Town of Gallatin
Greenhouse Gas Inventory for Government Operations
2021-2023 Summary Report

Background

The Town of Gallatin recognizes that greenhouse gas (GHG) emissions from human activity are causing climate change, the consequences of which pose substantial risks to our community's future health and well-being. To demonstrate its commitment to addressing the growing threat of climate change, the Town of Gallatin became a registered Climate Smart Community by formally adopting the New York State Climate Smart Communities (CSC) pledge in March 2023.

The CSC program, administered by the New York State Department of Environmental Conservation (DEC), is a certification program that provides a robust framework to guide the actions local governments can take to reduce GHG emissions and adapt to the effects of climate change. The first step in this process is to perform a GHG Inventory for all buildings, vehicles, and operations controlled by the local government. Using data from 2021 - 2023, this GHG inventory provides a baseline from which the Town can set emissions and operation costs reduction goals, determine how those goals can be reached, and track progress.

This GHG Inventory for Government Operations Report summarizes the GHG emissions from the Town of Gallatin's consumption of energy and materials within town-owned buildings and the vehicle fleet. The Town does not have streetlights or a wastewater treatment facility. This data was generated from energy bills for all Town-owned buildings and operations and fuel records for the Town vehicle fleet. The GHG emissions for all local government operations are measured in metric tons of CO2 equivalents (CO2e) and were calculated using emissions factors by the US Energy Information Administration (EIA), US Environmental Protection Agency (EPA), and the Climate Action Associates (CAA), LLC's GHG Inventory Tool.

Tara Silberberg and Carol Smillie, CSC Task Force members, and Lisa DeLeeuw, Gallatin Town Clerk, collected data for the municipal greenhouse gas inventory.

Data gathering and methodology

The first step toward achieving tangible greenhouse gas emission reductions requires identifying baseline emissions levels and sources and activities generating emissions in the community. The Town of Gallatin is focusing first on government operations emissions to lead by example and will inventory community-wide emissions in a future report.

The Town received technical support in developing the municipal GHG inventory from Haley Balcanoff from the Capital District Regional Planning Commission (CDRPC). The GHG Inventory tool used was developed by Climate Action Associates, LLC.

Emissions Scopes

For the government operations inventory, emissions are categorized by scope. Using the scopes framework helps prevent double-counting. There are three emissions scopes for government operations emissions, as defined below:

- **Scope 1**: All direct emissions from a facility or piece of equipment operated by the local government, usually through fuel (diesel, gasoline, propane, and fuel oil) combustion. Examples include emissions from fuel consumed by the Town's vehicle fleet and emissions from a furnace in a municipal building.
- **Scope 2**: Indirect GHG emissions from purchased electricity. This refers to operations powered by grid electricity.
- **Scope 3**: All other indirect GHG emissions not covered in scope 2. Examples include contracted services, emissions in goods purchased by the local government, and emissions associated with the disposal of government-generated waste.

This inventory only accounts for Scope 1 and 2 emissions, as they are the most essential components of a government's operations greenhouse gas analysis and are most easily affected by local policy making.

Refrigerants are not included in this inventory, as requirements for registration of emissions are not required by the NYS law for users below 50 lbs of refrigerant.

Baseline Year

The inventory process requires the selection of a baseline year. Local governments examine the range of data they have over time and select a year that has the most accurate and complete data for all key emission sources. It is also preferable to establish a base year several years in the past to be able to account for the emissions benefits of recent actions. A local government's emissions inventory should comprise all greenhouse gas emissions occurring during the selected baseline year.

The Town of Gallatin's greenhouse gas inventory establishes a baseline from the average of years 2021, 2022 and 2023. The reason for analyzing the data over several years is to smooth anomalies and identify trends.

Quantification Methods

Greenhouse gas emissions in this inventory are quantified using calculation-based methodologies. Calculation-based methodologies calculate emissions using activity data and emissions factors. To calculate emissions accordingly, the basic equation is used:

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

Activity data refer to the relevant measurement of energy use or other greenhouse gas-generating processes, such as fuel consumption by fuel type and metered annual electricity consumption. To obtain this data, the Town gathered and reviewed all energy bills for the Town's accounts, as well as fuel records for gasoline and diesel used to power the Town's vehicle fleet.

Calculations for this inventory were made using CAA's GHG Inventory Tool. Data was first measured in kWh for grid electricity, therms for natural gas, and gallons for gasoline, fuel oil, diesel, and propane. Using the CAA tool, this data was multiplied by emission factors published by the EPA and EIA to convert the energy usage or other activity data into quantified emissions.

Emissions Factors

Each GHG has an emission factor unique to each fuel. The electricity emission factor is based on the EPA eGRID subregion, which for Gallatin is NYUP (Upstate). The propane, heating oil/diesel, and gasoline emissions factors are taken from the EIA database on carbon dioxide emissions coefficients. The GHG emissions in this inventory are measured in metric tons of CO2 equivalents (CO2e).

List of Facilities with Associated Energy Sources and Providers

Facility Name	Address	Vendor/Provider	Energy Source	Units
Highway Garage	3282 County Routes 8 & 11 Ancram, NY 12502	National Grid	Electricity	kWh
Highway Garage	3282 County Routes 8 & 11 Ancram, NY 12502	Nolan Propane	Propane	Gallons
Town Court	1643 Jackson Corners Road Red Hook, NY 12571	Central Hudson	Electricity	kWh
Town Court	1643 Jackson Corners Road Red Hook, NY 12571	Nolan Propane	Propane	Gallons
Town Hall	Rt 7 Pine Plains NY	Central Hudson	Electricity	kWh
Town Hall	667 County Route 7	MainCare Energy	Fuel Oil	Gallons
Vehicle Fleet	3282 County Routes 8 & 11 Ancram, NY 12502	MainCare & Valley Energy	Gasoline	Gallons
Vehicle Fleet	3282 County Routes 8 & 11 Ancram, NY 12502	MainCare & Valley Energy	Diesel	Gallons

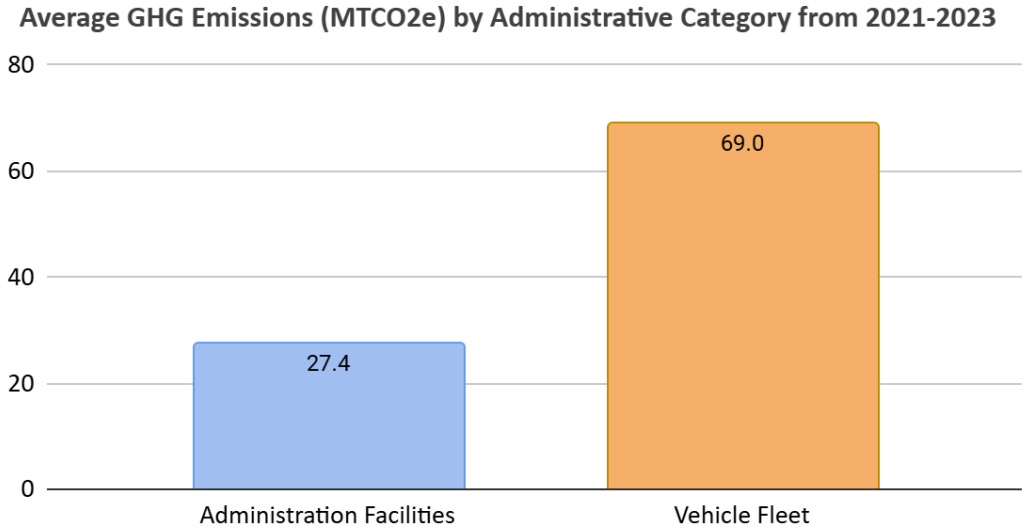
A key step in creating the GHG inventory is to compile a facility master list that includes the Town's three buildings that use at least one form of energy. Each was assigned to a category to indicate the type of infrastructure and then similar facilities, along with their energy use.

KEY FINDINGS

The average GHG emissions from the Town of Gallatin's government operations from 2021-2023 was **96.3 CO_2e**.

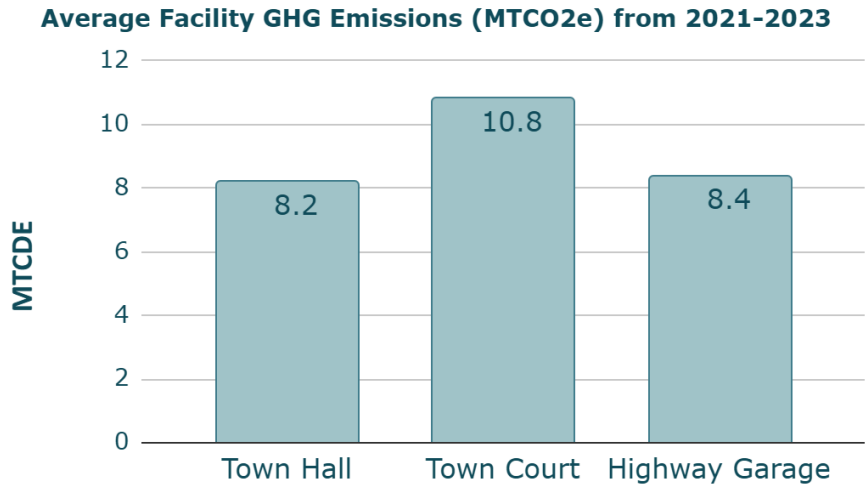
	GHG Emissions (MTCO2e)			
	Year 2021	Year 2022	Year 2023	**Average**
All Municipal Operations	94.82	101.04	93.12	**96.3**

For developing emissions reduction policies, it is often most useful to look at emissions broken down by administrative category, as each will have a particular set of strategies to reduce emissions. For Gallatin, there are only two administrative categories: Administrative Facilities (Town Hall, Town Court, and Highway Garage) and the Vehicle Fleet.

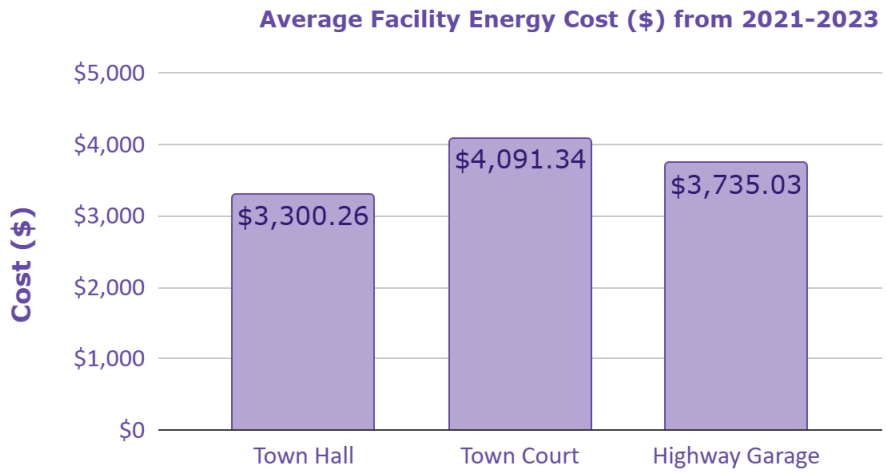


The vehicle fleet contributed to more than half of the emissions of all three municipal buildings combined; 71% of emissions for the Town are due to diesel and gasoline from the Vehicle Fleet.

Administration Facilities



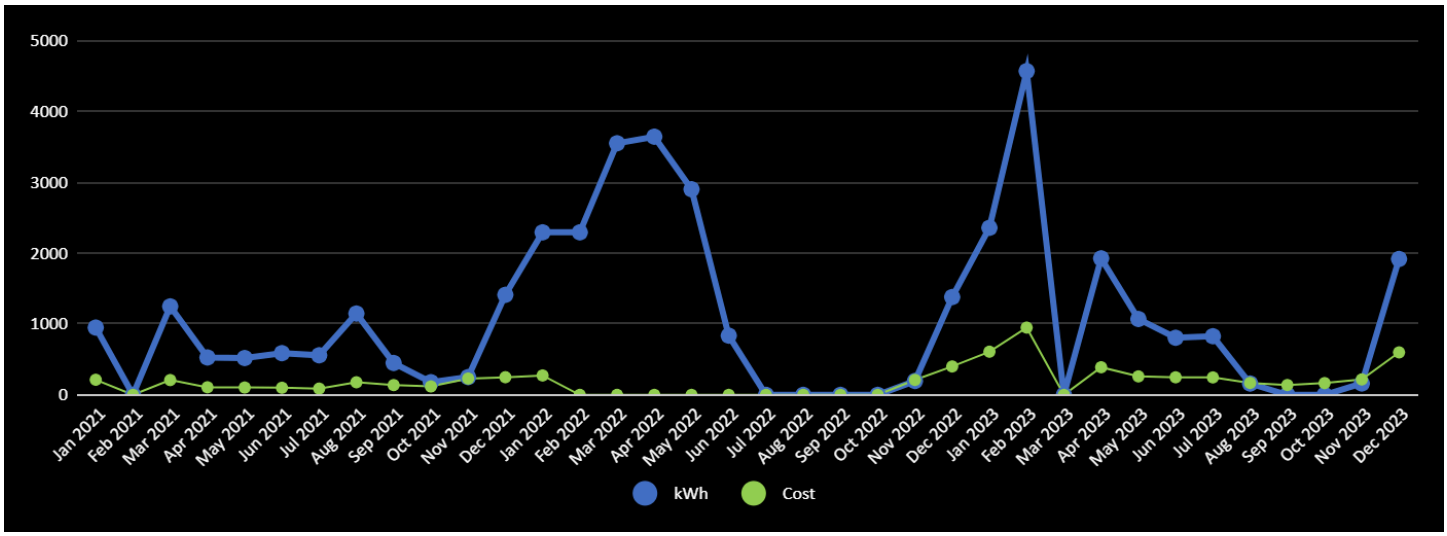
When analyzing data for administrative facilities, the Town Court had the most emissions, with an average of 10.8 MTCO2e. The Town Hall and Highway Garage had averages of about 8 MTCO2e.



The average costs followed a similar trend, with the Town Court costs being about $4,000 per year, while the Town Hall and Highway Garage were about $3,300 and $3,700, respectively. In total, energy consumption for Administrative Facilities costs the Town an average of $11,126 per year.

The Highway Garage's electricity is offset by a solar array. Evidence of the benefit of the solar array, behind the meter, is seen by analyzing the annual usage. Electricity bills show a significant increase over the winter months, compared to summer months, when days are longer and sunlight is powering the facility.

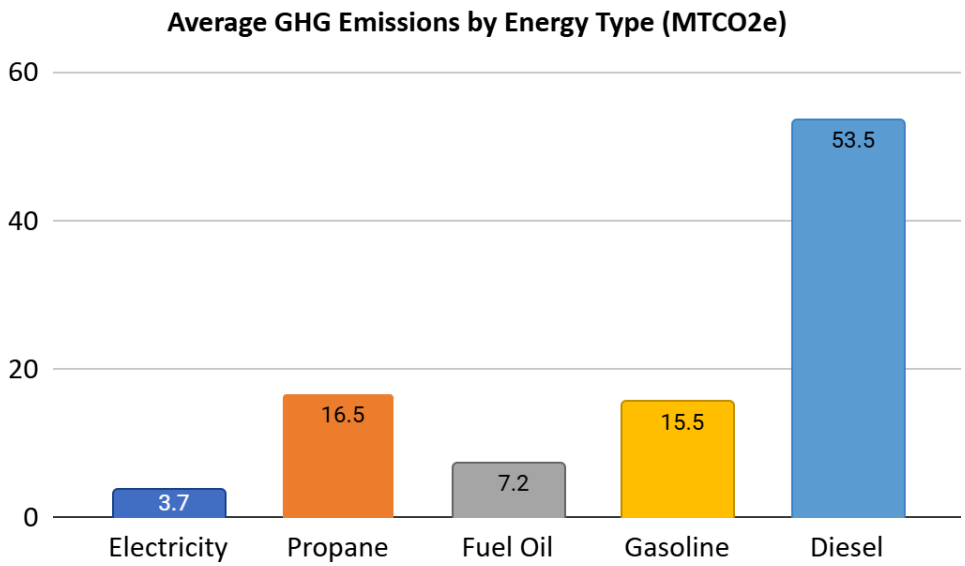
Highway Garage Monthly Electricity Use and Cost



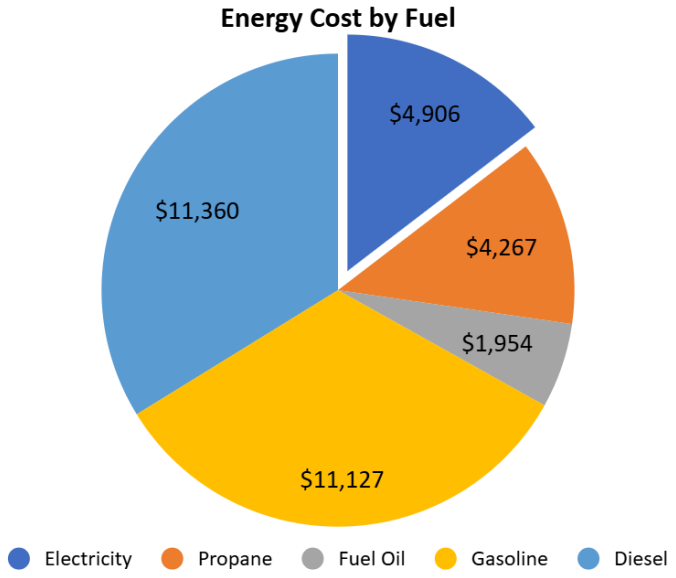
Vehicle Fleet

The Vehicle Fleet, the highest emitter of emissions for the Town, consists of six heavy-duty vehicles for snow plowing and as dump trucks for various Town operations. Across all energy types, diesel was the most significant contributor of emissions, averaging 53.5 MTCO2e annually and contributing to 56% of the Town's total emissions. Gasoline contributed to 15.5 MTCO2e - 16% of the Town's total emissions.

Energy Types



Across all energy types, as mentioned above, diesel was the primary contributor of emissions for the Town. Propane was the second highest, though less than twice as high as diesel, with 16.5 MTCO2e.



The average total costs for energy was $33,613, with Vehicle Fleet operations costing an average of $22,486.70 annually, 67% of costs being for Vehicle Fleet. Electricity, a Scope 2 source of emissions, costs an average of $4,906 annually, and tank fuels an average of $6,221.

OPPORTUNITIES TO REDUCE GREENHOUSE GASES

Developing a GHG emissions baseline enables the Town to set goals and targets for future reduction of GHG emissions.

The Town has been proactive in reducing GHG emissions and energy costs through the following upgrades over the past several years:

- 10.73kW Solar Array on the Highway Garage roof
- CDG Subscription for Town Hall and Town Court
- Interior lighting upgrades at all municipal facilities
- Benchmarking resolution adopted
- CEC Energy Study at Town Hall

Conducting the GHG inventory for Municipal Operations highlights Vehicle Fleet as the main contributor of emissions for the Town of Gallatin. The Town updated its comprehensive plan in 2024 to include the following goal:

> *Create EV charging infrastructure (at town garage and town hall) for residents that choose to purchase electric vehicles; should the Town also choose to purchase an electric vehicle in the future, this infrastructure would support municipal operations as well. (Vol. 1, p. 31)*

By installing a charging station at the Highway Garage, the infrastructure will be available to both the public and the highway department for use - this will incentivize the electrification of the Town's vehicle fleet. The Town can also evaluate the age, use, and functions of the existing fleet to determine how to rightsize the fleet and adjust methods of operations, such as fuel-efficient routes when plowing roads.

Currently in process, the Town intends to install ground-mounted solar at the Town Hall to offset electricity for both the Town Hall and Town Court. Grant funding was awarded to the Town for this project through NYSERDA's Clean Energy Communities program. The proposed array will be about 25kW DC capacity - reducing the Town's emissions by an estimated 15 MTCO2e annually.[1]

The Town intends to pursue a Municipal Climate Action Plan to address further opportunities through discussions with Town officials and municipal staff. Through this process, the task force can coordinate with all involved to establish goals and next steps for implementation. A major focus of this effort will be the Vehicle Fleet.

The Town intends to conduct a new inventory at least every five years to track and measure emissions reduction progress. The Town initially conducted a GHG Inventory in 2021, and this 2025 update aligns with that tracking goal. Future tracking will seek to incorporate refrigerants, solid waste collection rates, and government employee vehicle trips.

[1] MTCO2e estimation generated using NYSERDA's CEC metrics workbook, which uses NYSERDA emission factor for electricity of 1103 lbs./MWh.