Building Energy Benchmarking Policy

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.

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 of 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.

Notable improvements

Greenhouse Gas Emissions: Benchmarked buildings improved 19.26% from 2016 to 2020 most notably in Justice Court and in Sewer Plant Operations. Improvements in the Justice Court came in 2018/2019 with a new roof, 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 9.878% from 2016 to 2020 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.

Future Improvements

Town Hall: A major addition and renovation is planned with the design meeting passive building standards which will significantly improve building efficiency.

Highway Barn: Initial planning is underway to build a new, more efficiency highway barn.

Government electrical usage: The town has contracted with BQ Energy to build a solar array on the capped landfill at the Transfer Station. The Town anticipates securing all municipal electricity needs in connection with the community solar installation, thereby significantly decreasing the Town's municipal greenhouse gas emissions.

LED Streetlighting: The Town has 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

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2020 Town of Bethel Annual Benchmarking

Property Name	Year Ending	Property GFA - Self-Reported (ft²)	Primary Property Type - Self Selected	ENERGY STAR Score	Site EUI (kBtu/ft²)	Site Energy Use (kBtu)	Weather Normalized Source Energy Use (kBtu)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Electricity Use - Grid Purchase (kWh)	Propane Use (kBtu)	Diesel #2 Use (kBtu)
Bethel Town Hall	12/31/20	3800	Social/Meeting Hall	Not Available	45.2	171889.5	298510.8	78.6	10.5	2.8	16573.6		115340.4
Kauneonga Lake Sewer Treatment Plant and (6)	12/31/20	5357	Wastewater Treatment Plant	Not Available	508.9	2725924	Not Available	Not Available	99.7	18.6	739928.6	49597.2	134950.2
Bethel Highway Barn	12/31/20	4000	Other	Not Available	130.7	522781.5	890017.9	222.5	29.1	7.3	43036.9	375939.6	
Bethel Senior Center	12/31/20	2322	Social/Meeting Hall	Not Available	59.7	138737.2	174422.5	75.1	8.6	3.7	3227.9	127723.6	
Justice Court	12/31/20	1692	Courthouse	15	99.6	168557.5	309241.8	182.8	9.6	5.7	21049.1		96738
									181.1		1029072.4	553665.2	347028.6

2016 Bethel CEC Annual Benchmarking

Property Name	Year Ending	Property GFA - Self-Reported (ft²)	Primary Property Type - Self Selected	ENERGY STAR Score	Site EUI (kBtu/ft²)	Site Energy Use (kBtu)	Weather Normalized Source Energy Use (kBtu)	Weather Normalized Source EUI (kBtu/ft²)	Total GHG Emissions (Metric Tons CO2e)	Total GHG Emissions Intensity (kgCO2e/ft²)	Electricity Use - Grid Purchase (kWh)	Propane Use (kBtu)	Diesel #2 Use (kBtu)
Bethel Town Hall	12/31/16	3800	Social/Meeting Hall	Not Available	40	152152.6	244259.4	64.3	9.2	2.4	14950.9		101140.2
Kauneonga Lake Sewer Treatment Plant and (6) Pump Houses	12/31/16	5357	Wastewater Treatment Plant	Not Available	591.5	3168637.9	Not Available	Not Available	120	22.4	828113.3	94765.9	205689
Bethel Highway Barn	12/31/16	4000	Other	Not Available	144.4	577794.1	1036912.3	259.2	31.9	8	50138.1	406722.8	
Bethel Senior Center	12/31/16	2322	Social/Meeting Hall	Not Available	76.6	177969.1	240820.3	103.7	10.7	4.6	6642.4	155305.2	
Justice Court	12/31/16	1692	Courthouse	2	221.2	374225.1	471109	278.4	25.8	15.3	14134.7		325997.4
									224.3		1141866.5	662479.5	632826.6

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.

Not Available applies where buildings do not have monthly energy data or use gas.

Greenhouse Gas (GHG) Emissions are the carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) gases released into the atmosphere as a result of energy consumption at the property. GHG emissions are expressed in carbon dioxide equivalent (CO_{2e}), 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 ($kgCO_{2e}/ft^2$).

MTCDE stands for Metric Tons of Carbon Dioxide Equivalent and is also written as Metric Tons CO_{2e}.

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)