Town of Roseboom

2020 Government Operations Greenhouse Gas Emissions Inventory (Scopes 1 and 2)

Introduction

The Town of Roseboom achieved the Climate Smart Communities Bronze Level in 2022. We were the first Town in the Mohawk Valley Region to do so. We are now working to be re-certified in 2024 as a Bronze Community once again, in order to qualify for a NYSERDA $100,000 grant. We plan on using the money to insulate the Town Garage and to replace the old oil-fired boiler presently heating it with a more energy efficient air-sourced electric Heat Pump. This will decrease our Stationary Green House Gas Emissions to a minimal level.

Methodology

This government GHG Inventory was done in 2021 under the guidance of the Mohawk Valley Region Climate Smart Institute using the US EPA Local GHG Inventory Tool (Government Operations Module). This Inventory encompasses Scope 1 (direct) and Scope 2 (indirect) GHG emissions in Metric Tons (MT) from town government operations using the 2020 data.

Electric energy usage was compiled from National Grid Invoices, with a 10% contracted Savings from a 2019 NEXAMP Solar Agreement for both the Town Barn and Street Lighting. Invoices for Heating Fuel (Stationary) and Diesel for the Town Trucks and Plows (Mobile) came from distributors Mirabito and Parsons.

We tracked the diesel used as heating fuel in the Town barn and the diesel for our heavy-duty trucks, plows, and sanders separately. The Roseboom Town trucks do not track their individual mileage or fuel. Using the advice of Andrea Denny from the US EPA, we divided the total diesel consumed by the number of vehicles we use (6) for the mobile inventory calculations. She also helped guide us with the market based contractual 2019 NEXAMP solar electricity agreements.

Emissions Sources

The town has only one municipal building, no sewage treatment plants, municipal water, landfills or garbage pick-up. There is only one department, the Town of Roseboom. Direct emissions from Town operations come nearly entirely from (1) The Town Barn heating stationary source (2) mobile sources, specifically, our plow/dump trucks, pickup trucks, and construction equipment. Indirect sources (3) include electricity for the Town Barn and the 21 streetlights in Roseboom that were converted to LED's in 2018 through National Grid, and the Town's Highway employees' commute to and from work.

Town of Roseboom Energy Costs and Consumption For the Fiscal Year Ending 2020

Energy Type	Total Expenditures	Total Volume	Units Of Measure
Gasoline	0	0	Gallons
Mobile Diesel	$18,597	10,060	Gallons
Stationary	$3,393	1,649	Gallons
Electricity	$3,480	11,440	kilowatt-hours
	$25,470		

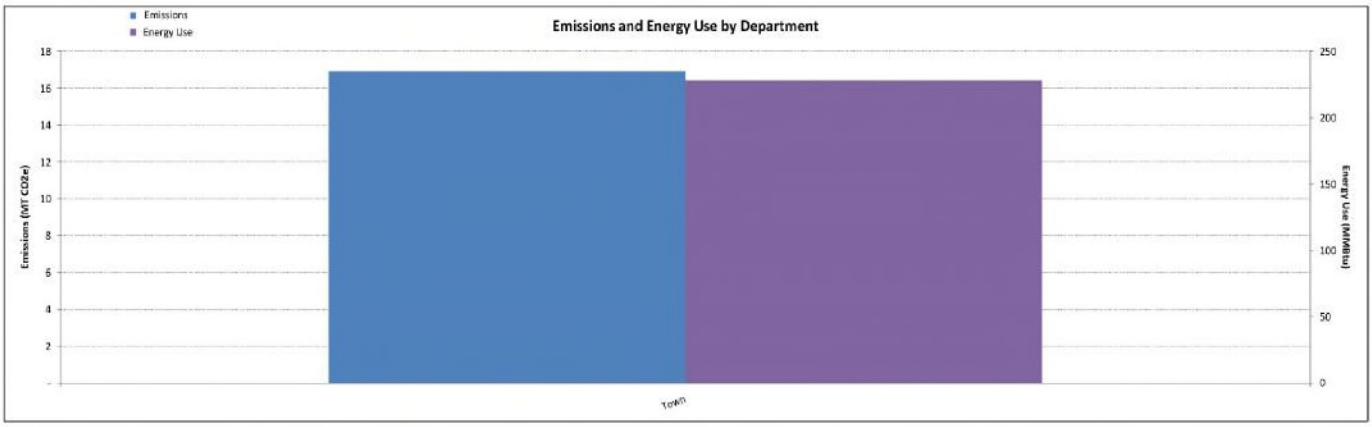
Stationary Emissions and Energy Use

Department Summary

Emissions by Department (MT CO_2e)				
Department	CO_2	CH_4	N_2O	Total
Town	17	0	0	17
Total Stationary Combustion Emissions	**17**	**0**	**0**	**17**

Fuel and Energy (MMBtu) Use by Department				
Department	mcf	gal	tons	Energy Use
Town	-	1,649	-	228
Total Stationary Combustion Energy Use	-	1,649	-	**228**

Check to display:

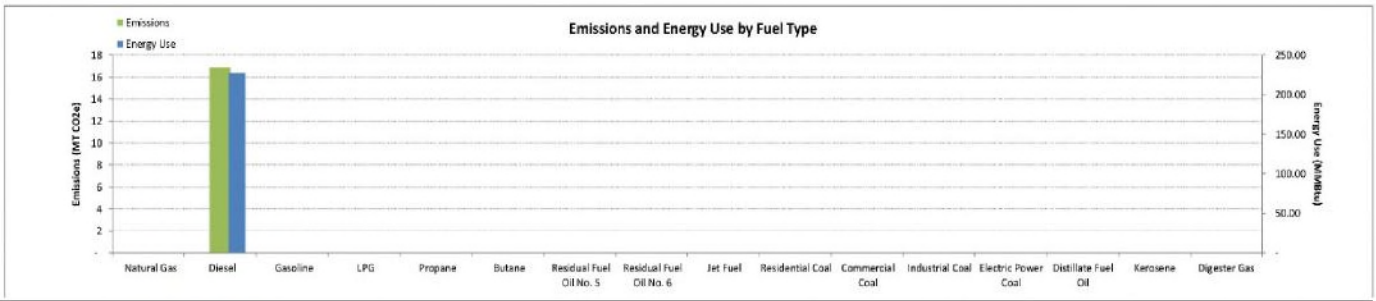


Fuel Summary

Emissions by Fuel Type (MT CO_2e)				
Fuel Type	CO_2	CH_4	N_2O	TOTAL
Natural Gas	-	-	-	-
Diesel	17	0	0	17
Gasoline	-	-	-	-
LPG	-	-	-	-
Propane	-	-	-	-
Butane	-	-	-	-
Residual Fuel Oil No. 5	-	-	-	-
Residual Fuel Oil No. 6	-	-	-	-
Jet Fuel	-	-	-	-
Residential Coal	-	-	-	-
Commercial Coal	-	-	-	-
Industrial Coal	-	-	-	-
Electric Power Coal	-	-	-	-
Distillate Fuel Oil	-	-	-	-
Kerosene	-	-	-	-
Digester Gas	-	-	-	-
Total Emissions from Stationary Fuel Combustion	**17**	**0**	**0**	**17**

Fuel and Energy Use by Type			
Fuel Type	Fuel Used		Energy Use (MMBtu)
Natural Gas	0	mcf	-
Diesel	1,649	gal	227.72
Gasoline	0	gal	-
LPG	0	gal	-
Propane	0	gal	-
Butane	0	gal	-
Residual Fuel Oil No. 5	0	gal	-
Residual Fuel Oil No. 6	0	gal	-
Jet Fuel	0	gal	-
Residential Coal	0	tons	-
Commercial Coal	0	tons	-
Industrial Coal	0	tons	-
Electric Power Coal	0	tons	-
Distillate Fuel Oil	0	gal	-
Kerosene	0	gal	-
Digester Gas	0	mcf	-
Total Stationary Fuel Consumed			**227.72**

Check to display:



This shows the 1,649 gallons of heating fuel used for the Town Barn created 17 CO2 MTe (Metric Tons of emissions). This would be eliminated by installing an air-sourced electric heat pump.

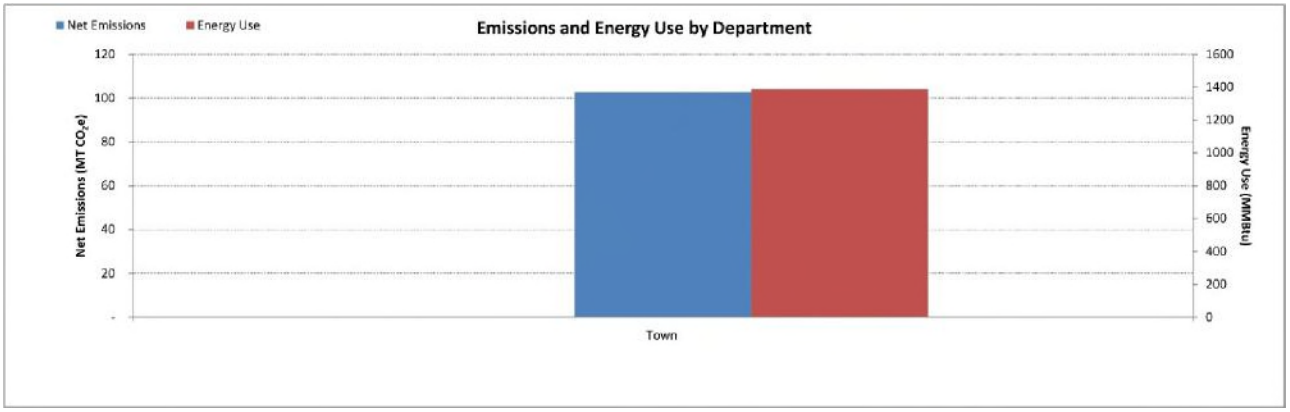
Mobile Emissions and Energy Use

Net Emissions by Department (MT CO_2e)				
	CO_2	CH_4	N_2O	TOTAL
Town	102.73	-	-	103
Total Mobile Emissions	102.73	-	-	**103**

CO_2 Detail Emissions (MT CO_2e)		
Gross CO_2	- Biogenic =	Net CO_2
103	-	103
103	-	103

Energy Use Summary

Energy Use by Department and Fuel Type (MMBtu)												
	Gasoline	Diesel	Biodiesel (B5)	Biodiesel (B20)	Ethanol (E85)	CNG	LNG	LPG	Residual Fuel	Jet Fuel	Aviation Gasoline	TOTAL
Town	-	1,390	-	-	-	-	-	-	-	-	-	1,390
Total	-	1,390	-	-	-	-	-	-	-	-	-	**1,390**

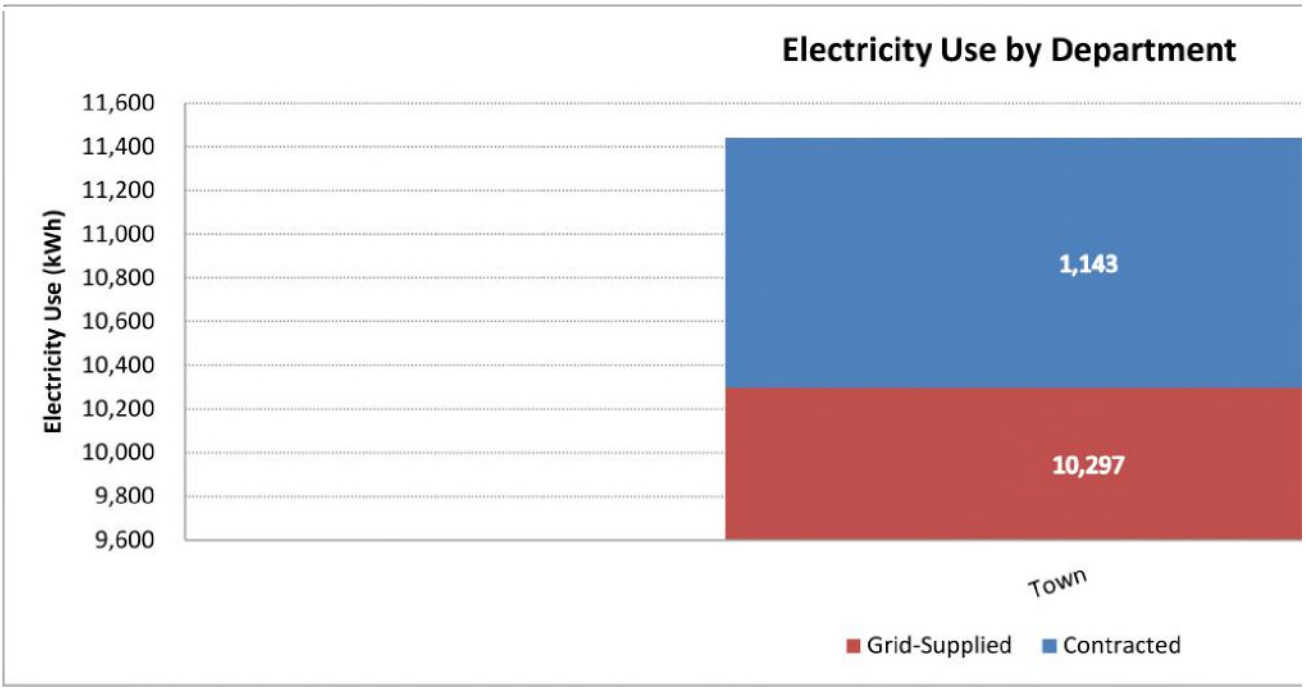


The heavy-duty trucks, plows, sanders and other road equipment accounted for most of the Town's emissions.

The Town used part of a recent $10,000 CEC grant to purchase electric battery landscaping equipment, including multiple chainsaws, pruners, trimmers, and blowers which we will be able to charge using our own solar panels!

Electricity Usage – NEXAMP Contracted vs. Grid Supplied

Electricity Use by Department (in kWh)				
Department	Grid-Supplied kWh	Contracted kWh	Total kWh	Market-Based kWh
Town	10,297	1,143	11,440	9,154
Total Electricity Use	**10,297**	**1,143**	**11,440**	**9,154**



The National Grid NYUP eGRID subregion was used for the Scope 2 Emission electricity calculations which came to 1.21 MTCO2e .

Our 10% NEXAMP contract is for Solar, so its emissions are minimal.

Inventory Emissions Summary

Total Emissions (MT CO_2e)								
	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	Total MT CO_2e	Percent of Total
Scope 1	119.57	0.02	0.04	-	-	-	119.62	95%
Scope 2 - Location Based	1.21	0.00	0.00	-	-	-	1.22	1%
Scope 2 - Market Based (for informational purposes only)	1.21	0.00	0.00				1.22	
Scope 3	5.01	-	-	-	-	-	5.01	4%
Total Gross Emissions	**125.79**	**0.02**	**0.04**	**-**	**-**	**-**	**125.85**	**100%**
Total Net Emissions	**125.79**	**0.02**	**0.04**	**-**	**-**	**-**	**125.85**	**100%**

Emissions by Source (MT CO_2e)								
Source	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	**Total**	**Percent of Total**
Stationary Combustion	16.84	0.02	0.04	-	-	-	16.89	13%
Mobile Combustion	102.73	-	-	-	-	-	102.73	82%
Solid Waste	-	-	-	-	-	-	-	0%
Wastewater Treatment	-	-	-	-	-	-	-	0%
Electricity - Location Based	1.21	0.00	0.00	-	-	-	1.22	1%
Electricity - Market Based (for informational purposes only)	1.21	0.00	0.00				1.22	
Employee Commute	5.01	-	-	-	-	-	5.01	4%
Water	-	-	-	-	-	-	-	0%
Ag & Land Management	-	-	-				-	0%
Urban Forestry	-	-	-				-	0%
Waste Generation	-	-	-				-	0%
Total (Gross Emissions)	**125.79**	**0.02**	**0.04**	**-**	**-**	**-**	**125.85**	**100%**
Total (Net Emissions)	**125.79**	**0.02**	**0.04**	**-**	**-**	**-**	**125.85**	**100%**

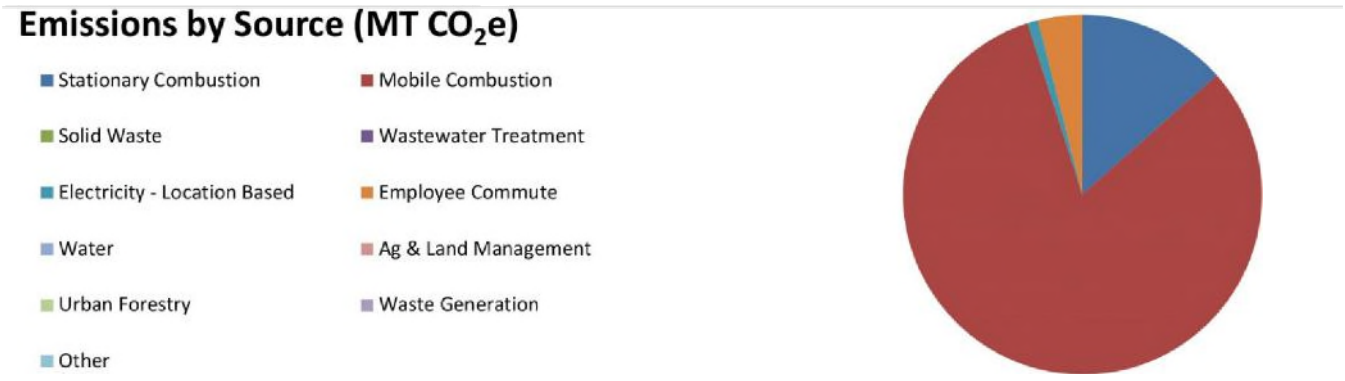
Mobile consumption of diesel accounted for 102.73 MT CO2e.

Stationary consumption of heating oil for the town facility accounted for 16.89 MT CO2e.

Electricity consumption accounted for relatively minor GHG emissions, 1.22 MT CO2e.

Employee commuting resulted in 5.01 MT CO2e.

Total Gross Emissions were 125.85 MT CO2e for the Town of Roseboom.



Conclusions

A previous GHG Inventory submission had incorrectly indicated an overwhelming amount of CO2 emissions coming from our four Highway employees' daily commute. This was due to a flaw in the calculations that had somehow altered it to account for 1104 employees! This new updated version now correctly shows only 5.01 MT CO2e. However, even that has now actually been reduced further. Starting in 2023, our Highway Department cut down to a 4-day scheduled work week instead of 5-day weekly commute, with exceptions of course, for snow and other emergencies.

We are working toward the New York State Climate Act's goal of reducing Green House Gas emissions 40% by 2030 (from 1990 levels). That is why it is so important to be aware of our Local Government Operations' Emission levels and their impacts. It indicates where we need to improve our energy usage and type, to do our part in helping to slow down climate change on our rapidly heating planet. We may be small, but every little bit helps.

In November 2022, we installed solar panels that help provide electricity to the Town Barn. This July 2024, using NYSERDA Clean Energy Communities (CEC) funding, we acquired ownership of a 2023 EV Ford Lightning pickup truck. This will upgrade our Clean Fleets Inventory, which will help to lower our Mobile emissions. We have also installed a Level 2 Dual EV Charging station which will be powered by our own solar panels. There is room to add to our solar array as our needs increase with the future heat pump installation. By using the 2020 GHG Inventory levels as a Baseline, we will be able to track how much of a difference the improvements we have already made and will make in the future, decrease our emission levels on our next GHG Inventory in 2025. We are proud of the clean energy upgrades we have done and know they will help reduce our GHG emissions.

Posted on TownofRoseboom.com website July 2024