

Change Log for 45VH2-GREET

45VH2-GREET (Rev. January 2025):

The 45VH2-GREET (Rev. January 2025) model implements the following changes relative to 45VH2-GREET (Rev. November 2024):

- Improvements to user interface for electricity inputs.
- Representation of steam co-products for reformers with cryogenic carbon capture and sequestration.
- Revision to the approach used to account for impurities, in alignment with final regulations for the 45V tax credit. Model no longer accounts for the conversion of impurities or mixed gases into carbon dioxide emissions downstream of the hydrogen production facility.
- Representation of grid regions from the 45V Final Regulations, in lieu of regions based on the North American Electric Reliability Corporation (NERC).
- Representation of renewable natural gas from manure and wastewater treatment plants, and upgraded coal mine methane.
- Removal of logging residue as an input, pending ongoing national laboratory analysis.
- Removal of assumed transmission and distribution losses when power is sourced from specific generators, in alignment with 45V Final Regulations.
- Length of pipeline assumed to transport renewable natural gas (RNG) to hydrogen producer changed from 680 miles to 1 mile.
- Leakage rate for RNG upgrading updated from 2% to 2.8%, to reflect pressure swing adsorption technologies used in the United States.

45VH2-GREET (Rev. November 2024):

The 45VH2-GREET (Rev. November 2024) model implements the following changes relative to 45VH2-GREET (Rev. August 2024):

- Improvements to user interface for electricity feedstock.

45VH2-GREET (Rev. August 2024):

The 45VH2-GREET (Rev. August 2024) model implements the following changes relative to 45VH2-GREET (Rev. March 2024):

- Inclusion of renewable electricity feedstock for high-temperature electrolysis, as described in Section 2.3 of the “Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen production Pathways using 45VH2-GREET Rev. August 2024” document.

45VH2-GREET (Rev. March 2024):

The 45VH2-GREET (Rev. March 2024) model implements the following changes relative to 45VH2-GREET 2023:

- Modifications to address tool functionality (fixes to prevent crashes and popups to explain features).

- Correcting macros that utilize the heating value of natural gas and landfill gas.
- Correcting a programming error in simulation of the gasification of biomass.
- Removing the cap on the amount of nitrogen co-product that users can input for the autothermal reforming (ATR) process. Instead, a pop-up message was added notifying users to check their inputs.