VILLAGE OF VALATIE
2022 COMMUNITY GREENHOUSE GAS INVENTORY SUMMARY REPORT

COMPILED ON NOVEMBER 3, 2025

CREDITS AND ACKNOWLEDGEMENTS

This report was prepared by The Capital District Regional Planning Commission, with the support of Donna Weldon, Chair of the Climate Smart Task Force.

This Community Greenhouse Gas (GHG) Inventory draws on the 2022 Regional GHG Inventory developed in 2025 by the Capital District Regional Planning Commission (CDRPC) and Climate Action Associates LLC.

BACKGROUND

The Village of Valatie recognizes that human-caused greenhouse gas (GHG) emissions drive climate change, threatening our community's health and safety. To address this, Village of Valatie adopted the New York State Climate Smart Communities (CSC) pledge on November 18, 2015.

The CSC program, administered by the New York State Department of Environmental Conservation (DEC), supports local governments in reducing emissions and adapting to climate impacts. As part of this effort, the Village of Valatie completed a government operations GHG inventory for the years 2019-2021.

Building on this, the 2022 Community Greenhouse Gas Inventory establishes a baseline for all emissions across sectors including transportation, buildings, electricity, agriculture, industry, and waste. This baseline will guide emission reduction targets and a Community Climate Action Plan.

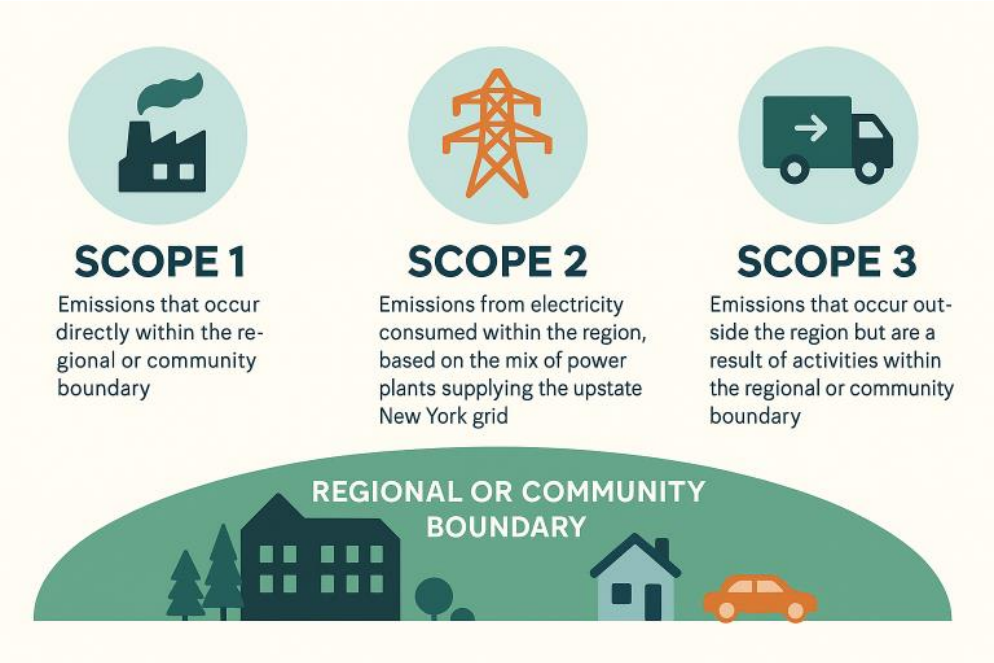
DATA GATHERING AND METHODOLOGY

This inventory report presents an accounting and analysis of GHG emissions within the geographic boundary of the Village. It draws on the 2022 Regional Greenhouse Gas Inventory developed by the Capital District Regional Planning Commission (CDRPC)[1], which quantifies emissions across these sectors in metric tons of carbon dioxide equivalents (MTCO2e). Emission

[1] https://cdrpc.org/greenhouse-gas-inventories-dashboards

estimates rely on methodologies and emissions factors developed by the U.S. Energy Information Administration (EIA), U.S. Environmental Protection Agency (EPA), and Climate Action Associates (CAA), LLC. The full methodology for this inventory can be found in the *2022 GHG Regional Inventory Methods Report*.[2]

EMISSIONS SCOPES



The inventory includes Scope 1, Scope 2, and selected Scope 3 emissions, as available in the regional dataset.

GHG EMISSIONS ACCOUNTING FRAMEWORK

GHG Sector	**Description**
Built Environment	All Energy-related emissions in the residential, commercial, industrial, and power generation Sectors
Transportation	Emissions from transportation-related fuels in all on-road and off-road vehicles and equipment across all modes of travel (road, rail, marine, and air)
Waste	Both solid waste and wastewater-related emissions.

[2] https://cdrpc.org/wp-content/uploads/2025/04/2022-GHG-Inventory-Methods-Report-Final.pdf

Industry & Refrigerants	Non-energy related GHG emissions from using GHGs as products (like refrigerants), or from industrial processes that create emissions as a non-combustion byproduct.
Agriculture	Agricultural emissions from livestock and soil practices, and emissions removals or emissions from land uses including forests and urban trees.

BASELINE YEAR

This inventory uses 2022 as the baseline year, consistent with the data used in CDRPC's regional inventory.

QUANTIFICATION METHODS

GHG emissions are calculated using a calculation-based approach, in which emissions are estimated using activity data and published emissions factors:

Activity Data x Emissions Factor (Fuel, GHG) = GHG Emissions (Fuel, GHG)

Activity data refers to actual energy consumption or process data such as:

- Annual electricity consumption (kWh)
- Natural gas usage (therms)
- Fuel consumption (gallons of gasoline, diesel, propane, heating oil)
- Vehicle miles traveled
- Solid waste tonnage

EMISSIONS FACTORS

Each GHG and fuel type has a distinct emissions factor used to convert activity data into emissions:

- Electricity: 2022 EPA Emissions and Generation Resources Integrated Database (EGRID) grid-average emission factor for the upstate New York region[3]

[3] https://www.epa.gov/egrid/historical-egrid-data

- Fuels (natural gas, propane, heating oil/diesel, gasoline): EIA Carbon Dioxide Emissions Coefficients by Fuel[4]

All emissions are expressed in metric tons of carbon dioxide equivalents ($MTCO_2e$), accounting for carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), using 100-year Global Warming Potential (GWP) factors from the Intergovernmental Panel on Climate Change (IPCC).

DATA SOURCES

The inventory draws on the following data sources by sector. Detailed methodology and data usage are outlined in the *2022 GHG Regional Inventory Methods Report*.

- Built Environment
    - 2022 Utility Energy Registry (UER)[5]
    - *U.S. Energy Information Administration - EIA - Independent Statistics And Analysis* DOE State Energy Data System (SEDS)[6]
    - American Community Survey (ACS) 2022[7]
    - EPA's Mandatory Greenhouse Gas Reporting Rule (MMR)[8], EPA Title V Air Quality Program[9], and EIA Form 923 – Electric Utility Generation Reporting[10]
- Industry & Refrigerants
    - Product use per capita emissions derived from the 2022 New York State Greenhouse Gas Inventory – NYSDEC[11]
    - EPA's Mandatory Greenhouse Gas Reporting Rule (MMR), EPA Title V Air Quality Program, and EIA Form 923 – Electric Utility Generation Reporting
- Waste
    - EPA's Mandatory Greenhouse Gas Reporting – Waste Sector[12]

[4] https://www.eia.gov/environment/emissions/co2_vol_mass.php
[5] publish.utilityregistry.org/app/#.
[6] www.eia.gov/state/seds.
[7] https://www.census.gov/programs-surveys/acs/
[8] https://www.epa.gov/ghgreporting
[9] https://www.epa.gov/title-v-operating-permits
[10] https://www.eia.gov/electricity/data/eia923/
[11] https://www.dec.ny.gov/energy/99223.html
[12] https://www.epa.gov/ghgreporting/waste

    - Per capita waste generation number from the updated 2023 New York State Solid Waste Plan – *Building the Circular Economy through Sustainable Materials Management*[13]

- Transportation
    - NYSDOT Traffic Data (VMT) at a county level[14]
    - Federal Highway Administration – Highway Statistics Series[15]
    - US EPA – 2020 National Emissions Inventory (NEI)[16]
    - EPA Motor Vehicle Emissions Simulator (MOVES)[17]
    - Federal Aviation Administration – Flight Miles / Trends[18]
- Agriculture
    - EPA State Inventory Tool (SIT)[19]
    - USDA National Agricultural Statistics Survey (NASS)[20]

Additionally, comparison data was drawn from the Capital District 2010 Regional GHG Inventory.[21]

VILLAGE OF VALATIE INVENTORY RESULTS

This section of the report provides a detailed profile of emissions sources within the community boundary of the Village of Valatie. This data will also provide a baseline from which the Village will be able to compare future performance and demonstrate progress in reducing emissions.

In 2022, community-wide greenhouse gas (GHG) emissions in Village of Valatie totaled 8,666 metric tons of carbon dioxide equivalent ($MTCO_2e$). For the purpose of developing targeted emissions reduction strategies, it is often most effective to analyze emissions by sector, as each sector presents unique opportunities and approaches for reducing GHG emissions.

[13] https://www.dec.ny.gov/chemical/114499.html
[14] https://www.dot.ny.gov/divisions/engineering/technical-services/highway-data-services/information-system
[15] https://www.fhwa.dot.gov/policyinformation/statistics.cfm
[16] https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data
[17] https://www.epa.gov/moves
[18] https://www.faa.gov/data_research/aviation_data_statistics
[19] https://www.epa.gov/statelocalenergy/state-inventory-and-projection-tool
[20] https://www.nass.usda.gov/
[21] https://cdrpc.org/data/2010-ghg-inventory

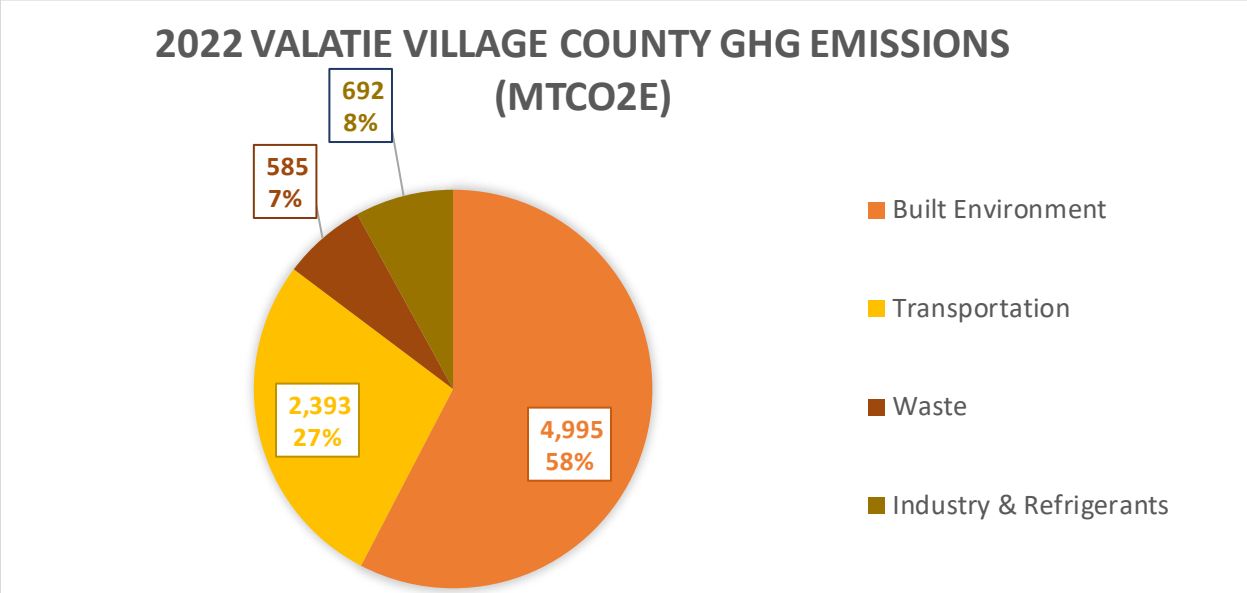


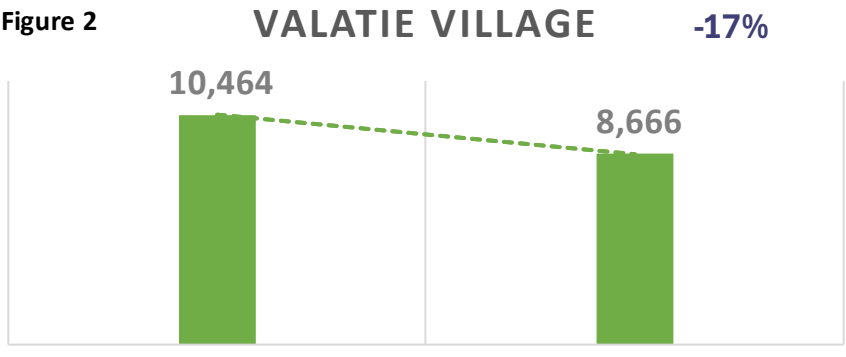
Figure 1

Figure 1 demonstrates the Built Environment is the largest contributor to community-wide GHG emissions, accounting for 58% of total emissions. The second largest contributor is Transportation responsible for 27% of emissions. The remaining emissions are distributed across other sectors, including Waste (7%) and Industry & Refrigerants (8%) each contributing a smaller share to the overall total. There were no noted Agricultural emissions.

The Village's per-capita emissions were 4.9 metric tons of carbon dioxide equivalent ($MTCO_2e$) per person, based on the 2020 Census population of 1,785. This is much lower than the per-capita emissions of 13.1 $MTCO_2e$ per person for the entire Capital Region. The village's lower per capita emissions likely result from higher density, shorter travel distances, and minimal industrial or agricultural activity compared to the broader region.

Looking at the 2010 Community GHG Gas Inventory, total emissions have decreased by 17%, primarily driven by reductions in residential energy use. This is demonstrated in *Figures 2* and *3.*

Figure 2



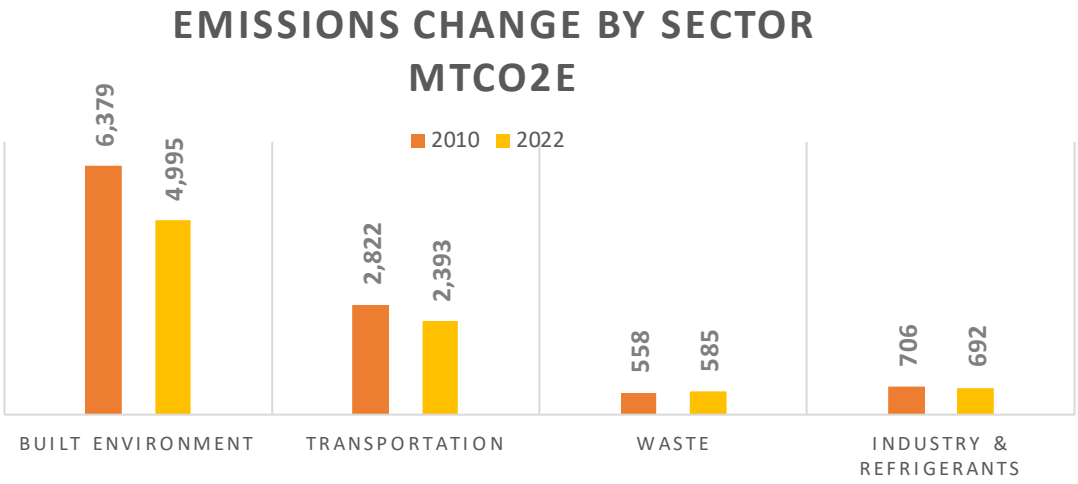


Figure 3

The full dataset, including breakdowns of the sectors and sources for village data, can be explored on CDRPC's Greenhouse Gas Inventories Dashboard: https://cdrpc.org/greenhouse-gas-inventories-dashboards .

OPPORTUNITIES TO REDUCE GREENHOUSE GASES

Establishing a comprehensive GHG emissions baseline empowers the Village of Valatie to set informed goals and measurable targets for future reductions. With this foundation, the Village can strategically plan and implement actions that address its most significant sources of emissions.

Progress to Date: Valatie has already taken meaningful steps toward reducing emissions, including:

- Upgrading municipal buildings for energy efficiency and heat pump technology
- Converting streetlighting to LED technology
- Promoting electric vehicle (EV) adoption communitywide
- Hosting a community energy literacy workshop

Next Steps: To build on this momentum, the Village should:

- Set clear, community-wide emissions reduction targets
- Complete building energy efficiency upgrades further with heat pumps and insulation
- Develop a detailed Community Climate Action Plan that outlines specific, quantifiable strategies
- Continue monitoring key energy and emissions indicators to track progress

Priority Focus Areas: Based on the inventory findings, the most impactful areas for future action are:

- **Built Environment**: Enhance energy efficiency in residential, commercial, and municipal buildings; expand renewable energy generation and usage.
- **Transportation**: Improve fuel efficiency in municipal fleets; support EV infrastructure and adoption; encourage low-carbon mobility options.

By focusing on these sectors, the Village of Valatie can make significant strides toward a more sustainable, climate-resilient future.