

# 2024 Building Energy Benchmarking Results and Policy

The Town of Bethel joined New York State's Climate Smart Community program in 2013. We were initially certified as a Bronze Level Climate Smart Community in 2018 and recertified as Bronze Level in 2024. Since 2012 our Sustainable Bethel Committee has been working to reduce our greenhouse gas emissions and improve efficiencies in government operations.

This is primarily a benchmarking report which is a required part of the NYSERDA Clean Energy Community program of which Bethel is a participating community.

Buildings account for more than 60% of the energy used in New York State. Adopting a benchmarking policy to measure and share data on building energy use over time allows the Town of Bethel and its residents to track energy use and compare performance of similar buildings to make smarter, more cost-effective operational and capital investment decisions and drive widespread, continuous improvement.

Sustainable Bethel has been tracking data since 2013. Comparing our 2016 baseline year to 2024 Bethel shows significant improvements in most of our government buildings energy usage and resulting greenhouse gas emissions (improvements are highlighted in green). Bethel government building operations has seen a 27% reduction in the greenhouse gas emissions (215.2 metric tons of CO<sub>2</sub>e to 158.7 metric tons). Individual building improvements are shown below; see the full annual benchmarking data table later in this report.

## **Notable improvements**

**Greenhouse Gas Emissions:** Benchmarked buildings improved 27% from 2016 to 2024 most notably in Justice Court and in Sewer Plant Operations. Improvements in the Justice Court came in 2018/2019 with a new roof, improved insulation and more efficient heating. Sewer Plant operations have improved by engaging professional plant management and an upgrade to a more efficient ultra-violet system.

**Electricity Usage:** Benchmarked buildings improved 17% from 2016 to 2024 with most improvements coming from the Sewer Plant (for the same reasons as above) and the Highway Barn. Improvements in the Highway Barn may be more due to milder weather rather than specific actions taken.

Diesel#2 Usage: Diesel #2 usage has decreased by 10% due to the energy improvements made at the Justice Court as previously stated.

#### Government Building Percent Change 2016 to 2024

	Site EUI	Electricity	Propane	Diesel	Kerosene	GHG Emissions Metric Tons	GHG Emissions Intensity
Highway Barn	-2.30%	-15.20%	3.20%			-4.70%	-4.70%
Senior Center	6.50%	-4.90%	8%			3.00%	3.00%
Town Hall	-6.10%	-17.20%	-3%			-6.00%	-6.00%
Justice Court	-60.90%	106.20%		-85.60%		-72.60%	-72.60%
Sewer Plant	21.20%	-20.40%	-37.80%	-21%	-41.90%	-26.30%	-26.30%

We can anticipate further improvements with the building of the new Town Hall to passive house standards and the Highway Barn to increased energy efficiency standards where possible considering the building type.

In addition, Bethel has also seen significant improvements in its non-building operations most significantly in converting its streetlights to LEDs. This resulted in a 65% reduction in cost, 79% reduction in greenhouse gas emissions and 77% decrease in KWH usage. This does not take into consideration our enrollment in most town electricity accounts in community solar. Bethel is not able to specifically quantify nor claim credit for improvements by enrolling in community solar as the developer of the solar projects is credited with those energy improvements.

Location		Costs		GHG Emissions			Electricity Kwh		
						% change			% change
				2016	2024		2016	2024	
Town	\$	\$							
Park	1,089.06	1,338.09	23%	0.4	0.3	-25%	3280.4	2186.3	-33%
Street-lighting	\$	\$							
	31,732.84	11,524.07	-64%	23.3	4.9	-79%	591260.7	136431.8	-77%
Pool	\$	\$							
	2,174.23	2,544.61	17%	2.3	2.3	0%	17078.9	17998.4	5%
Transfer	\$	\$							
Sta	4,049.94	3,544.54	-13%	4.6	2.8	-45%	34225.5	20072.1	-41%
	\$	\$							
	39,046.07	18,951.31		30.6	10.3		645845.5	176688.6	

### Benchmarking Policy

On December 15, 2016. the Town of Bethel adopted the Building Energy Benchmarking Policy, which commits the town to monitor and make yearly reports of energy use for all town buildings over 1,000 sq ft. The five buildings meeting the criteria are:

- Town Hall
- Sewer or Wastewater Treatment Plant
- Highway Barn
- Senior Center
- Justice Court

Two other significant users of energy which generate significant greenhouse gas (GHG) emissions are streetlighting and the Town's fleet of trucks and vehicles. While these are not included in "Building Energy Benchmarking", the Town has initiated efforts to lower their energy usage and GHG emissions.

The Town has selected 2016 as its "baseline year" because all its buildings were in operation that year and energy conservation improvements to building operations commenced after 2016. As such, year to year comparisons to the 2016 baseline year will enable the Town to assess the success of Town initiatives to reduce its energy usage, save taxpayer dollars and reduce the municipal government's carbon "footprint".

The tables below reflect the change in important indices relating to efficiency of building operations, energy consumption and greenhouse gas emissions. Below also is a glossary of important terms. The Town of Bethel has elected to report both our baseline and our current year of operations. Improvement in building operations efficiency is a long-term project with actions taken in particular years to improve the operations of a particular building. A narrative is included on actions already implemented and those planned for the future.

## **Future Improvements**

Town Hall: A major addition and renovation is planned with the design meeting passive building standards which will significantly improve building efficiency. Design work has been completed, and the project is currently in bid status.

Highway Barn: Initial planning is underway to build a new, more efficiency highway barn. Design work has been completed, and the project is in bid status.

Government electrical usage: The town contracted with a developer to build a solar array on the capped landfill at the Transfer Station. The project was completed in early 2023 and is fully subscribed by Bethel residents. The project is for residential customers only; however, Bethel did enroll most municipal electricity accounts as subscribers on other community solar installations.

LED Streetlighting: The Town contracted through the New York Power Authority to convert all of the Town's 178 streetlights to LEDs, significantly reducing usage, cost and greenhouse gas emissions. This project was completed in 2021. Greenhouse gas emissions for

streetlighting were reduced in 2024 by 79% over the 2016 baseline year emissions. Costs for electricity were reduced in 2024 by 65% over the 2016 baseline year emissions. KWH usage was reduced in 2023 by 77% over the 2016 baseline year usage.

## **Glossary of terms from EPA Portfolio Manager**

**EUI** stands for energy use intensity. It is the energy use per square foot at a property (energy divided by square foot). EUI enables you to compare different sized buildings.

**KBtu** stands for kilo, or thousands of British thermal units.

**Therms** is a standard measure of gas based on its energy content.

**MTCDE** stands for metric tons of carbon dioxide equivalent.

**Greenhouse Gas (GHG)** Emissions are the carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) gases released into the atmosphere as a result of energy consumption at the property. GHG emissions are expressed in carbon dioxide equivalent (CO<sub>2e</sub>), a universal unit of measure that combines the quantity and global warming potential of each greenhouse gas. Emissions are reported in four categories, each is available as a total amount in metric tons or as an intensity value in kilograms per square foot (kgCO<sub>2e</sub>/ft<sup>2</sup>).

**MTCDE** stands for Metric Tons of Carbon Dioxide Equivalent and is also written as Metric Tons CO<sub>2e</sub>.

**Weather Normalized Source Energy** –The source energy use your property would have consumed during 30-year average weather conditions. For example, if 2012 was a very hot year, then your *Weather Normalized Source Energy* may be lower than your *Source Energy Use*, because you would have used less energy if it had not been so hot. It can be helpful to use this weather normalized value to understand changes in energy when accounting for changes in weather. *Weather Normalized Source EUI* is also available (i.e. *Weather Normalized Source Energy* divided by property size or by flow through a water/wastewater treatment plant).