Village of Valatie
Greenhouse Gas Inventory for Gov Martin H. Glynn Municipal Building ernment Operations
2019-2021 Summary Report
Report Updated July 2025

BACKGROUND

On November 10, 2015, the Village of Valatie Board approved a resolution to join the Climate Smart Communities (CSC) program, including the establishment of a Climate Smart Task Force to lead this initiative. One key action item within the CSC certification process is **PE2: Government Operations GHG Inventory**.

This **Government Operations GHG Inventory Report** summarizes greenhouse gas emissions resulting from the Village's energy and material consumption across village-owned buildings, vehicle fleets, and outdoor lighting. Developing this inventory represents a foundational step toward meaningful climate action, enabling the Village to create a Climate Action Plan (CAP), set achievable goals, and track progress in reducing operational costs, energy consumption, and GHG emissions.

DATA GATHERING AND METHODOLOGY

The Village's CSC Task Force appointed CSC Task Force Chair Meg Todisco and Village Code Enforcement Officer Stephanie Caradine-Ruchel to lead the GHG Inventory data collection effort, with the help of Capital District Regional Planning Commission (CDRPC) Sustainability Planner Tara Donadio. The GHG Inventory spreadsheet used was developed by Climate Action Associates, LLC (CAA). The inventory methodology follows the Local Government Operations Protocol (LGOP, 2010) to ensure standardized, transparent, and credible accounting of emissions.[1]

This inventory includes **Scope 1** and **Scope 2** greenhouse gas emissions from Village government operations, defined as follows:

- **Scope 1:** All direct GHG emissions from government-owned vehicles and on-site fuel combustion (gasoline, diesel, propane, and fuel oil) for facilities including the Town/Village Hall, Wastewater Treatment Plant, Senior Center, and Firehouse, process emissions from wastewater treatment facilities, and refrigerant leakage.

[1] https://icleiusa.org/resources/local-government-operations-lgo-protocol/

- **Scope 2:** Indirect GHG emissions from purchased electricity.

The optional **Scope 3** emissions, which include other indirect sources such as Village employee commuting and waste disposal, are not included. Given Valatie's small size, emissions from this scope are likely negligible (a fraction of a percent), and the effort required to collect this data is not justified. Scope 3 is an optional category within the New York State Department of Environmental Conservation's Climate Smart Communities (CSC) Program.[2]

BASELINE YEAR SELECTION

Selecting a baseline year is critical for meaningful GHG inventory development. Local governments typically choose a year with the most complete and accurate data for all key emission sources. It is preferable that this year be several years in the past to reflect the emissions benefits of recent energy actions.

For this inventory, data from 2019 to 2021 were collected and averaged to establish a baseline. Because some Village facilities operated at reduced capacity or were closed during 2020 and 2021 due to the COVID-19 pandemic, relying solely on these years could underrepresent typical energy use and emissions.

QUANTIFICATION METHODOLOGY

GHG emissions were quantified using a **calculation-based methodology** that multiplies activity data by emissions factors:

$$Activity\ Data \times Emissions\ Factor_{(Fuel,\ GHG)} = GHG\ Emissions_{(Fuel,\ GHG)}$$

Activity Data includes energy use metrics such as fuel consumption by type, metered electricity consumption, and vehicle miles traveled.

EMISSIONS FACTORS

Emission factors vary by greenhouse gas and fuel type:

- Electricity emission factors are based on EPA's eGRID data for the NYUP (Upstate New York) subregion, using the 2021 vintage[3].
- Emission factors for propane, heating oil/diesel, and gasoline are drawn from the EIA's carbon dioxide emissions coefficients database.[4]

All GHG emissions are expressed in metric tons of carbon dioxide equivalent (CO_2e).

[2] https://climatesmart.ny.gov/actions-certification/actions/#open/action/6
[3] https://www.epa.gov/egrid
[4] https://www.eia.gov/environment/emissions/co2_vol_mass.php

FACILITIES MASTER LIST

A foundational step in the GHG inventory was compiling a master list of Village facilities that consume energy. This comprehensive list includes municipal buildings and streetlights, each categorized by infrastructure type to facilitate grouping similar facilities and aggregating their energy consumption for detailed analysis.

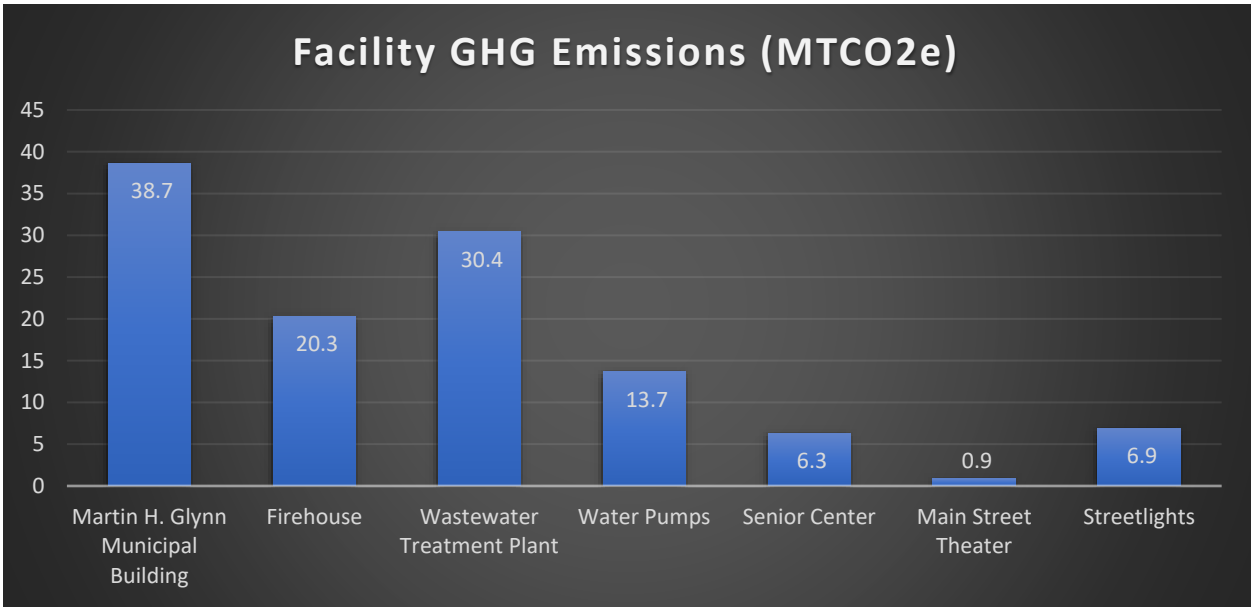
Note that the Martin H. Glynn Municipal Building, which houses both Village and Town offices, is not owned by the Village of Valatie. As such, the Village does not have the authority to conduct energy audits or implement upgrades for this facility. Responsibility for improvements at that location lies with the Town. However, because the Village pays for 32% of the building's energy costs as a tenant, we have included the facility in our greenhouse gas emissions inventory to accurately reflect municipal energy use and associated emissions.

The table below identifies the Village buildings and their respective energy providers included in the Valatie GHG Inventory:

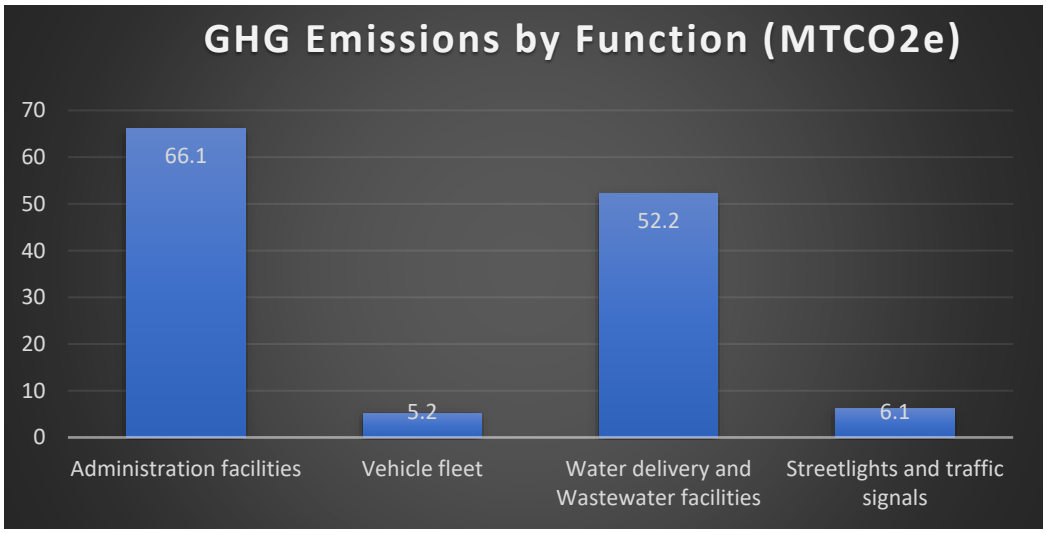
Village Building	Energy Providers
Firehouse	NATIONAL GRID, Main Care
Main Street Theater	NATIONAL GRID
Senior Center	NATIONAL GRID, Kosco Heritage/ Paraco
Streetlights	NATIONAL GRID
Martin H. Glynn Municipal Building	NATIONAL GRID, Main Care
Water Pumps	NATIONAL GRID
Wastewater Treatment Plant	NATIONAL GRID

KEY FINDINGS

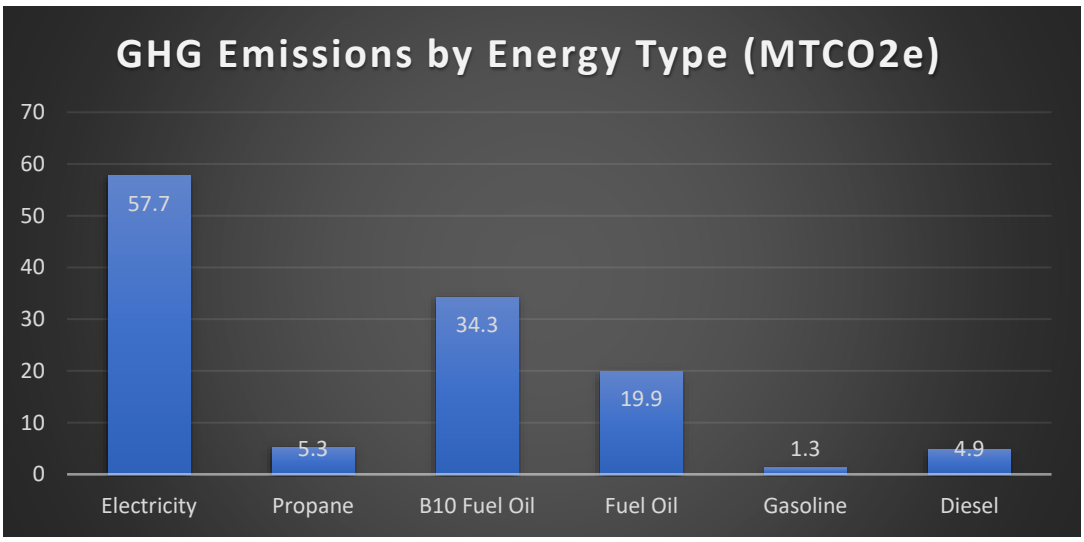
From 2019 to 2021, the Village of Valatie's municipal operations produced an average of **129.68 tons of greenhouse gas (GHG) emissions annually**. The largest energy user and primary source of GHG emissions is the Administrative Facilities sector, which accounts for an average of 66.1 tons per year—representing 51% of the Village's total municipal emissions. Within this sector, the Martin H. Glynn Municipal Building is the highest energy-consuming facility, averaging 38.7 tons of GHG emissions annually.



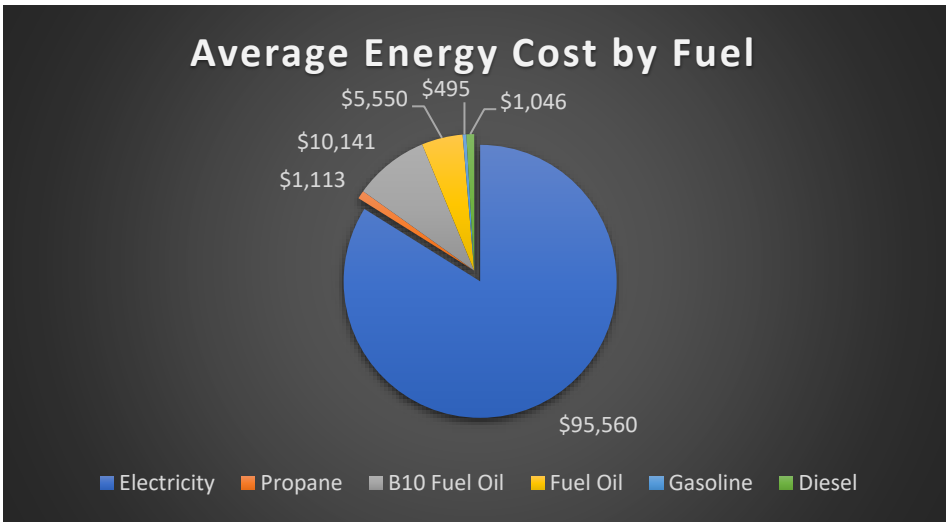
The Village's vehicle fleets produce an average of 6 tons of GHG emissions annually, with gasoline-powered vehicles accounting for 1.4 tons and diesel-powered vehicles for 4.7 tons. Water and wastewater facilities, including water pumps, contribute an average of 52.2 tons of emissions per year. This figure includes nitrous oxide (N_2O) emissions from wastewater treatment processes. The chart below compares emissions from vehicle fleets and water/sewer facilities to those of other municipal functions.



Electricity is the largest contributor to the Village's greenhouse gas emissions, accounting for approximately 46.8% of total emissions. The chart below illustrates the breakdown of GHG emissions by energy type.

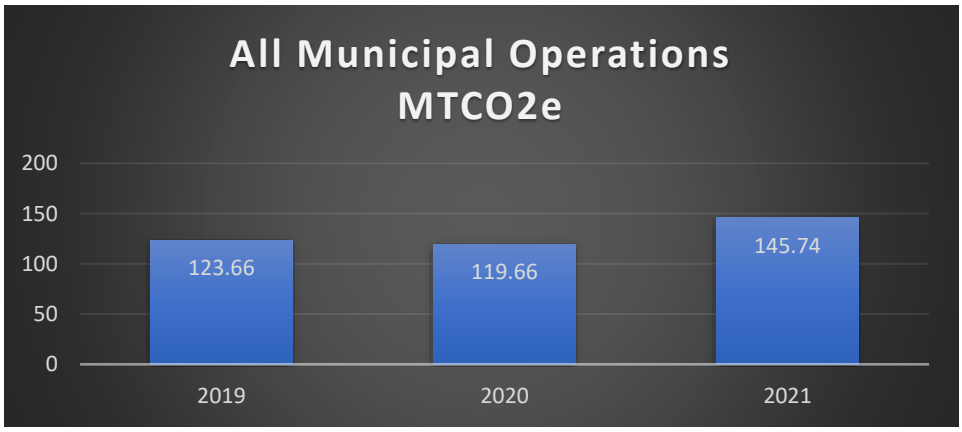


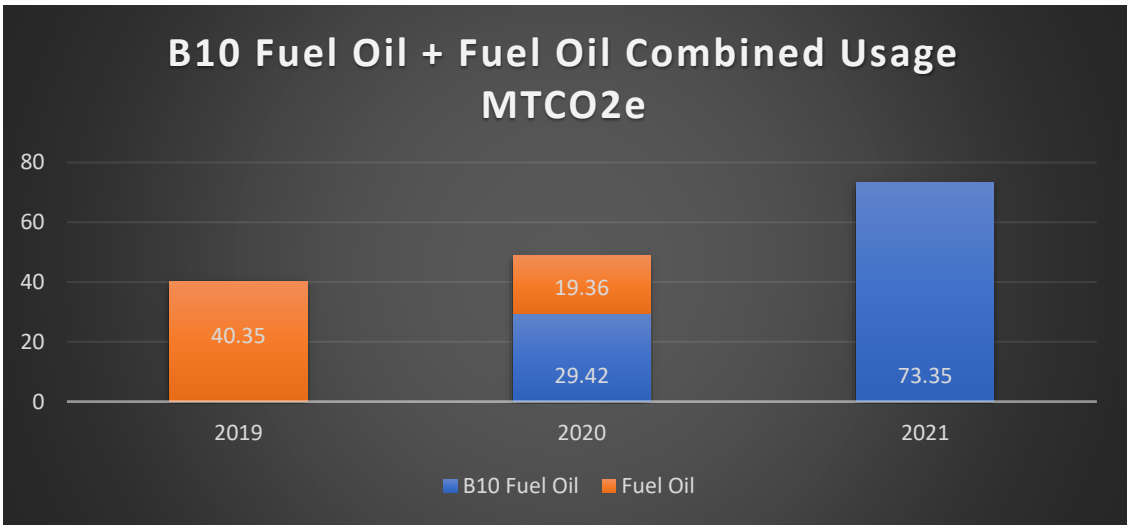
The Village spends an average of $113,905 annually on energy for its facilities and operations. Electricity accounts for the largest portion of this expenditure, contributing approximately 84% of the total energy costs, significantly outweighing expenses for fuel oil, propane, gasoline, and diesel. The breakdown of average annual energy costs by source is illustrated in the pie chart below.

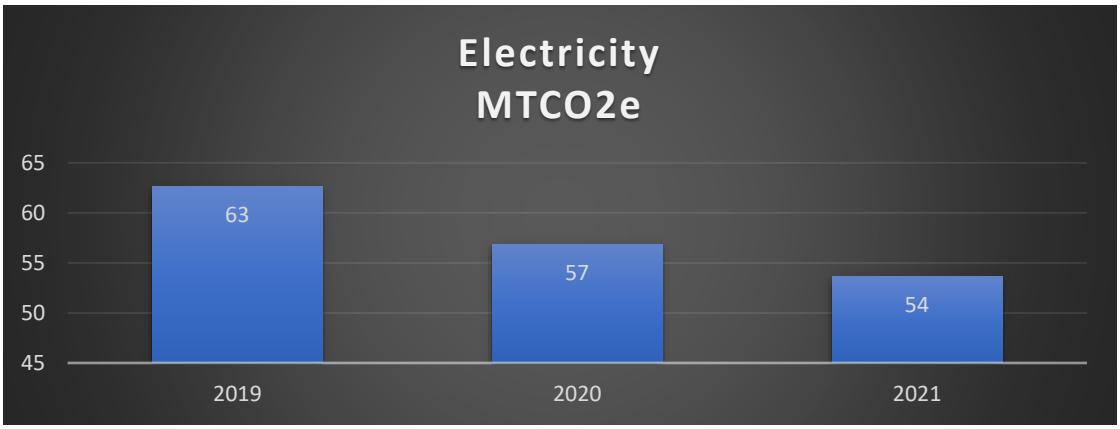


The Village's municipal GHG emissions were estimated at 117.8 metric tons CO_2e in 2019, 114.3 tons in 2020, and 137.6 tons in 2021. While there was a slight decrease from 2019 to 2020, emissions increased notably in 2021. This rise is primarily attributed to the Administrative Facilities sector, which saw emissions increase from 55.3 tons in 2019 to 84.1 tons in 2021.

The increase in emissions from administrative buildings is largely due to a rise in fuel oil consumption. Electricity usage across these facilities remained steady or declined during this period, suggesting that the change in fuel use—rather than electricity demand—is the main driver of the emissions increase.







ACCOMPLISHMENTS AND FURTHER OPPORTUNITIES TO REDUCE GREENHOUSE GASES

Establishing a GHG emissions baseline enables the Village to set measurable goals and targets for future emissions reductions. The Village has already taken several proactive steps to reduce both GHG emissions and energy costs.

In 2020, the lighting in the Martin H. Glynn Municipal Building was retrofitted with energy-efficient LED lighting, funded through a NYSERDA Clean Energy Communities (CEC) grant awarded to the Town. Since then, all other municipal buildings have also been upgraded to LED lighting. In 2021, the Village completed a full conversion of its streetlights to LEDs, further enhancing energy efficiency.

Significant upgrades have also been made to major facilities. The firehouse and wastewater treatment plant have both been converted to high-efficiency heat pump systems in 2025, with the wastewater treatment plant receiving additional energy efficiency improvements.

Beyond electricity, the majority of the Village's GHG emissions come from fuel sources such as propane and fuel oil. Therefore, transitioning the Martin H. Glynn Municipal Building to a heat pump system presents the next major opportunity to significantly reduce emissions by electrifying heating. This shift from on-site fuel combustion (Scope 1 emissions) to electricity use (Scope 2 emissions) also enables the Village to offset its emissions through renewable electricity sources, such as expanded on-site solar arrays or participation in community solar programs.

While vehicle emissions make up a relatively small share of the Village's total GHG footprint compared to buildings, the Village recognizes the long-term importance of fleet electrification, especially as New York State moves toward phasing out internal combustion vehicles by 2035.

Looking ahead, the Village is preparing to update this inventory with more recent data to understand how recent upgrades have impacted emissions, and then undertake Climate Action Planning as a critical next step. This planning process will help establish clear emissions reduction targets and identify strategies and funding opportunities to achieve them.