Crosswalk between CGS's State Inventory Tool (SIT, July 2026 edition) and EPA's *DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990-2023* (released via Freedom of Information Act request)

October 2026

Background

The University of Maryland's Center for Global Sustainability (CGS) recognizes that many states rely on the State Inventory Tool (SIT) to prepare their state greenhouse gas (GHG) inventory estimates. While the previous SIT updated through 2022 remains available on EPA's website, EPA is no longer updating SIT or publishing annual national or state-level inventory GHG estimates. EPA's SIT, national-level *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2023* (hereafter "*national-level GHGI*") and annual disaggregated *DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990-2023* (hereafter "*GHGI by State*") were released through Freedom of Information access Act (FOIA)[1] requests submitted to EPA in spring of 2025. In June 2026, CGS published an updated SIT (hereafter "SIT 2026") for state users through 2023, using the 1990-2023 data from the EPA released via FOIA release and other publicly-available sources. SIT 2026 is available online at https://ghgi.cgs.umd.edu/data-tools.html.

The SIT provides default activity data and estimates that states can use as a starting point for compiling a state-level GHG inventory. For many sectors and sources, the default data included in SIT 2026 align with EPA's *GHGI by State* which covers the same time period, i.e., 1990-2023. Consistent with previous crosswalk files published by EPA[2], CGS notes differences exist between default data in SIT 2026 and EPA's annual *GHGI by State* estimates due to variability in methods, data, and level of completeness. Table 1 below summarizes general differences in scope and data across SIT 2026 and EPA's *GHGI by State* while Table 2 provides a more detailed crosswalk of key differences where methods/data, and or completeness differ by IPCC sector/category. CGS's update of SIT published in June 2026 implemented

1 EPA's SIT and disaggregated *DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990-2023* (hereafter *GHGI by State*) were released through Freedom of Information Act (FOIA) requests in April and May 2025 submitted by the Environmental Defense Fund (EDF) and responses are posted on EDF's website at https://www.edf.org/media/epa-releases-us-greenhouse-gas-inventory-response-edf-foia-request.

2 Find the previous crosswalk published by EPA at https://www.epa.gov/system/files/documents/2024-09/factsheet_crosswalk-between-ghgibystate-and-sit_august_2024.pdf

several updates that aligned it closer with the *GHGI by State* data. Learn more about the updates implemented in the SIT Change log available at https://ghgi.cgs.umd.edu/Web%20Content/Tools/SIT_Change_Log_v2_09182026.pdf.

Note, CGS recently published the *Greenhouse Gas Inventory and Analysis by U.S. State* (hereafter "*GHGIA by State*") providing updated estimates through 2024 available at https://ghgi.cgs.umd.edu/statereport.html. While the crosswalk does not cover differences with this more recent CGS product, the differences noted here likely extend to CGS's *GHGIA by State* given most disaggregation methods in CGS's *GHGIA by State* are the same as those used by EPA. CGS will coordinate with states agencies and organizations currently using SIT for prioritizing updates and improvements for future releases.

Table 1. General Differences Between the Default Data in SIT 2026 and EPA's DRAFT GHGI by State: 1990-2023

Data	Difference
Industrial processes and product use (IPPU) sector default data	SIT has limited state-specific default data and encourages users to either enter data/estimates from EPA's *GHGI by State* or add additional emission sources currently not included in SIT 2026. SIT does not include all source categories included in previous national-level inventories published by EPA and/or the latest national-level *GHGIA* published by CGS.
State-level data	In some cases, state-level default data is unavailable in SIT 2026 typically due to the following circumstances 1) classification as confidential business data and/or 2) national-level modeling that does not use state-level inputs or have state-level outputs.
Latest time series	SIT's time series typically runs around 1 to 2 years behind the national-level *GHGIA* (e.g., SIT might cover 1990-2023, while the CGS national-level *GHGIA* covers 1990-2024). Therefore, the default approaches in SIT may not fully reflect the latest updates reflected for some categories in the EPA's *GHGI by State* data.
Alternate approaches	SIT provides two alternate approaches to estimating emissions (calculating CO_2 from transportation based on vehicle miles traveled (VMT) and calculating emissions from electricity consumption), which are not based on CGS's national-level *GHGIA or GHGIA by State* methods.

Table 2. Crosswalk Between EPA's DRAFT *GHGI by State* and SIT 2026 Methods and Data by IPCC Sector

IPCC Sector/ Category	Gas(es)	Included in SIT (Y/N/P)	Uses same data/ method (Y/N)	Key Differences	Plans to align SIT with *CGS's GHGIA by State* data
Energy					
Fossil Fuel Combustion •Transportation •Electric Power •Industrial •Residential •Commercial U.S. Territories	CO_2	Y	Mostly Y with some differences in adjustments	The main differences between the SIT and EPA's *GHGI by State* totals are: SIT includes non-energy uses of fossil fuels with fossil fuel combustion. SIT includes an optional module to estimate emissions associated with electricity consumption. SIT provides an alternate approach to estimating CO_2 emissions from transportation based on vehicle miles traveled (VMT).	* (Exploring ways to further align the SIT and the national-level *GHGIA* and *GHGIA by State*)
Non-Energy Use of Fossil Fuels	CO_2	Y	Y	Included with Fossil Fuel Consumption in SIT.	NA
Stationary Combustion (excluding CO2)	CH_4, N_2O	Y	Y	SIT uses IPCC default emission factors for electric power sector and EPA's *GHGI by State* uses factors by fuel and combustion type.	*(Exploring ways SIT can use emissions factors by fuel and combustion type for electric power sector estimates.)
Mobile Combustion (excluding CO2)	CH_4, N_2O	Y	Y	SIT activity data includes jet fuel bunkers.	*(Bunker fuel data will be updated to match the Fossil Fuel Combustion CO_2 module.)

Coal Mining	CH_4, CO_2	P	Y	SIT uses an apportionment approach for underground mine methane emissions for 1991 and 1992 as data were previously unavailable. Default data is not available in SIT for fugitive CO_2 emissions from coal mining.	*, Δ
Abandoned Underground Coal Mines	CH_4	Y	Y	SIT uses the same general method as the *Inventory by State* but calculates emissions on an individual mine-by-mine basis. The AMM model used for the national Inventory and the EPA's *GHGI by State* uses @Risk Monte Carlo simulation software and estimates emissions by basin, state (for reporting years 2020 and onward), and abandoned mine status type, resulting in slightly different estimates.	NA
Petroleum Systems	CO_2, CH_4, N_2O	P	N	SIT includes only CH_4. Default data is not available in SIT for all states for all sources. There are different approaches for vented and flared gas in SIT versus EPA's *GHGI by State*.	*
Natural Gas Systems	CO_2, CH_4, N_2O	P	N	SIT includes only CH_4. Not all *GHGI by State* sources are included in SIT (e.g., meters in distribution segment, post-meter emissions). SIT includes gathering and gas processing under transmission. In the EPA's *GHGI by State,* they are included under production and processing. There are different approaches for vented and flared gas in SIT versus EPA's *GHGI by State*.	*, Δ
Abandoned Oil and Gas Wells	CO_2, CH_4	N	N	This source category is not included in SIT.	Δ
Incineration of Waste	CO_2, CH_4, N_2O	Y	Y	Included in SIT Waste module.	NA
Wood Biomass and Biofuels Consumption (memo item)		N	N	NA	NA
International Bunker Fuels (memo item)		P	Y	SIT bunker fuel calculations are completed in the CO_2FFC module.	NA

Industrial Processes and Product Use					
Cement Production	CO_2	Y	Y for 1990-2009 N for 2010-2023	EPA's *GHGI by State* uses GHGRP emissions data adjusted for CEMS for 2010-2023.	*
Lime Production	CO_2	P	N	Default data is not available in SIT for all states for all years. EPA's *GHGI by State* uses the following approaches for state-level estimates 2010-2023: GHGRP emissions adjusted for CEMS (to exclude combustion emissions 1990-2009: Facility count to disaggregate national emissions.	*
Glass Production	CO_2	N	N	This source category is not included in SIT. Some emissions could be partially reflected in SIT in estimating emissions for soda ash consumption.	Δ
Other Process Uses of Carbonates	CO_2	P	N	SIT includes under Limestone and Dolomite Use. SIT includes soda ash consumption emissions with production, instead of in Other Process Uses of Carbonates which EPA's *GHGI by State* does. The EPA's *GHGI by State* now also includes carbonate use for ceramics and non-metallurgical magnesia production.	*(CGS is evaluating updates for SIT to be consistent with the *GHGIA by State* and previous EPA *GHGI by State*.)
Ammonia Production	CO_2	Y	Y, similar for 1990-2009 N, differ for 2010-2023	For 1990-2009, EPA's *GHGI by State* and SIT use the same USGS capacity data. SIT allocates state production by multiplying state % by national production and assumes all feedstock is natural gas, whereas the EPA's *GHGI by State* multiplies state % by the national GHGI emissions, which accounts for differences in emissions from production using natural gas and petroleum coke. EPA's *GHGI by State* doesn't account for petroleum coke more granularly yet (1 facility in KS). The EPA's *GHGI by State* uses GHGRP emissions data for 2010-2023.	*
Urea Consumption for Non-Agricultural Purposes	CO_2	Y	N	The *EPA's GHGI by State* allocates emissions based on populations data and SIT assumes the same percentage as agricultural urea use.	*

Nitric Acid Production	N_2O	P	N	Default data is not available in SIT for relevant states for all years	*
Adipic Acid Production	N_2O	P	N	Default data is not available in SIT for relevant states for all years	*
Caprolactam, Glyoxal, and Glyoxylic Production	N_2O	N	N	This source category is not included in SIT. Note, EPA's *GHGI by State* only includes emissions from caprolactam. When glyoxal and glyoxylic acid are included in the national *Inventory*, they will be added also to the *Inventory by State*.	Δ
Carbide Production and Consumption	CO_2, CH_4	N	N	This source category is not included in SIT.	Δ
Titanium Dioxide Production	CO_2	N	N	This source category is not included in SIT.	Δ
Soda Ash Production	CO_2	Y	Y except for emissions from soda ash consumption	Emissions from production are calculated using the same data and method. SIT includes soda ash consumption emissions with production, instead of in Other Process Uses of Carbonates as allocated in the EPA's *GHGI by State*.	*
Petrochemical Production	CO_2, CH_4	N	N	This source category is not included in SIT.	Δ
Production of Fluorochemicals Other than HCFC-22	HFCs, PFCs, SF_6, NF_3	N	N	This source category is not included in SIT.	Δ
HCFC-22 Production	HFC-23	P		Default production data is not available in SIT.	*
Non-EOR Carbon Dioxide Utilization	CO_2	N	N	This source category is not included in SIT.	Δ
Phosphoric Acid Production	CO_2	N	N	This source category is not included in SIT.	Δ

Iron and Steel Production & Metallurgical Coke Production	CO_2, CH_4	P	N	SIT includes data on total steel production from AISI for 1997-2010 (and proxies 2010 data through current year). Data is available for some states directly and some as groups of states. SIT averages production by type and across groups of states evenly. EPA's *GHGI by State* uses similar AISI data for 1990-2010 but allocates across groups of states based on Census data. For 2010-2023, EPA's *GHGI by State* uses GHGRP data to allocate including more detail on process types e.g., BOF/EAF split.	*
Ferroalloy Production	CO_2, CH_4	N	N	This source category is not included in SIT.	Δ
Aluminum Production	CO_2, CF_4, C_2F_6	P	N	Default data is not available in SIT for relevant States for all years. EPA's *GHGI by State* uses GHGRP data, and historical Voluntary aluminum Industry Partnership and production capacity to allocate to the states. The SIT is based on national averages of emission factors and technology type. The SIT does give the user the ability to import GHGRP data for 2010 and subsequent years of inventory time series; state emissions should be the same for 2010 and subsequent years of inventory time series if this feature is used.	*
Magnesium Production and Processing	CO_2, HFCs, SF_6	P	N	Default data is not available in SIT for all states for all years. The SIT is based on national averages of emission factors, magnesium production and technology type. EPA's *GHGI by State* uses GHGRP data, and historical data from the SF_6 Emission Reduction Partnership for the Magnesium Industry and are based on reported gas consumption. EPA's *GHGI by State* also includes process types that are not included in the SIT, including wrought, anode and permanent.	*(production data) Δ (process types)
Lead Production	CO_2	N	N	This source category is not included in SIT.	Δ
Zinc Production	CO_2	N	N	This source category is not included in SIT.	Δ

Electronics Industry	N_2O, HFCs, PFCs, SF_6, NF_3	Y	N	*EPA's GHGI by State* uses GHGRP data, historical PFC reduction partnership data, and production capacity data to develop national estimates and disaggregate to the state. The SIT uses the values of state and national semiconductor shipments.	*
Substitution of Ozone Depleting Substances	HFCs, PFCs	Y	Y	NA	NA
Electrical Transmission and Distribution	SF_6	Y	N	The EPA's *GHGI by State* uses transmission miles and GHGRP data to allocate to the states. The SIT uses state and national electricity sales.	*
SF_6 and PFCs from Other Product Use	SF_6, PFCs	N	N	This source category is not included in SIT.	Δ
N_2O from Product Uses	N_2O	N	N	This source category is not included in SIT.	Δ
Agriculture					
Enteric Fermentation	CH_4	Y	Y (SIT state-level emission factors are based on EPA's national *Inventory* outputs)	NA	NA
Manure Management	CH_4, N_2O	Y	Y (SIT simplifies waste management system categories into dry versus liquid)	NA	*

Rice Cultivation	CH_4	Y	N	For the *GHGI by State*, EPA implemented a combination of IPCC Tier 1 and Tier 3 approaches, utilizing the Daycent model to run Tier 3 components. Rice cultivation emissions are estimated for the 13 states who cultivate rice. The SIT simplifies the calculation between ratoon and primary area of rice, multiplied by a seasonal emission factor. The SIT estimates rice emissions for 8 states.	*
Liming	CO_2	Y	Y	NA	*
Urea Fertilization	CO_2	Y	Y	NA	NA
Field Burning of Agricultural Residues	CH_4, N_2O	Y	Y	Default data is not available in SIT for all crops for all years.	*
Agricultural Soil Management	N_2O	P	N	Default data is not available in SIT for all crops for all years. Agricultural Soil Management N_2O emissions from mineralization of soil organic matter is included in the Daycent estimates of N_2O emissions incorporated in EPA's *GHGI by State* but is not included as a source of Agricultural Soil Management N_2O emissions in SIT. For the *GHGI by State*, EPA implemented a combination of IPCC Tier 1 and Tier 3 approaches, utilizing the Daycent model to run Tier 3 components. SIT uses a version of the Tier 1 method for both Direct and Indirect N_2O emissions estimation.	*
Land Use, Land-Use Change, and Forestry					
Forest Land Remaining Forest Land (subcategories italicized below)	CO_2, CH_4, N_2O	See below	See below	See below	NA
Changes in Forest Carbon Stocks	CO_2	P	Y	SIT provides estimation for "Wood Products and Landfills". EPA's *GHGI by State* does not include data for harvested wood products at the state-level.	*

Non-CO_2 Emissions from Forest	CH_4, N_2O	*Y*	*P*	In EPA's *GHGI by State*, non-CO_2 emissions from forest fires includes emissions from both forest land remaining forest land and land converted to forest land because it is not possible to report them separately at this time. Default activity data (acres burned) is not available in SIT, states must enter this data to calculate emissions.	*
N_2O Emissions from Forest Soils	N_2O	N	N	These source and sink categories are not included in SIT. In EPA's *GHGI by State*, N_2O emissions from forest soils includes emissions from both forest land remaining forest land and land converted to forest land because it is not possible to report them separately at this time.	Δ
Non-CO_2 Emissions from Drained Organic Soils	*CH_4, N_2O*	N	N	These source and sink categories are not included in SIT. In EPA's *GHGI by State*, non-CO_2 emissions from drained organic soils includes emissions from both forest land remaining forest land and land converted to forest land because it is not possible to report them separately at this time.	Δ
Land Converted to Forest Land (subcategories italicized below)	CO_2	See below	See below	NA	NA
Changes in Forest Carbon Stocks	CO_2	Y	Y	NA	NA

Cropland Remaining Cropland	CO_2	Y	N	SIT aggregates changes in aboveground biomass, belowground biomass, deadwood, litter, soil mineral and soil organic carbon stocks from Cropland Remaining Cropland, Land Converted to Cropland, Grassland Remaining Grassland, and Land Remaining Grassland under the "Ag Soil C Flux" category in SIT. SIT sources default data for agricultural soil carbon flux from EPA's national-level *GHGI* and apportions agricultural soil carbon flux to each state based on the last year of available state-level data from the national *GHGI*. In the *GHGI by State*, EPA apportioned emissions to states based on the last three (3) years of available state data in line with the annual data available in the USDA National Resources Inventory (NRI).	NA
Changes in Mineral and Organic Soil Carbon Stocks	*CO_2*	Y	N		NA
Land Converted to Cropland (subcategories italicized below)	CO_2	Y	N		NA
Changes in all Ecosystem Carbon Stocks	*CO_2*	Y	N		NA
Grassland Remaining Grassland (subcategories italicized below)	CO_2, CH_4, N_2O,	Y	N		NA
Changes in Mineral and Organic Soil Carbon Stocks	CO_2	Y	N		NA
Non-CO_2 Emissions from Grassland Fires	CH_4, N_2O	N	*N*		Δ
Land Converted to Grassland (subcategories italicized below)	CO_2	Y	N		NA

Changes in All Ecosystem Carbon Stocks	CO_2	Y	N		NA
Wetlands Remaining Wetlands (subcategories italicized below)	CO_2, CH_4, N_2O	See below	See below	These source and sink categories are not included in SIT. SIT currently offers an "Additional Emission Sources" tab where a user can enter any additional emissions sources they would like to include in their inventory.	Δ
Changes in Organic Soil Carbon Stocks in Peatlands	CO_2,	N	N		
Changes in Biomass, DOM, and Soil Carbon Stocks in Coastal Wetlands	CO_2,	N	N		
CH_4 Emissions from Coastal Wetland Remaining Coastal Wetlands	CH_4	N	N		
N_2O Emissions from Coastal Wetlands Remaining Coastal Wetlands	N_2O	N	N		
Non-CO_2 Emissions from Peatlands Remaining Peatlands	CH_4, N_2O	N	N		
Flooded Land remaining Flooded Land	CH_4	N	N		
Land Converted to Wetlands (subcategories italicized below)	CO_2, CH_4	See below	See below	Carbon flux from Forest Land Converted to Wetlands was added to sit in June 2023. However, the carbon flux from other land uses converted to wetlands is not included in SIT due to lack of default data.	Δ
Changes in Biomass, DOM, and Soil Carbon Stocks	CO_2	N	N	N	
CH_4 Emissions from Land Converted to Coastal Wetlands CH_4	CH_4	N	N	N	

Lands converted to Flooded Lands	CH_4, CO_2	N			
Settlements Remaining Settlements (subcategories italicized below)	CO_2, N_2O	See below	See below	See below.	See below
Changes in Organic Soil Carbon Stocks	CO_2	N	N	These source and sink categories are not included in SIT.	Δ
Changes in Settlement Tree Carbon Stocks (i.e., urban trees)	CO_2	Y	N	SIT uses default urban area data multiplied by a state-specific estimate of the percent of urban area with tree cover to estimate the total area of urban tree cover. This default data, from Nowak et al. 2005, Nowak and Greenfield 2012, Nowak and Greenfield 2018, and the U.S. Census, represents urban area tree coverage for years 1990, 2000, 2010, and 2020. Estimates of urban area in the intervening years (1990-1999; 2001-2009; 2011-2019) and subsequent years (2021) are interpolated and extrapolated, respectively. State-specific net carbon sequestration rates are taken from Nowak et al. 2013 and multiplied by urban area to calculate CO_2 flux. The EPA *GHGI by State* methods and data are consistent EPA's national-level *GHGI*, as national estimates are built from the state level and estimated by the U.S. Forest Service.	NA
Changes in Yard Trimming and Food Scrap Carbon Stocks in Landfills (LFYTFS)	CO_2	Y	Y	NA	NA

N_2O Emissions from Settlement Soils	N_2O	Y	N	For N_2O emissions from Settlement Soils, SIT calculation is based on the Total Synthetic Fertilizer Applied to Settlements. EPA's *GHGI by State* is based on the amount of N in synthetic commercial fertilizers applied to settlement soils, the amount of N in biosolids applied to non-agricultural land and surface disposal, and the area of drained organic soils within settlements. EPA apportioned state emissions based on the last three (3) years of available state data in line with the annual data available in the USDA National Resources Inventory (NRI).	*
Land Converted to Settlements (subcategories italicized below)	CO_2	See below	See below	These source and sink categories are not included in SIT.	Δ
Changes in all Ecosystem Carbon Stocks	*CO_2*	N	N		

Waste					
Landfills (municipal and industrial)	CH_4,	P	N	Municipal: SIT default data are based on national landfilling rates and state population. EPA's *GHGI by State* uses GHGRP data that is scaled up to account for non-reporting landfills. To calculate methane emissions from landfills, SIT relies on a first order decay (FOD) model to estimate emissions. In the FOD model, the CH_4 emission rate is a function of the quantity of waste deposited in landfills (in short tons) over the previous 30 years. EPA's national-level *GHGI* uses both the FOD method, as well as a back-calculation method that is based on directly measured amounts of recovered CH_4 from landfills and reported to GHGRP, which contributes to slight differences in emissions estimates between EPA's *GHGI by State* and SIT. Industrial: SIT uses a percent of MSW emissions to estimate industrial landfill emissions (default is 7%). EPA's *GHGI by State* uses production volumes of pulp & paper, fruit & vegetables, and meat which is multiplied by a country and sector specific disposal factor and then used to calculate CH_4 emissions.	*

Wastewater Treatment and Discharge (domestic and industrial)	CH_4, N_2O	P	Y	Note: EPA's national-level *GHGI* wastewater treatment and discharge emissions are estimated using 2019 Refinement to the 2006 IPCC Guidelines, which includes refined methods and emission factors, and now includes not only CH_4 but also N_2O emissions from Industrial wastewater treatment. EPA's national-level *GHGI* and *GHGI by State* also include many updated default values for domestic and industrial wastewater treatment and discharge activities. SIT pulls emissions factors for the Wastewater module from EPA's national-level *GHGI* where applicable. Domestic: EPA's *GHGI by State* downscales national-level *GHGI* estimates by state-level population or share of U.S. population and percent of population on septic systems. It also includes CH_4 and N_2O emissions from the discharge of wastewater effluent from centralized systems, which is not included in the SIT. Industrial: SIT default data is not available for all industrial sources. EPA's *GHGI by State* allocates national-level *GHGI* emissions for each industry based on state share of national production (or wastewater flow for pulp and paper). The *GHGI by State* includes additional industrial wastewater sources, i.e., CH_4 emissions were also estimated for treating industrial wastewater from starch-based ethanol production, petroleum refining, and breweries; and N_2O emissions were also estimated for pulp and paper, red meat, and poultry processing, petroleum refining, and breweries.	P,*
Composting	CH_4, N_2O	N	NA	This source category is not included in SIT.	Δ
Anerobic Digestion at Biogas Facilities	CH_4	N	NA	This source category is not included in SIT.	Δ

Key for Table Notations and Formatting

Italicized rows within Table 2 indicate a subcategory.

P (Partial): Indicates a source is partially included in SIT, i.e., some but not all emissions within that source can be estimated by the tool and/or default activity data is missing or incomplete.

*: CGS is exploring potential to use CGS's recently published ***GHGIA by State*** estimates to improve default data. States using the tool can opt to use ***GHGIA by State*** data or estimate using updated state-specific data if available.

Δ: CGS is evaluating adding this source to SIT. In the interim, we recommend states manually add totals from the ***Inventory by State*** to SIT as "other."

For more information on the publications mentioned above, please visit the following links:

- FOIA'd DRAFT *Inventory of U.S. Greenhouse Gas Emissions and Sinks by State: 1990-2023* is available online at https://www.edf.org/freedom-information-act-documents-epas-greenhouse-gas-inventory?tab=complete_report
- FOIA'd *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2023* is available online at https://www.edf.org/freedom-information-act-documents-epas-greenhouse-gas-inventory?tab=complete_report
- CGS's 2026 State Inventory Tool (SIT) is available online at https://ghgi.cgs.umd.edu/data-tools.html