

Village of Montour Falls, New York: Greenhouse Gas Emissions Inventory: A Comparison of 2018 and 2023

Compiled by:
The Village of Montour Falls

Introduction

This comparison of 2023 greenhouse gas (GHG) emissions in Montour Falls, New York, and the first comparison inventory completed in 2018 (new baseline), serves as a continual step in creating and refining strategies to reduce GHG emissions. It is important for local governments to understand their village's emission levels and their impacts as it allows them to prioritize actions when implementing a local Climate Action Plan to mitigate the effect of these emissions.

This information was compiled per the guidance and assistance of the NYS Climate Smart Communities Greenhouse Gas Inventory Guide for Government Operations. This guide was developed to provide detailed guidance on procedures on how to collect the municipal energy usage and emissions data. It also advises on what specific data is needed to calculate the government operations total greenhouse gas emissions. This guide was used in conjunction with the EPA Government Operations GHG calculation tool which provides the specific requirements to calculate total emissions.

The 2018 and 2023 Greenhouse Gas Inventories were prepared as a component of the Village of Montour Falls' participation in the Climate Smart Communities program of the New York State Department of Environmental Conservation. The initial 2018 inventory was prepared by Osamu Tsuda (CCE Tompkins) and Chris Skawski (CCE Schuyler), Clean Energy Community Program Staff on behalf of the Village of Montour Falls

and under the guidance of Katherine Herleman (CCE Schuyler) and Terrance Carroll (CCE Tompkins), both of whom are Clean Energy Communities coordinators in their designated counties. It was updated with data from 2023 by Emma Malnoske, Sustainability Education Coordinator (Village of Montour Falls) and Amanda Demaria, Economic and Community Development Advisor (Ascend Collaborative Development).

Communities that have been certified as Climate Smart Communities are committed to reducing GHG emissions and improving climate resilience, which allows them to reduce long-term costs and adapt to a changing climate.

Methodology and Changes from the 2018 Inventory

The inventory includes the Scope 1 and Scope 2 GHG emissions from government operations for the Village of Montour Falls. The emissions categorized as Scope 1 and Scope 2 are described below.

- Direct GHG emissions (known as Scope 1) - from government-owned vehicles, onsite fuel combustion
- Indirect GHG emissions (known as Scope 2) – from purchased electricity

The 2018 calculations in this report were performed using the Climate Smart Communities Local Government Greenhouse Gas Accounting Tool, provided by the New York State Department of Environmental Conservation. The tool is based on the Local Government Operations Protocol, which serves as a national standard for municipal greenhouse gas inventories across the country. Vehicle emissions data was gathered through municipal gas logs and the village vehicle inventory.

The 2023 calculations were performed using the EnergySTAR Portfolio tool. Building data for the Village of Montour Falls was collected from the New York State Electric and Gas Corporation (NYSEG) over a 12-month period. The Fleet data was collected from the annual fleet inventory

The Library is a leased building and is not operated by the Village of Montour Falls. The Village has no control over energy usage or upgrades and does not have access to energy usage data. For this reason, the library's energy data will no longer be used to calculate the Village's GHG.

For the 2013 and 2018 inventories, wastewater treatment facility data was provided by the public works department of the Village.

In 2020, the Village decommissioned their wastewater treatment facility. Wastewater treatment is now provided by the Catharine Valley Water Reclamation Facility, a regional wastewater facility consisting of a

centralized regional treatment plant, pump stations, and force main systems in the villages of Watkins Glen and Montour Falls, New York. The Catherine Valley Water Reclamation Facility is operated as an independent entity. For this reason, the village is no longer able to calculate the GHG from wastewater treatment and will not include the data in this or future inventories.

Stationary Combustion of Fossil Fuels: Natural Consumption in Municipal Buildings (Scope1)

The use of natural gas in the Village Hall and other municipal facilities had increased in the period between 2013 and 2018, but due to many energy efficiency upgrades has significantly decreased over the past five years. The Village Hall's yearly natural gas usage has decreased from 287 million BTUs (2018) to 136 million BTUs, an approximately 53% decrease. The Village Fire Station yearly natural gas usage has decreased from 570 million BTUs (2018) to 469 million BTUs, an approximately 18% decrease. Village Public Works natural gas usage decreased from 537 million BTUs to 338 million BTUs, a decrease of 37%. In total, natural gas use in these municipal buildings increased by 14.4%, or a total of 195 million BTUs of natural gas used per year. A note on units: A BTU, or British Thermal Unit, measures thermal energy, and is a standard measure of natural gas usage.

2018 v. 2023 Municipal Building Fuel and Energy Consumption (million BTU)

Building	2018 Natural Gas Energy Use	2023 Natural Gas Energy Use	2018 v. 2023 Use Difference	2018 v. 2023 Use Percent Change
Village Hall	287	136	-151	-53%
Fire Station	570	469	-101	-18%
Public Works	537	338	-199	-37%
Total	1394	943	↓451	↓32%

Electricity Consumption in Municipal Buildings (Scope 2)

Electricity consumption in municipal buildings in the Village of Montour Falls have decreased significantly between 2018 and 2023. While energy use increased in the Village Halls by 12,160kWh or 111%, overall consumption has decreased. The fire station has decreased by 16,694 kWh or 61% and the public works facility increased by 4,177 kWh or 16%. In total, there was a decrease of 10,289 kWh or 13% from all municipal buildings.

2018 v. 2023 Electrical Consumption by Municipal Building (kWh)

Building	2018 Electrical Use	2023 Electrical Use	2018 v. 2023 Electrical Use Difference	2018 v. 2023 Electrical Use Percent Change
Village Hall	10,931	23,091	12,160	111%
Fire Station	43,320	16,694	-26,626	-61%
Public Works	26,760	30,937	4,177	16%
Total	81,011	70,722	↓10,289	↓13%

GHG Total Emissions from Facilities

The combustion and use of natural gas and generation of electricity results in the release of carbon dioxide into the atmosphere. The Village of Montour Falls' emissions from municipal buildings have been calculated below in metric tons of CO₂ equivalent (MT CO₂E). This unit converts other greenhouse gases into the amount of CO₂ that would have the same impact on global climate change in order to standardize and measure harmful emissions. The yearly carbon dioxide equivalent emissions of these buildings have decreased in the period between 2018 and 2023, corresponding with the decrease in the amount of natural gas used.

2018 v 2013 Emissions from all sources by Municipal Building (MT CO₂E)

Building	2018 CO ₂ Emissions	2023 CO ₂ Emissions	2018 v. 2023 CO ₂ Emission Difference	2018 v. 2023 CO ₂ Emission Percent Change
Village Hall	13.1	10.1	-3	-22.9%
Fire Station	34	27	-7	-20.6%
Public Works	30.8	21.8	-9	-29.2%
Total	77.9	58.9	↓19	↓24.4%

In general, there is a significant overall decrease in consumption of natural gas. It is important to note that the winter of 2018 was significantly colder than the winter of 2023. In 2018 between January 1 and April 30, the average temperature was approximately 35 F whereas in 2023 the average temperature for the same timeframe was approximately 38.5 F. While this might not sound too significant, these higher temperatures likely contributed to a partial decrease in fuel consumption. However, the biggest factor in the decrease of the overall consumption of natural gas is the installation of electric heat pumps in the village facilities.

Mobile Combustion of Fossil Fuels: Municipal Vehicle Fleet Consumption (Scope1)

As of December 2023, the mobile fleet in the Village of Montour Falls consists of 21 on-road vehicles: two are full electric, nine are diesel fueled, and ten are gasoline fueled. This is a decrease from 2018 when the Village had 23 on-road vehicles, eight of which were diesel and fifteen were gasoline.

In 2018, the municipal vehicle fleet in the Village of Montour Falls used a total of 1090 million British Thermal Units (MMBtu) of energy, from 8,478 gallons of fossil fuel. By December 2023, fossil fuel use decreased by approximately 27%. In 2023, the fleet's fossil fuel consumption decreased by 289 MMBtu to 801 MMbtu. The fleet used 6401 gallons of fossil fuel.

2018 v. 2013 Vehicle Fossil Fuel Use by Type (MMBtu)

Year	Electric	Gasoline	Diesel	Total
2018	NA	769	321	1090
2023	*	473	328	801

* The first electric vehicle was placed into use in July 2023 and the second electric vehicle was placed into use in October 2023. The vehicles' electricity annual usage is unable to be calculated. However, the two vehicles are charged at the Public Works Building and the electricity usage is calculated there as part of the building.

Four strategies and actions have contributed to decreased fuel consumption. They are decreasing the total number of miles driven in the most inefficient vehicles, retiring and not replacing two old, inefficient vehicles, replacing two older inefficient vehicles with newer more efficient vehicles, and replacing two older, gasoline vehicles with two fully electric vehicles. Combined, these actions have led to a decrease in greenhouse gas emissions from fossil fuel use in the fleet.

Between 2018 and 2023, carbon dioxide emissions decreased by 21 MT CO₂E, from 78 MT CO₂E to 57 MT CO₂E, a 27% overall decrease in emissions.

2018 v. 2023 GHG Emissions from Municipal Vehicle Fleet (MT CO₂E)

2018 CO ₂ Emissions	2023 CO ₂ Emissions	2018 v. 2023 CO ₂ Emission Difference	2018 v. 2023 CO ₂ Emission Percent Change
78	57	↓21	↓27%

Montour Falls WasteWater Treatment Facility: Update

In 2020, the Village decommissioned their wastewater treatment facility. Wastewater treatment is now provided by the Catharine Valley Water Reclamation Facility, a regional wastewater facility consisting of a centralized regional treatment plant, pump stations, and force main systems in the villages of Watkins Glen and Montour Falls, New York. The Catherine Valley Water Reclamation Facility is operated as an independent entity. For this reason, the village is no longer able to calculate the GHG from wastewater treatment and will not include the data in this or future inventories.

The 2018 Total Building Energy Usage and Emissions has removed the Wastewater Treatment Plant from the calculations to align with the 2023 inventory. The Wastewater Treatment Plant has also been removed from the total emissions.

Conclusions: Impacts and Further Action

GHG Total Emissions

2018 v 2013 Emissions from all sources by Municipal Building (MT CO₂E)

	2018 CO ₂ Emissions	2023 CO ₂ Emissions	2018 v. 2023 CO ₂ Emission Difference	2018 v. 2023 CO ₂ Emission Percent Change
Buildings	77.9	58.9	-19	-24.4%
Fleet	78	57	-21	-26.9%
Total	155.9	115.9	↓40	↓25.7%

The Village has completed many actions to decrease energy use and GHG emissions. The results have been tremendous. In 2021, the Village created and is implementing a Government Operation Climate Action Plan with the goal of a 50% annual reduction in GHG emission (base year of 2018) by 2031. With an overall reduction of 25.7% by the end of 2023, the village is on track to reach that goal. In 2024, the Village added its third electric vehicle to its fleet replacing a less efficient gasoline fueled vehicle. They also replaced a twenty year old fire truck with a new much more efficient fire truck. Additionally, the village has replaced most of their landscape equipment with fully electric versions.

Building upgrades in 2024 included replacing the roof on the village hall and adding insulation as well as fully insulating the basement in the Village Hall.

Though solid waste was not taken into consideration in this inventory, the village has implemented composting throughout the village and several smart recycling practices thus drastically reducing the overall carbon footprint. (see composting action).

The Village of Montour Falls has replaced all of the street lighting with LED light bulbs. Although the upgrade is not acknowledged in this inventory, it has resulted in a \$50,000 per year savings to the village.

In 2025 and 2026, the village will be replacing the fire hall roof and adding solar panels which will offset the entire electricity usage of the fire hall. The Village is also installing a solar array that will produce 100 kW of power, enough to cover all of the electricity used by the main wellhead and the village hall.

Lastly, in 2025, the Village will complete a new baseline to better understand the actual energy usage and GHG emissions under the control of the village. As the village has become more knowledgeable on climate change and actions, they need a better way of monitoring and calculating the actual changes.

For Questions Regarding this Greenhouse Gas Inventory

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