalent based on relative global warming potential (CO₂e) per million British thermal units (mmBTU).

A taxpayer calculates the amount of the § 45Z credit by multiplying the applicable amount per gallon or gallon equivalent with respect to a transportation fuel produced by the taxpayer and sold in a qualified sale by the emissions factor for such fuel. See § 45Z(a)(1). Per § 45Z(a)(5), the credit amount is rounded to the nearest cent. A taxpayer’s total § 45Z credit for a taxable year is the sum of the § 45Z credit for each transportation fuel sold during the taxable year.

.02 Establishment of emissions rates.

Under § 45Z(b)(1)(A), a transportation fuel’s emissions factor measures the

² Section 45Z(b)(1)(B)(i) provides that a transportation fuel’s emissions rate is based on the amount of lifecycle greenhouse gas (GHG) emissions (as described in § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on August 16, 2022) for such fuel, expressed as kg of CO₂e per mmBTU. See also § 45Z(d)(1)–(3).

reduction in the fuel's emissions rate relative to the statutory baseline emissions rate of 50 kg of CO₂e per mmBTU, expressed as a fraction of the statutory baseline. Under § 45Z(b)(2), any emissions factor must be rounded to the nearest multiple of 0.1.

Generally, a taxpayer must determine a transportation fuel's emissions rate by using the annual emissions rate table published by the Secretary of the Treasury or the Secretary's delegate (Secretary). See § 45Z(b)(1)(B). However, a taxpayer producing a transportation fuel for which an emissions rate has not been established in the annual emissions rate table may file a petition with the Secretary for determination of a provisional emissions rate (PER) with respect to such fuel. See § 45Z(b)(1)(D).

Section 45Z(b)(1)(B)(i) directs the Secretary, subject to § 45Z(b)(1)(B)(ii) through (v), to annually publish a table setting forth the emissions rates for similar types and categories of transportation fuels. Section 2.03 of this notice describes § 45Z(b)(1)(B)(iv) and (v), added by the OBBBA. The Appendix to this notice provides the calendar year 2026 emissions rate table.

Section 45Z(b)(1)(B)(ii) provides that for transportation fuel other than sustainable aviation fuel (non-SAF transportation fuel), the lifecycle GHG emissions of such fuel must be based on the most recent determinations under the Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model developed by Argonne National Laboratory, or a successor model as determined by the Secretary. See section 2.04(3) of this notice.

Section 45Z(b)(1)(B)(iii) provides that for transportation fuel that is sustainable aviation fuel (SAF transportation fuel), the lifecycle GHG emissions of such fuel must be determined in accordance with: (i) the most recent Carbon Offsetting and Reduction

Scheme for International Aviation (CORSIA) methodologies that have been adopted by the International Civil Aviation Organization with the agreement of the United States; or (ii) any methodology similar to the most recent CORSIA methodologies that satisfies the criteria under § 211(o)(1)(H) of the Clean Air Act, as in effect on August 16, 2022.

Section 2.04(3) of this notice discusses the use of the 45ZCF-GREET model pursuant to § 45Z(b)(1)(B)(ii) and (iii). All publicly available versions of the 45ZCF-GREET model, the accompanying user manual, additional information including FAQs, and the log of changes to the model are available at <https://www.energy.gov/cmei/greet>.

.03 OBBBA amendments.

Section 70521 of the OBBBA made several amendments to § 45Z affecting the establishment of emissions rates and credit eligibility that apply only to transportation fuel produced after December 31, 2025. Transportation fuel produced before January 1, 2026, even if sold after December 31, 2025, is not subject to these amendments. These statutory amendments include:

(1) The requirement in § 45Z(b)(1)(B)(iv) that the emissions rate of transportation fuel produced after December 31, 2025, must be adjusted, based on regulations or methodologies determined by the Secretary, to exclude any emissions attributed to indirect land use change (ILUC).

(2) The requirement in § 45Z(b)(1)(B)(v)(I) for the Secretary to provide a distinct emissions rate with respect to any transportation fuel derived from animal manure and produced after December 31, 2025, that is based on the specific animal manure feedstock. Such feedstocks may include dairy manure, swine manure, poultry manure, or any other sources as are determined appropriate by the Secretary. See

§ 45Z(b)(1)(B)(v)(I).

(3) The requirement in § 45Z(b)(1)(B)(v)(II) and (b)(1)(E) that the emissions rate cannot be less than zero for any transportation fuel produced after December 31, 2025, except for any transportation fuel derived from animal manure.

(4) The requirement in § 45Z(f)(1)(A)(iii) that transportation fuel produced after December 31, 2025, must be exclusively derived from a feedstock that was produced or grown in the United States, Mexico, or Canada.

Section 4 of this notice clarifies how a taxpayer using an allowed methodology that does not reflect these amendments should apply those amendments to determine the emissions rate of transportation fuel produced after December 31, 2025. See *generally* section 2.04 of this notice.

.04 Current guidance on emissions rates.

(1) In general.

On February 4, 2026, the Treasury Department and the IRS published proposed regulations under § 45Z (REG-121244-23) in the *Federal Register* at 91 F.R. 5160 (§ 45Z NPRM), which provide guidance for determining the § 45Z credit, including the establishment of emissions rates for transportation fuels under proposed § 1.45Z-2(d).³

Proposed § 1.45Z-2(d)(1) would implement the general rules for determining the emissions rate of a transportation fuel in § 45Z(b)(1)(B) and (D): a taxpayer would either use the applicable emissions rate table published by the Secretary or, if the applicable emissions rate table does not establish an emissions rate for the taxpayer's fuel, a PER determined by the Secretary.

³ Terms used in this notice have the same meaning as provided in § 45Z and the § 45Z NPRM.

Proposed § 1.45Z-2(e) would incorporate the rules in § 45Z(b)(1)(B) regarding the annual publication of a table of emissions rates for similar types and categories of transportation fuels, including the requirement in § 45Z(b)(1)(B)(i) that the emissions rate table be published “[s]ubject to” the requirements in § 45Z(b)(1)(B)(ii) through (v).

Proposed § 1.45Z-2(g) would provide that when an emissions rate is first established for a type and category of fuel, whether in an applicable emissions rate table or by a PER determination, that emissions rate will relate back to January 1, 2025.

(2) Applicable emissions rate table.

Proposed § 1.45Z-2(e)(2) would provide rules for identifying the “applicable emissions rate table” that a taxpayer must use in a given taxable year. Proposed § 1.45Z-2(e)(2)(i) would clarify that the applicable emissions rate table for a taxpayer is the emissions rate table that is in effect on the first day of the taxpayer’s taxable year of production.

Proposed § 1.45Z-2(e)(2)(ii) would clarify that if a taxpayer produces a fuel for which the applicable emissions rate table establishes an emissions rate, the taxpayer must use the corresponding allowed methodologies, as specified in proposed § 1.45Z-2(e)(3), as provided in such table to determine the emissions rate for all such fuel produced during the taxpayer’s taxable year.

Proposed § 1.45Z-2(e)(2)(iii)(A) would clarify that the applicable emissions rate table establishes the emissions rate for a fuel if the emissions rate table includes both the “type of transportation fuel” and “category of transportation fuel” (that is, the fuel’s unique primary feedstock and pathway used to produce a type of transportation fuel), as defined in proposed § 1.45Z-1(b)(35). Proposed § 1.45Z-2(e)(2)(iii)(B) would clarify that

if an emissions rate table does not initially include a type or category of fuel, but an allowed methodology is updated to add such type or category of fuel during the calendar year, then that type or category of fuel is considered included in such emissions rate table.

(3) Allowed methodologies.

Proposed § 1.45Z-2(e)(3)(i) would provide that a taxpayer producing a fuel for which an emissions rate is established by the applicable emissions rate table must determine the fuel's emissions rate using the allowed methodologies described in proposed § 1.45Z-2(e)(3)(iv) and (v), as directed by the applicable emissions rate table.

Proposed § 1.45Z-2(e)(3)(ii) would require a taxpayer to use the first version of an allowed methodology that is publicly available in the taxable year of production and that includes the type and category of the taxpayer's fuel. However, if an updated version of an allowed methodology becomes publicly available after the first day of the taxable year of production (but still within such taxable year), then the taxpayer could choose to treat such updated version as the most recent version of such methodology.

The preamble to the § 45Z NPRM discusses how the phrase “most recent determinations under the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model” in § 45Z(b)(1)(B)(ii) is best understood as referring to the most recent determinations under the 45ZCF-GREET model. To address any potential uncertainty given the continued existence of other GREET models, proposed § 1.45Z-2(e)(3)(iii) would designate the 45ZCF-GREET model as a successor model under § 45Z(b)(1)(B)(ii). Proposed § 1.45Z-2(e)(3)(v) would clarify that the SAF portion of the 45ZCF-GREET model is a “similar methodology” to CORSIA under

§ 45Z(b)(1)(B)(iii)(II).

Proposed § 1.45Z-2(e)(3)(iv) and (v) would identify the allowed methodologies for determining emissions rates for purposes of the emissions rate table described in § 45Z(b)(1)(B)(i). If the applicable emissions rate table establishes the emissions rate for a non-SAF transportation fuel, a taxpayer producing such fuel would determine the fuel's emissions rate using the 45ZCF-GREET model, as directed by the applicable emissions rate table. If the applicable emissions rate table establishes the emissions rate for a SAF transportation fuel, a taxpayer producing such fuel would determine the fuel's emissions rate using the most recent version of the CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels lifecycle approach (CORSIA Default) or the CORSIA Methodology for Calculating Actual Life Cycle Emissions Values lifecycle approach (CORSIA Actual), with the agreement of the United States, or the 45ZCF-GREET model, as directed by the applicable emissions rate table. The proposed regulations would also clarify that, for a given type and category of SAF transportation fuel, a taxpayer must use the same methodology to calculate lifecycle GHG emissions associated with all stages of SAF transportation fuel production, from fuel feedstock production through distribution.

Proposed § 1.45Z-2(e)(3)(iii)(B) would provide that in the 45ZCF-GREET model, for purposes of accounting for emissions associated with natural gas alternatives (as a production input or as the transportation fuel produced), rules similar to the rules under § 45V apply, unless otherwise specified by the 45ZCF-GREET model with respect to technical modeling issues that are subsequently identified by the DOE or technical differences arising from the application of the § 45V rules to the 45ZCF-GREET model.

Section 1.45V-4(f)(3)(v) provides generally that for purposes of determining the lifecycle GHG emissions rate of a process that uses methane derived from biogas sourced from animal waste, the associated emissions must use an alternative fate derived from the national average of all animal waste management practices.⁴ That approach is incompatible with § 70521(c) of the OBBBA, requiring distinct emissions rates, based on the specific animal manure feedstock, for transportation fuels derived from animal manure. Section 3.02 of this notice provides guidance on the emissions associated with natural gas alternatives derived from animal manure for § 45Z purposes, implementing this OBBBA amendment.

SECTION 3. CERTAIN EMISSIONS ACCOUNTING

.01 Regenerative agriculture practices; safe harbor.

The USDA published a beta version of the USDA Feedstock Carbon Intensity Calculator (USDA FD-CIC) in January 2025. The preamble to the § 45Z NPRM explains that, following publication of the final version of USDA FD-CIC, the Treasury Department and the IRS anticipate that a § 45Z-specific version of the Feedstock Carbon Intensity Calculator (FD-CIC) module would be included as an input to the DOE's 45ZCF-GREET model (45ZCF FD-CIC) used for calculating carbon intensity adjustments under § 45Z for feedstocks that are produced using certain low-carbon agricultural practices. The preamble also notes that the Treasury Department and the IRS anticipate that 45ZCF FD-CIC may be used for fuel produced and sold in 2025 even though 45ZCF FD-CIC likely would be published in 2026.

In June 2026, the USDA published an updated version of USDA FD-CIC,

⁴ The term "alternative fate" has the same meaning as in § 1.45V-4(f)(2)(i).

available at <https://www.usda.gov/usda-fdcic>, alongside related final Technical Guidelines for the Production of Regenerative Agricultural Biofuel Feedstocks (91 F.R. 39334, June 29, 2026) (USDA technical guidelines). A 2026 version of 45ZCF FD-CIC is forthcoming as part of the 45ZCF-GREET model.

For fuel produced in 2025, a taxpayer may use the 2026 version of 45ZCF FD-CIC to determine the emissions associated with feedstocks produced using low-carbon agricultural practices, provided the taxpayer satisfies all requirements for such practices under the USDA technical guidelines in 7 CFR part 2100, including the chain of custody standards in 7 CFR 2100.030 through 2100.035 and the audit and verification standards in 7 CFR 2100.040 and 2100.041. The Treasury Department and the IRS are aware that for fuel produced in 2025 and 2026, the primary feedstock produced using low-carbon agricultural practices was likely planted before the publication of the final USDA technical guidelines. As such, for fuel produced in 2025 and 2026, the requirements under 7 CFR 2100.060, regarding the pre-application development of a nutrient budget, are deemed satisfied for purposes of § 45Z. However, a taxpayer must be able to substantiate the application of any nutrients (such as nitrogen, phosphorus, and potassium) and measurable nutrient sources and removals that the taxpayer inputs into 45ZCF FD-CIC. A taxpayer must also keep records sufficient to substantiate its claim for the § 45Z credit. See proposed § 1.45Z-4(g)(1)–(2).

.02 Distinct emissions rates for specific animal manure feedstocks.

As discussed in sections 2.03 and 2.04(3) of this notice, § 45Z(b)(1)(B)(v)(I) directs the Secretary to provide, for transportation fuels derived from animal manure, distinct emissions rates based on the specific animal manure feedstock.

(1) Specific animal manure feedstocks.

Section 45Z(b)(1)(B)(v)(I) provides that specific animal manure feedstocks may include dairy manure, swine manure, and poultry manure (listed manures). Section 45Z(b)(1)(B)(v)(I) contemplates specific animal manure feedstocks other than the listed manures (unlisted manures), as are determined appropriate by the Secretary. The Treasury Department and the IRS may provide future guidance for determining the emissions rate of fuels derived from unlisted manures, including specific alternative fates. However, the Treasury Department and the IRS anticipate that some unlisted manures will lack technical data to determine an alternative fate for a specific animal manure feedstock.

The Treasury Department and the IRS anticipate that an update to the 45ZCF-GREET model including dairy manure and swine manure as distinct primary feedstocks is forthcoming. As such, dairy manure and swine manure are included as primary feedstocks in the 2026 emissions rate table in the Appendix to this notice.

A taxpayer producing a transportation fuel derived from an animal manure not included in the 2026 emissions rate table may submit a PER petition with the Secretary as provided by § 45Z(b)(1)(D) and in accordance with proposed § 1.45Z-2(f). However, the Treasury Department and the IRS anticipate that the 45ZCF-GREET model will be further updated in 2026 to include poultry manure and beef manure as primary feedstocks. Accordingly, producers of fuels derived from poultry manure and beef manure are encouraged to await this subsequent 45ZCF-GREET model update and to postpone potential submission of any PER petition for such fuels.

(2) Alternative fate.

The Treasury Department and the IRS, in consultation with the DOE and the USDA, have determined that in certain instances a distinct emissions rate for a transportation fuel derived from animal manure may be determined within the 45ZCF-GREET model on the basis of the farm-specific prior manure management practices applied to each specific animal manure feedstock, as described below.

A taxpayer producing a transportation fuel derived from animal manure may use an alternative fate reflecting farm-specific prior manure management practices for the animal manure from which the taxpayer derived its transportation fuel. For purposes of determining such alternative fate, a “farm” is any animal feeding operation, with or without a nutrient management plan, or other animal operation with a nutrient management plan. Farm-specific prior manure management practices depend on the animal manure, and may include manure storage in uncovered lagoons, deep pits, liquid/slurry, pasture/range/paddock, dry lot, and solid storage.

A taxpayer producing a fuel derived from an animal manure determines a distinct emissions rate by inputting into the 45ZCF-GREET model the number of animals by type and share of manure managed using each prior practice in place immediately preceding the earlier of: (i) the commencement date of any anaerobic digester operation⁵ or (ii) September 8, 2026. If a farm diverted manure to an off-farm anaerobic digester, the commencement date is the date the farm first began diverting manure to any off-site anaerobic digester. A taxpayer will provide the number of animals by type and the share of manure managed using each practice, including the quantity routed to

⁵ For purposes of this determination, an anaerobic digester is considered operational on the date at which the system begins capturing, productively using, and/or destroying biogas after an initial start-up period. The initial start-up period must not exceed nine months.

an anaerobic digester, in the taxable year of production. This information is collectively used to calculate the avoided emissions in the 45ZCF-GREET model for prior manure management practices based on the specific animal manure feedstock.

A taxpayer must be able to substantiate such farm-specific prior manure management practices for all collected manure if such data are used to establish an alternative fate. A taxpayer that cannot substantiate the farm-specific prior manure management practices of a given farm will not have avoided emissions included in the 45ZCF-GREET model for such farm's portion of the taxpayer's manure inputs. For more information regarding substantiation of emissions rates and the related safe harbor, see proposed § 1.45Z-4(g)(1)–(2).

The 45ZCF-GREET model will not provide a farm-specific alternative fate with respect to animal manure sourced from a new farm (a farm that begins operations after September 8, 2026) until the Treasury Department and the IRS issue further guidance on this issue. As previously explained, the farm-specific alternative fate for a specific animal manure feedstock reflects the avoided emissions from utilizing an anaerobic digester as compared to the prior manure management practices for a given animal manure on the farm. Given how the farm-specific alternative fate is calculated, a new farm, which necessarily has no existing manure management practices, could be incentivized to select the highest emitting practices on startup. Such intentional inflation of avoided emissions, and in turn the § 45Z credit amount, is contrary to the language of § 45Z and its incentivization of cleaner fuel production. The Treasury Department and the IRS are studying how a distinct emissions rate for transportation fuel derived from animal manures sourced from a new farm may be determined in a manner that

mitigates these concerns.

SECTION 4. TRANSITION GUIDANCE FOR OBBBA AMENDMENTS

.01 In general.

The Treasury Department and the IRS are aware of the need for guidance on how to apply the OBBBA amendments discussed in section 2.03 of this notice by taxpayers using a version of an allowed methodology that does not reflect these OBBBA amendments. This section 4 provides transition guidance on how to apply these OBBBA amendments in such cases.

The first version of the 45ZCF-GREET model to incorporate some of these OBBBA amendments was released on June 12, 2026 (June 2026 version of the 45ZCF-GREET model). Generally, a taxpayer using a pre-June 2026 version of the 45ZCF-GREET model must generate one result for transportation fuel produced on or before December 31, 2025, and another result, modified as specified in section 4.02 of this notice, for transportation fuel produced after December 31, 2025. Utilizing separate results implements the OBBBA's amendments and effective dates.

.02 Application of OBBBA amendments in prior model versions.

(1) ILUC exclusion.

Pursuant to § 45Z(b)(1)(B)(iv), a taxpayer producing a transportation fuel after December 31, 2025, must determine an emissions rate that does not include ILUC emissions. For taxpayers using a version of the 45ZCF-GREET model that includes ILUC emissions to determine the emissions rate for a transportation fuel produced after December 31, 2025, the ILUC value published in the 45ZCF-GREET model must be subtracted from the Total Life Cycle Analysis Results (Total LCA Results). To make this

adjustment, a taxpayer must subtract the ILUC value in the calculated results table from the Total LCA Results, expressed in grams of CO₂e per megajoule. The adjusted Total LCA Results must then be multiplied by a factor of 1.055 to convert the Total LCA Results into kg of CO₂e per mmBTU.

Taxpayers that use CORSIA Default to determine the emissions rate for a SAF transportation fuel produced after December 31, 2025, must exclude the relevant Default ILUC value listed in CORSIA Default.

Taxpayers that use CORSIA Actual to determine the emissions rate for a SAF transportation fuel produced after December 31, 2025, must exclude any ILUC value included as part of the CORSIA Actual verification process. See section 2.04(3) of this notice for more information on identifying which version of CORSIA Default or CORSIA Actual a taxpayer must use.

(2) Foreign feedstock limitation.

Versions of the 45ZCF-GREET model have included pathways for transportation fuel derived from primary feedstocks produced or grown outside the United States, Mexico, or Canada. However, pursuant to § 45Z(f)(1)(A)(iii), a taxpayer may not claim a § 45Z credit for any such fuel produced after December 31, 2025. See section 2.03 of this notice. The § 45Z NPRM also discusses how, after the OBBBA, prohibited foreign feedstocks would be those that originate from a source and/or are purchased from an aggregator located outside the United States, Canada, or Mexico (imported non-Canadian/Mexican).

As discussed in the preamble to the § 45Z NPRM, the Treasury Department and the IRS remain concerned about the ability to reliably distinguish between imported

used cooking oil (UCO) and palm oil, and the resulting risk of crediting ineligible fuels. The preamble to the § 45Z NPRM also states that, as a result, pathways that use imported non-Canadian/Mexican UCO will not be available in the 45ZCF-GREET model until the Treasury Department and the IRS publish further guidance. This section 4.02(2) contains that guidance.

Pre-June 2026 versions of the 45ZCF-GREET model included United States UCO as a primary feedstock for certain pathways. The OBBBA's restriction on imported non-Canadian/Mexican feedstocks permits a § 45Z credit for transportation fuel produced from Canadian and Mexican UCO. Accordingly, the June 2026 version of the 45ZCF-GREET model added Canadian and Mexican UCO as another primary feedstock for pathways that include United States UCO as a primary feedstock. The calendar year 2026 emissions rate table in the Appendix to this notice also does so. A taxpayer producing a transportation fuel from Mexican or Canadian UCO must use a version of the 45ZCF-GREET model that includes such primary feedstocks to determine the emissions rate of such fuel. The first emissions rate for such fuel, established in the June 2026 version of the 45ZCF-GREET model, relates back for such fuel produced since January 1, 2025. See section 2.04(1) of this notice.

Transportation fuel produced after December 31, 2025, from imported non-Canadian/Mexican UCO, is not eligible for the § 45Z credit. However, for fuel produced in 2025 only, a taxpayer producing a transportation fuel from imported non-Canadian/Mexican UCO must use the applicable pathway in a forthcoming version of the 45ZCF-GREET model for imported non-Canadian/Mexican UCO. Although concerns about the reliability and substantiation of imported non-Canadian/Mexican

UCO persist, they are limited in scope, and partly mitigated, by the OBBBA's prohibition on imported non-Canadian/Mexican UCO as a feedstock for transportation fuel produced after December 31, 2025. Further, because any producer using such imported non-Canadian/Mexican UCO would have already produced the fuel before these pathways were available, and would likely have access to contemporaneous records for 2025 production, the potential for fraud or falsified records is lower.

The § 45Z NPRM requested comments on appropriate substantiation and recordkeeping requirements for feedstocks imported from Canada and Mexico, including UCO, to ensure such feedstocks meet the statutory sourcing requirement. A taxpayer producing a transportation fuel from UCO must keep records sufficient to substantiate its claim for the § 45Z credit, including any specific requirements for UCO in the final § 45Z regulations. See proposed § 1.45Z-4(g)(1)–(2).

(3) Animal manure.

Distinct emissions rates based on the specific animal manure feedstock are applicable for all transportation fuel derived from animal manure produced after December 31, 2025, as provided by § 45Z(b)(1)(B)(v) and sections 2.03 and 3.02 of this notice. As discussed in section 3.02(1) of this notice, versions of the 45ZCF-GREET model providing such distinct emissions rates are anticipated. A taxpayer producing a transportation fuel derived from animal manure after December 31, 2025, must use such a version of the 45ZCF-GREET model to determine the emissions rate of such fuel produced after December 31, 2025. See section 2.04 of this notice. A taxpayer must use a version of the 45ZCF-GREET model reflecting an alternative fate derived from the national average of all animal waste management practices to determine the emissions

rate of a transportation fuel derived from animal manure produced on or before December 31, 2025. See section 2.04 of this notice.

(4) Negative emissions rates.

Negative emissions rates are prohibited for transportation fuel produced after December 31, 2025, unless derived from animal manure. Section 4.02(3) of this notice discusses transportation fuel derived from animal manure produced in 2026. A taxpayer using a pre-June 2026 version of the 45ZCF-GREET model to determine the emissions rate of any other transportation fuel produced in 2026 must adjust any negative result up to zero.

SECTION 5. EFFECTIVE DATE

This notice is effective on and after September 8, 2026. For additional guidance regarding the application of the calendar year 2026 emissions rate table, see proposed § 1.45Z-2(e)(2) and sections 2.04 and 4 of this notice.

SECTION 6. DRAFTING INFORMATION

The principal author of this notice is Andrew Clark of the Office of Associate Chief Counsel (Energy, Credits, and Excise Tax). For further information regarding this notice contact Mr. Clark at (202) 317-6855 (not a toll-free number).

Appendix

Section 45Z Emissions Rate Table for Calendar Year 2026

Type of Fuel	Category of Fuel		Allowed Methodology for Determination of Emissions Rate*
	Pathway	Primary Feedstock	
Ethanol	Fermentation	U.S. corn starch	Most recent version of the 45ZCF-GREET model
		U.S. sorghum grain	
		Brazilian sugarcane (for use as a feedstock for SAF Alcohol-to-Jet (ATJ) pathway only) ¹	
		U.S. corn stover	
Biodiesel	Transesterification	U.S. soybean oil	Most recent version of the 45ZCF-GREET model
		U.S./Canadian canola oil/rapeseed oil	
		U.S./Canadian/Mexican used cooking oil (UCO)	
		Other imported UCO (non-Canadian/Mexican) ¹	
		U.S./Canadian/Mexican tallow	
		Other imported tallow (non-Canadian/Mexican) ¹	
		U.S. distillers corn oil (DCO)	
		U.S. distillers sorghum oil (DSO)	
		U.S. carinata oil (intermediate crop)	
		U.S. camelina oil (intermediate crop)	
		U.S. pennycress oil (intermediate crop)	
Renewable Diesel	Hydroprocessed esters and fatty acids (HEFA)	U.S. soybean oil	Most recent version of the 45ZCF-GREET model
		U.S./Canadian canola oil/rapeseed oil	
		U.S./Canadian/Mexican UCO	
		Other imported UCO (non-Canadian/Mexican) ¹	
		U.S./Canadian/Mexican tallow	
		Other imported tallow (non-Canadian/Mexican) ¹	
		U.S. DCO	
		U.S. DSO	
		U.S. carinata oil (intermediate crop)	
		U.S. camelina oil (intermediate crop)	
		U.S. pennycress oil (intermediate crop)	
	ATJ	Ethanol (from fermentation pathways listed above) ³	

	Gasification & Fischer-Tropsch	U.S. corn stover	
Renewable Natural Gas	Anaerobic Digestion and Biogas Upgrading	U.S. wastewater sludge	Most recent version of the 45ZCF-GREET model
		U.S. animal manures (generic alternative fate) ¹	
		U.S. dairy manure ²	
		U.S. swine manure ²	
		U.S. landfill gas	
		U.S. food scraps	
		U.S. corn stover	
		U.S. grain stillage	
		U.S. fats, oils, and greases (FOG) and septage	
		U.S. DCO	
		U.S. DSO	
		U.S. mixed high-moisture organic wastes	
Alternative Natural Gas	Coal Mine Methane Capture and Upgrading	U.S. coal mine methane	Most recent version of the 45ZCF-GREET model
Propane	HEFA	U.S. soybean oil	Most recent version of the 45ZCF-GREET model
		U.S./Canadian canola oil/rapeseed oil	
		U.S./Canadian/Mexican UCO	
		Other imported UCO (non-Canadian/Mexican) ¹	
		U.S./Canadian/Mexican tallow	
		Other imported tallow (non-Canadian/Mexican) ¹	
		U.S. DCO	
		U.S. DSO	
		U.S. carinata oil (intermediate crop)	
		U.S. camelina oil (intermediate crop)	
		U.S. pennycress oil (intermediate crop)	
Naphtha	HEFA	U.S. soybean oil	Most recent version of the 45ZCF-GREET model
		U.S./Canadian canola oil/rapeseed oil	
		U.S./Canadian/Mexican UCO	
		Other imported UCO (non-Canadian/Mexican) ¹	
		U.S./Canadian/Mexican tallow	
		Other imported tallow (non-Canadian/Mexican) ¹	
		U.S. DCO	
		U.S. DSO	
		U.S. carinata oil (intermediate	

		crop)	
		U.S. camelina oil (intermediate crop)	
		U.S. pennycress oil (intermediate crop)	
Hydrogen	Various, as defined in the user manual for the most recent 45VH2-GREET model**	Various, as defined in the user manual for the most recent 45VH2-GREET model ³	Calculate well-to-gate emissions using the 45VH2-GREET model; then calculate the full well-to-wheel emissions using the most recent version of the 45ZCF-GREET model. See the 45ZCF-GREET User Manual for additional instructions.
Sustainable Aviation Fuel (SAF)	HEFA	U.S. soybean oil	Most recent version of one of the following: 1) the 45ZCF-GREET model or 2) CORSIA Default or CORSIA Actual
		U.S./Canadian canola oil/rapeseed oil	
		U.S./Canadian/Mexican UCO	
		Other imported UCO (non-Canadian/Mexican) ¹	
		U.S./Canadian/Mexican tallow	
		Other imported tallow (non-Canadian/Mexican) ¹	
		U.S. DCO	
		U.S. DSO	
		U.S. carinata oil (intermediate crop)	
		U.S. camelina oil (intermediate crop)	
		U.S. pennycress oil (intermediate crop)	
	ATJ	Ethanol (from fermentation pathways listed above) ³	
	Gasification & Fischer-Tropsch	U.S. corn stover	
	Any SAF pathway that is not represented above and is established in CORSIA Default or CORSIA Actual	Any feedstock for such a pathway ³	Most recent version of CORSIA Default or CORSIA Actual

¹ For fuels produced before January 1, 2026, only

² For fuels produced after December 31, 2025, only

³ Subject to the limitation in § 45Z(d)(5)(A)(iv)

* See section 2.04(3) of this notice

** The 45VH2-GREET model and the 45VH2-GREET User Manual are available at <https://www.energy.gov/cmei/greet>