

## 45ZCF-GREET – Change Log

### 45ZCF-GREET (Rev. Sept. 2026)

The 45ZCF-GREET (Rev. Sept. 2026) model and associated User Manual implements the following changes relative to 45ZCF-GREET (Rev. June 2026):

- Added pathway for Renewable Natural Gas (RNG) from food scraps via anaerobic digestion and upgrading
- Added pathway for RNG from corn stover via anaerobic digestion and upgrading
- Added pathway for RNG from grain stillage via anaerobic digestion and upgrading
- Added pathway for RNG from mixed high-moisture organic wastes via anaerobic digestion and upgrading
- Incorporates the 45ZCF FD-CIC to be used for calculating carbon intensity adjustments for feedstocks that are produced using certain regenerative agricultural practices
- For certain pathways that include the option for feedstocks that are produced with regenerative agricultural practices, units for user inputs for feedstock amounts have been revised for consistency with 45ZCF FD-CIC.
- Updates categories for imported used cooking oil as a feedstock in 2025 to align with most recent clarifications regarding 45Z eligibility
- Adds a user input for other imported or not modeled oils as feedstock for Transesterification of mixed oils pathway and HEFA of mixed oils pathway.
- Renames 'Distillers Corn Oil (DCO)' to 'Distillers Corn Oil/Distillers Sorghum Oil (DCO/DSO)' to clarify that this feedstock may be either or a blend of both.
- For certain pathways, adds user inputs for facilities that operate integrated natural gas combined heat and power systems for on-site electricity production and provides guidance for how such facilities may enter the quantity of purchased environmental attribute credits (EACs)

The following policy changes from the One Big Beautiful Bill Act are reflected in the model outputs and clarified in the User Manual for fuels produced after December 31, 2025:

- Added pathway for RNG from dairy manure via anaerobic digestion and upgrading
- Added pathway for RNG from swine manure via anaerobic digestion and upgrading

### 45ZCF-GREET (Rev. June 2026)

The 45ZCF-GREET (Rev. June 2026) model and associated User Manual implements the following changes relative to 45ZCF-GREET (Rev. May 2025, Amendment):

For all pathways:

- The dependency file, which is used to run backend calculations, has been updated to use R&D GREET 2025 Rev1 to utilize the most recent available data and assumptions.
- Behind-the-meter (BTM) Power has been separated into two different user inputs: Integrated BTM Power and Non-Integrated BTM Power, where Integrated BTM Power refers to generation that is interdependent on the fuel production facility, either by combusting a portion of the overall facility inputs (e.g., natural gas), combusting intermediate/waste products from the facility (e.g., biogas or residual solids), or through heat integration with the facility.

- Results for all pathways are presented for fuels produced in 2025 and for fuels produced after December 31, 2025 to reflect policy changes from the One Big Beautiful Bill Act.

For Coal Mine Methane (CMM) Capture and Upgrading:

- Change in flaring efficiency in background calculations from 99.85% to 98%
- Addition of Carbon Capture and Sequestration (CCS) parameter
- Addition of inputs for electricity, both imported renewable electricity and onsite Behind the Meter (BTM) Energy Attribute Credits (EACs)
- Addition of multiple CMM upgrading technology options
- Renamed 'Final CMM Pressure' field to 'CMM Pressure Exiting Upgrader'

For Renewable Natural Gas (RNG) pathways:

- Addition of Carbon Capture and Sequestration (CCS) parameter
- For Onsite Behind-the-Meter (BTM) Electricity, addition of field to include both Integrated and Energy Attribute Credit (EAC) fields
- Renamed 'Final RNG Pressure' field to 'RNG Pressure Exiting Upgrader'
- Addressed numerical instability in the RNG pressure field

The following policy changes from the One Big Beautiful Bill Act are reflected in the model outputs and clarified in the User Manual for fuels produced after December 31, 2025:

- Deduction of Indirect Land Use Change (ILUC) contributions
- The pathway for RNG from [Generic] Animal Manures via Anaerobic Digestion may no longer be used; pathways for specific species must be established
- Ineligibility of feedstocks sourced from outside of the United States, Mexico and Canada
- A comment has been added to total LCA results for fuels produced after December 31, 2025: "After Dec. 31, 2025 certain feedstocks and pathways may not be used and negative values may no longer be claimed for some fuels. Refer to the user manual for more information."

## 45ZCF-GREET (Rev. May 2025, amendment)

The 45ZCF-GREET (Rev. May 2025) model was amended to address the following:

- The coal type parameter is added to the transesterification production pathways to biodiesel.
- The sample input data for wet mill ethanol is updated to be consistent with those in R&D GREET 2024 Rev1.
- Addresses an error in calculating emissions associated with corn stover input in the corn stover ethanol pathway.
- Implements a validation to prevent users from entering negative values for input parameters that are not expected to be negative.

## 45ZCF-GREET (Rev. May 2025)

The 45ZCF-GREET (Rev. May 2025) model and associated User Manual implements the following changes relative to 45ZCF-GREET (Rev. January 2025):

- Added pathway for alternative natural gas from coal mine methane (CMM) capture and upgrading.
- Added pathway for ethanol from U.S. corn wet mills. A simplified plant-level allocation by mass is applied to derive the results for ethanol. The same indirect emissions value per MJ for dry mill corn ethanol is applied to wet mill ethanol.
- Added text to the GREET User Manual to quote Notice 2025-11, sec. 401 to clarify that these (and potential future) model updates, including new types, categories or pathways, may be used immediately.
- Clarifies in the GREET User Manual that Carbon capture utilization and sequestration (CCUS) allows CO<sub>2</sub> stored in U.S. Class II wells used for enhanced oil recovery (EOR), in addition to Class VI wells. (Note: No changes to model only revisions to user manual.)