



Climate Action Plan for Government Operations

Town of New Lebanon, NY

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1. Executive Summary

New Lebanon faces a significant challenge with climate change, as regional projections suggest warmer and wetter conditions by the 2050s. The town's Climate Vulnerability Assessment identifies escalating storms, flooding, heat stress, seasonal drought, invasive species, and wildfires as potential risks in the future.

The Climate Action Plan (CAP) is instrumental in addressing these challenges and offers several benefits to New Lebanon and its community. Aligned with New York State's ambitious greenhouse gas reduction targets of 40% by 2030 and 85% by 2050, the CAP not only contributes to global climate goals but also improves air quality, lowers health-related costs, and enhances overall community well-being.

The GHG emissions inventory for New Lebanon's town operations in 2019 reveals diesel fuel as the primary contributor, constituting 65% of total emissions. However, the CAP's current focus prioritizes the reduction of non-diesel-related emissions. Ambitious goals include a 50% reduction in greenhouse gas emissions from non-diesel sources by 2030 and an overall reduction of 17.5% from 2019 levels. The CAP aims for a 50% reduction in the town's total emissions by 2040. Since 2019, New Lebanon has made significant strides in climate mitigation initiatives, earning a Bronze-level certification in the Climate Smart Communities program. Ongoing initiatives include benchmarking municipal buildings, adopting clean energy upgrades, installing LED street lights, and implementing energy-efficient measures at the Town Hall. A 2023 assessment revealed an impressive 34% reduction in greenhouse gas emissions from government facilities, attributed to successful measures like LED streetlights, energy-efficient office lighting, and the use of heat pumps.

The CAP initiatives align with the Climate Smart Communities Program, covering multiple pledge elements such as decreasing energy use, shifting to clean, renewable energy, implementing climate-smart land use, enhancing community resilience, supporting a green innovation economy, and informing the public. Key initiatives outlined in the implementation strategy include LED street lights (2020), EV chargers (2021), heat pumps (2022-2024), and solar panels in the town hall (2023).

The responsibility for CAP implementation lies with the Climate Smart Communities Task Force, ensuring a coordinated and strategic approach. As New Lebanon embraces the CAP, it not only addresses climate challenges but also seizes the opportunity to create a sustainable, resilient, and prosperous future for the community.

2. Introduction

a. New Lebanon Climate Leadership

New Lebanon has been actively involved in climate change initiatives since beginning to track emissions from Town operations in 2016. In 2020, the Town adopted a resolution to become a Climate Smart Community. This commitment is geared towards reducing greenhouse gas emissions and enhancing climate resilience. To implement these objectives, a 12-member Task Force was established, entrusted with the responsibility of identifying and executing actions to minimize the community's carbon footprint. The Task Force operates under a dual mandate: deciding on impactful actions and ensuring their successful completion. Its first step was to complete a Greenhouse Gas Inventory for Government Operations, using 2019 as a baseline.

The Climate Smart Communities (CSC) members, led by Steve Powers (CSC Chair) and Bruce Shenker (CSC Coordinator), include Kris Cottom, Julie Fraad, Winfried Fuchshofen, Bob Gilson, Deb Gordon, Adelia Moore, Frieda Pearce, Elizabeth Poreba, Cathy Wilkerson and Marc Anthonisen (Advisor).

Several reports have been generated to assess and address climate-related issues:

- **Solar Panel Energy Dashboard:** In September 2023, the solar panels produced 2.1 MWh, resulting in an environmental impact equivalent to a CO₂ reduction of 1.5 tons.
- **Heat Pump Webinar Campaign:** The campaign saw participation from 75 individuals, significantly contributing to raising awareness and promoting sustainable heating practices.
- **Annual Report for New Lebanon Climate Smart Communities Task Force:** "Road to Silver," as of May 2021.
- **Climate Vulnerability Assessment on Seasonal Drought in New Lebanon, NY.**
- **Climate Vulnerability Report:** Conducted by Cornell University Master of Public Administration students.
- **New Lebanon, NY Greenhouse Gas Inventory for Government Operations Summary Report (August 12, 2020)**
- **New Lebanon Community Greenhouse Gas Inventory 2020**
- **Green Jobs Assessment for the Town of New Lebanon 2022**

All of the above are available on New Lebanon Climate Smart Communities [Website](#)

A noteworthy accomplishment is the Bronze certification achieved in the Climate Smart Communities program in March 2021, reflecting the town's dedication and leadership. This introduction sets the stage for the Climate Action Plan (CAP), a strategic document defining goals and initiatives to reduce greenhouse gas emissions, building on the foundation of a GHG

emissions inventory. The CAP provides a framework for achieving reduction targets and plays a pivotal role in the town's journey towards Silver certification.

b. Significance of Climate Change to New Lebanon

Climate change presents a multifaceted challenge for New Lebanon. In the past, climate change was often perceived more as a matter of belief than a scientifically established fact. However, attitudes are gradually evolving, especially at the national level. Yet, comprehending the local impact of this global issue remains complex. Although numerous global climate reports exist, including those from the United Nations Intergovernmental Panel on Climate Change (IPCC), various studies have homed in on regional impacts within the United States. This includes assessments specific to the Northeast, part of the National Climate Assessment, as well as insights from organizations like the Union of Concerned Scientists and The Nature Conservancy. Collectively, these studies project a future for the Northeast marked by warmer and wetter conditions, resembling climates found further south, such as in Virginia or the Carolinas.

At the state level, New York offers valuable resources for assessing local climate impacts. The "ClimAID" report¹, a cornerstone of climate projections, serves as the foundation for the state's mitigation plan. The analysis breaks down projections by subregion, with New Lebanon falling within Region 5, covering the East Hudson and Mohawk River Valleys. Notably, a key projection indicates a substantial rise in average annual temperatures by the 2050s.

Projected climate changes for the Hudson and Mohawk valleys of New York State

Region 5 (Saratoga) – Temperature

Baseline (1971-2000) 47.6 °F	Low Estimate (10th Percentile)	Middle Range (25th to 75th Percentile)	High Estimate (90th Percentile)
2020s	+ 1.7 °F	+ 2.3 to 3.2 °F	+ 3.7 °F
2050s	+ 3.5 °F	+ 4.5 to 6.2 °F	+ 7.1 °F
2080s	+ 4.1 °F	+ 5.6 to 9.7 °F	+ 11.4 °F
2100	+ 4.4 °F	+ 6.1 to 11.4 °F	+ 13.6 °F

Region 5 (Saratoga) – Precipitation

Baseline (1971-2000) 38.6 inches	Low Estimate (10th Percentile)	Middle Range (25th to 75th Percentile)	High Estimate (90th Percentile)
2020s	-1 percent	+ 2 to + 7 percent	+ 10 percent
2050s	+ 2 percent	+ 4 to + 12 percent	+ 15 percent
2080s	+ 3 percent	+ 5 to + 15 percent	+ 17 percent
2100	- 1 percent	+ 5 to + 21 percent	+ 26 percent

(Rosenzweig et al., 2014)

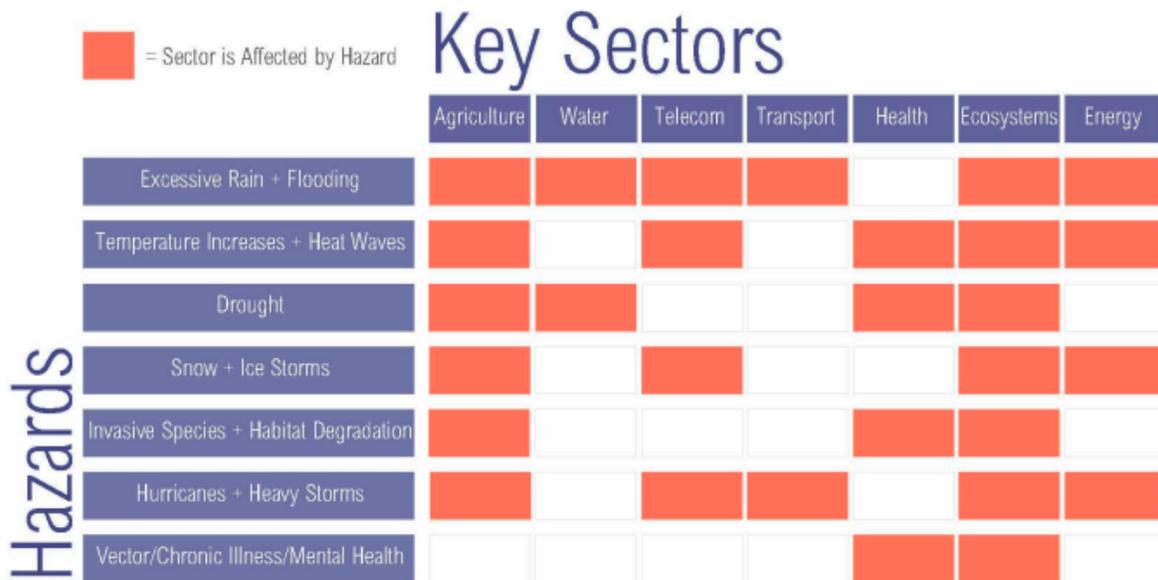
¹ Rosenzweig, C., Solecki, W., DeGaetano, A., O'Grady, M., Hassol, S., & Grabhorn, P. (2014). *Climate Change in New York State—Updating the 2011 ClimAID Risk Information*. NYSERDA.

c. Local Climate Vulnerability Assessment

The Climate Vulnerability Assessment for the Town of New Lebanon² New York was completed from January 2021 to May 2021. While these hazards are recognized, further studies are needed to gauge their severity, progression, and relative risks. A multi-hazard analysis was initiated by a team of Cornell University students and concluded by May 2021. This analysis, which aligns with the findings of the Climate Vulnerability Assessment, informed the town's emergency management planning and contributed to the county's Hazard Mitigation Plan.

The Cornell Consulting Team's assessment identified several prioritized hazards, including temperature increases and heat waves, excessive rain and flooding, drought, and snow and ice storms. Additionally, prioritized assets that require protection include transportation (roads and bridges), energy (power lines), water resources, and agriculture.

The assessment's recommendations encompass both short-term and long-term priorities. In the short term (1-3 years), it is recommended that the Town of New Lebanon continues to develop the Climate Smart Communities Program, which offers a clear pathway to enhance resilience against climate hazards and provides access to technical assistance and grants. The town should also focus on understanding, researching, and updating flood risks, with a flood risk analysis to identify vulnerable areas and prioritize action. Furthermore, protecting critical assets, developing emergency response plans, and strengthening coordination through the Lebanon Valley Protective Association (LVPA) are crucial aspects of preparedness.



As a result of the Vulnerability Assessment, New Lebanon applied for and was awarded a State and Municipal (SAM) Facilities grant to install a water tank for the LVPA. The team had identified seasonal drought as a particular risk for the LVPA which had been having difficulty finding water

² Hughes, Jessie, and Ahktar, Waqar. "Global Climate, Local Resiliency. Climate Vulnerability Assessment for the Town of New Lebanon, New York." Cornell Consulting Team, May 2021.

to refill its trucks during summer dry spells. In addition, Columbia County is now conducting its own Climate Resilience Plan. The Vulnerability Assessment has helped inform New Lebanon's participation in that process.

3. Climate Action Plan (CAP) goals and GHG Emissions Reduction Targets

a. Methodology for developing the CAP and baseline year

The methodology for developing the Climate Action Plan and establishing the baseline year involves selecting 2019 as the starting point. This aligns with the year when the initial greenhouse gas inventory was conducted for New Lebanon³. The chosen approach consists of reporting and analyzing data to identify sources of emissions. It will help determine which fuel sources have the most significant impact or are the easiest to address first. Next steps include measuring progress, reporting, and updating the CAP as needed.

b. Strategies for Climate Change Education and Community Engagement

Strategies for Climate Change Education and Community Engagement were implemented by the New Lebanon Climate Smart Task Force, emphasizing community involvement. Despite the challenges posed by the pandemic, they devised a solution by leveraging online webinars, which proved highly effective. Several webinars were organized to successfully execute NYSERDA's Community Solar and Heat Pump campaigns. Moreover, from June to October, the Task Force operated a booth at the weekly outdoor Farmers Market, providing an excellent opportunity to inform residents about CSC programs.

Outreach efforts extended to speaking engagements at church groups, monthly newsletter distribution, survey administration, participation in Earth Day events, hosting Repair Cafes, organizing annual electronics recycling events, and collaborating with Cornell University in educational forums and participating in the first Columbia County Climate Carnival. Looking forward, the Task Force plans to persist with these strategies, aiming to host more in-person events and webinars as deemed appropriate.

³ Anthonisen, Marc. "Greenhouse Gas Inventory for Government Operations. Summary Report." New Lebanon, NY, August 12, 2020.
https://townofnewlebanon.com/wp-content/uploads/2020/08/New-Lebanon-Greenhouse-Gas-Inventory_Summary-Report-.pdf.

c. GHG reduction goals and targets

The proposed plan outlines specific objectives and measurable outcomes. Using 2019 as the baseline, the target is to achieve a 50% reduction in greenhouse gas emissions from non-diesel sources by the year 2030, resulting in an overall reduction of GHGs by 17.5% from 2019 levels within the same timeframe. Looking ahead to 2040, the broader goal is to reduce the town's total emissions by 50%, with a significant focus on decreasing diesel-related emissions to drive this substantial reduction.

4. Greenhouse Gas (GHG) Assessment for New Lebanon

a. Methodology and data explanation

Data Explanation: A standardized template from the Capital District Regional Planning Commission (CDRPC), tailored for municipalities in the Capital Region, was utilized for data collection.

Methodology:

Section 1: Calculation of Facility-Specific Energy Use and Corresponding GHG Emissions:

01. Data Collection: Thorough data collection involved gathering comprehensive information about energy consumption and the associated greenhouse gas emissions for every municipal facility within New Lebanon. This encompassed a range of documents, such as utility bills, fuel consumption records, and other pertinent energy-related records.
02. Energy Sources: An exhaustive identification of the energy sources employed by each facility was carried out, covering electricity, fuel oil, and other pertinent sources. The purpose was to discern the energy mix employed for various functions, including heating, cooling, lighting, and other operational requirements.
03. Emission Factors: To facilitate the conversion of energy consumption data into greenhouse gas emissions, relevant emission factors tailored to each energy source were meticulously applied. These factors were sourced from authoritative entities like the Environmental Protection Agency (EPA) and state-level environmental agencies.
04. Calculations: The annual greenhouse gas emissions for each facility were computed by multiplying energy consumption (in appropriate units, e.g., kWh, MMBtu) by the corresponding emission factors. The calculation formula employed was: GHG Emissions (tons CO₂e) = Energy Consumption (units) x Emission Factor.
05. Recording and Organization: Emissions data for each facility were systematically recorded, categorized by energy source, and emission type (e.g., heating, electricity, cooling). These records were maintained for future reference and reporting purposes.

Section 2: Calculation of Municipal Fleet Energy Use and Corresponding GHG Emissions:

01. Data Collection: Pertinent data about New Lebanon's municipal fleet was meticulously gathered, including details regarding the number and types of vehicles, annual mileage,

and fuel consumption records. This information was sourced from fleet management records, fuel invoices, and vehicle maintenance logs.

02. Fuel Types: A thorough identification of the various fuel types utilized in the municipal fleet was conducted, with a particular focus on diesel, gasoline, and alternative fuels.
03. Emission Factors: Appropriate emission factors were determined for each type of fuel utilized in the municipal fleet, with a reliance on authoritative sources such as the EPA and state regulatory agencies.
04. Calculations: Annual greenhouse gas emissions for the municipal fleet were computed by multiplying the fuel consumption (in appropriate units, e.g., gallons, liters) for each fuel type by the respective emission factor. The calculation formula employed was: GHG Emissions (tons CO₂e) = Fuel Consumption (units) x Emission Factor.
05. Recording and Organization: Emissions data for the municipal fleet were methodically recorded, with categorization based on fuel type and vehicle type. These organized records were maintained for future reference and reporting.

Section 3: Aggregation and Analysis of Information:

01. Consolidation: Emissions data from Sections 1 and 2 were merged to construct a comprehensive inventory of greenhouse gas emissions specifically associated with New Lebanon's local government operations. This inventory delineated emissions by source, encompassing individual facilities and the municipal fleet.
02. Data Analysis: The aggregated data underwent in-depth analysis to discern the principal sources of greenhouse gas emissions, identify trends, and pinpoint areas where efforts to reduce emissions could be most impactful. Comparative analysis was also performed, contrasting current emissions data with baseline data from prior years, when available.

b. 2019 GHG Emissions Inventory Summary: CAP Baseline

Section 1:

The table below provides a comprehensive overview of the Facilities, along with their corresponding ICLEI category, consumption data from various sources (electricity, fuel oil, or kerosene), and their respective GHG emissions measured in US tons. This data collectively amounts to 63.8 GHG US tons.

Facility / Group Name	ICLEI Category	Consumption (KWh and Gallons)			GHG Emissions (US tons)			Total
		Electricity	Fuel Oil	Kerosene	Electricity	Fuel Oil	Kerosene	
Town Hall (Campus)	Administration Facilities	27,669	1875		8.6	21.1		29.7
Town Garage	Administration Facilities		2020	153	0.0	22.7	1.7	24.4
Street Lighting	Streetlights	27,943			8.7			8.7
Park pavilion	Administration Facilities	1,226			0.4			0.4
Park shed	Administration Facilities	1,566			0.5			0.5
TOTALS		58,404	3,895	153	18.3	43.8	1.7	63.8

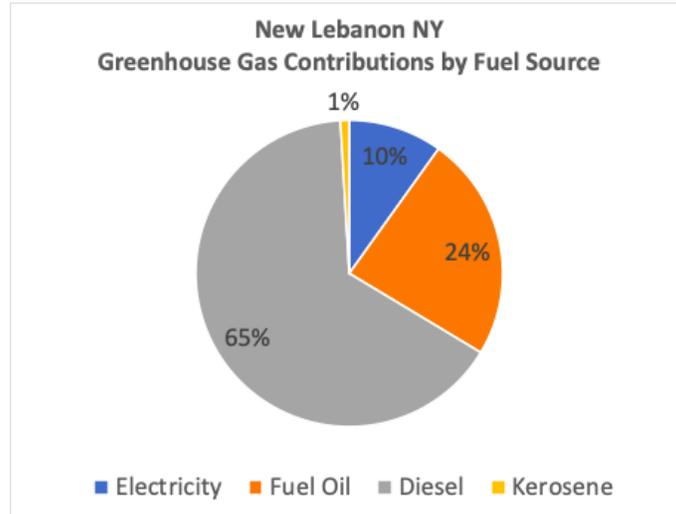
Section 2:

Regarding Municipal Fleet Energy Use, the sole identified source of emissions is diesel fuel, contributing to a total of 120.7 GHG emissions in US tons.

	Gallons	GHG Emissions (US tons)
Diesel	10727.0	120.7

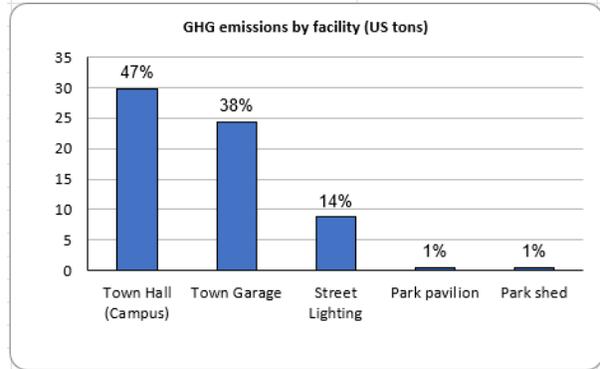
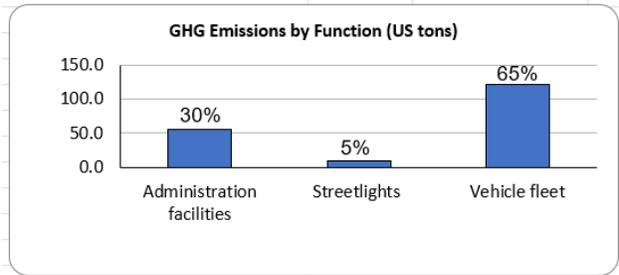
Section 3:

In aggregate, the town government generates an annual total of 185 US tons of greenhouse gas emissions. The majority of this total, constituting 65%, arises from the use of diesel fuel in town vehicles, followed by fuel oil for heating the town hall and garage. Electricity usage accounts for 10% of the total GHG emissions.



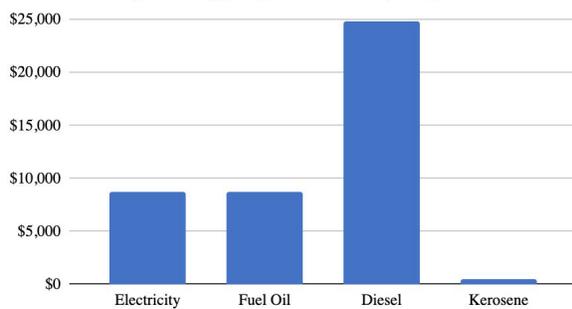
In the assessment of GHG emissions based on administrative function, a clear pattern emerges, underscoring the vehicle fleet as the predominant contributor, responsible for a substantial 65% of the overall emissions. Administrative facilities follow closely, contributing 30% to the emissions, while streetlights represent a comparatively smaller 5% of the total emissions. It is crucial to emphasize that administrative facilities encompass various components, as depicted in the graph to the right.

Delving into a more granular analysis of GHG emissions ranked by facility, the town hall and the town garage stand out as the primary contributors, emitting around 30 US tons and just under 25 US tons, respectively. These figures correspond to 47% and 38% of the total emissions by facility. In contrast, street lighting, while still noteworthy, accounts for a smaller share, comprising slightly less than 14% of the emissions. Given these findings, a strategic priority should be placed on decarbonizing the town hall and the town garage to address the major share of emissions from these facilities.

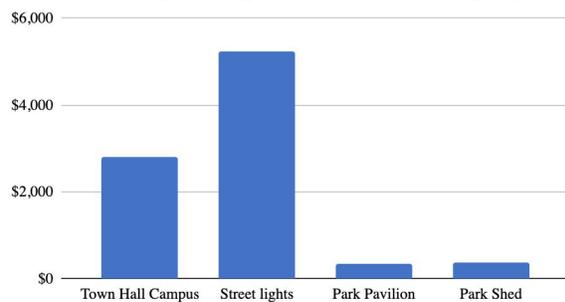


Analyzing the cost by Fuel Type, the town allocated a total of \$42,696 to energy expenses in 2019. The most substantial expenditure was associated with diesel for vehicles. When focusing on electricity, the largest portion of the cost was attributed to streetlights, followed by the combined usage of the Town Hall and Garage, which share a meter. Notably, the cost related to streetlights is anticipated to decrease by approximately 50% following the conversion to LED lamps in March 2020.

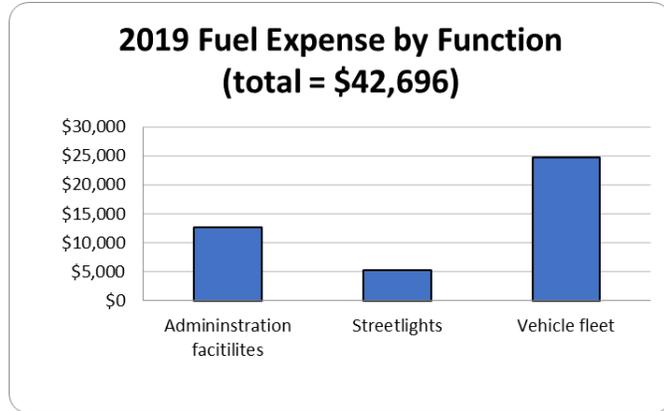
2019 cost by fuel type (total = \$42,696)



2019 electricity cost by function (total = \$8,753)



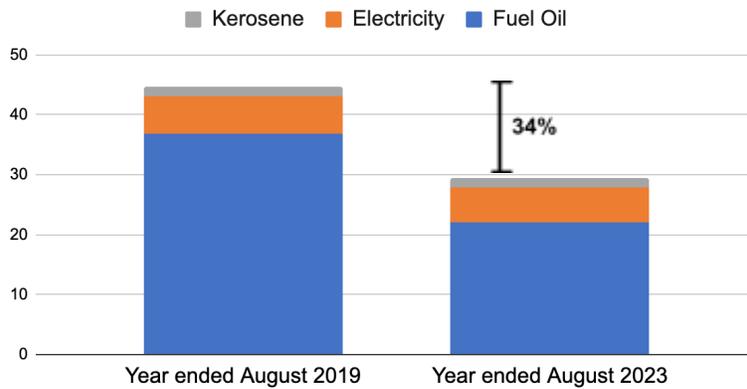
In the context of Cost by Function for both electricity and fuels, administrative facilities incurred expenses of just under \$15,000, while streetlights accounted for \$5,000, and the vehicle fleet stood at \$25,000. Remarkably, the vehicle fleet constitutes 58% of the overall cost, emphasizing its significance as the primary contributor to both greenhouse gas emissions and expenses for the Town.



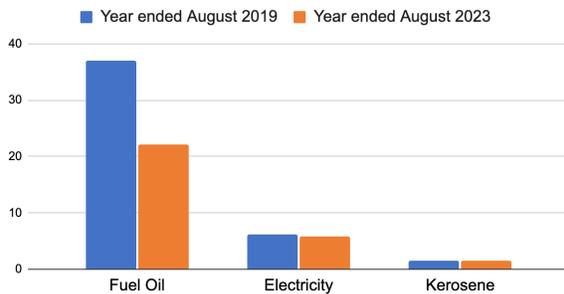
c. 2023 GHG Emissions Inventory Summary for Government Facilities

In 2023 the Town assessed the progress of its efforts to reduce GHGs from government facilities. The Climate Smart Communities Task Force updated its GHG Inventory for government buildings and streetlights. Thanks to the implementation of LED streetlights, office lights, and heat pumps, overall emissions have fallen 34%. The implementation of solar panels on the Town Hall and additional heat pumps are expected to reduce emissions even further.

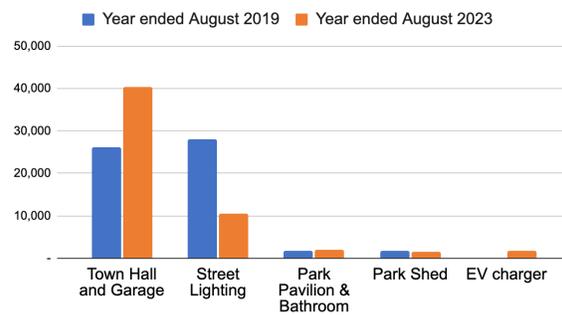
New Lebanon GHG emissions from Government Facilities by Fuel Type (MTCO₂e)



New Lebanon GHG emissions from Government Facilities by Fuel Type (MTCO₂e)



New Lebanon Electricity Usage by Government Facility (kwh)



5. Climate Action Plans Initiatives

The outlined initiatives have been strategically chosen to achieve the most significant reduction in greenhouse gas emissions. Aligned closely with the Climate Smart Communities progress, these initiatives correspond to its pledge elements. Additionally, some of them will align with the NYSERDA Clean Energy Communities program, in which the Town is actively engaged.

a. Pledge Element 3: Decrease energy use

- i. PE3 Action: Benchmarking - Municipal Buildings, (NYSERDA CEC action).
- ii. PE3 Action: Clean Energy Upgrades, (NYSERDA CEC action).
- iii. PE3 Action: Clean Fleets, (NYSERDA CEC action).
- iv. PE3 Action: Energy Code Enforcement Training, (NYSERDA CEC action)
- v. PE3 Action: LED Street Lights, (NYSERDA CEC action)
- vi. PE3 Action: Interior Lighting Upgrades
- vii. PE3 Action: Environmentally Preferable Purchasing Policy
- viii. PE3 Action: Government Building Energy Audits

b. Pledge Element 4: Shift to clean, renewable energy

- i. PE4 Action: Heat Pumps, (NYSERDA CEC action)
- ii. PE4 Action: Solar Energy Installation

c. Pledge Element 5: Use climate-smart materials management

- i. PE5 Action: Community Repair

d. Pledge Element 6: Implement climate-smart land use

- i. PE6 Action: NYStretch Energy Code, (NYSERDA CEC action)
- ii. PE6 Action: Unified Solar Permit, (NYSERDA CEC action)
- iii. PE6 Action: Alternative-fuel Infrastructure
- iv. PE6 Action: Planning for Biking and Walking
- v. PE6 Action: Infrastructure for Biking and Walking

e. Pledge Element 7: Enhance community resilience to climate change

- i. PE7 Action: Cooling Centers

f. Pledge Element 8: Support a green innovation economy.

- i. PE8 Action: Community Campaigns, (NYSERDA CEC action)
Campaign 1: Community Solar

Campaign 2: Clean Heating and Cooling and Energy Efficiency
 Campaign 3: EVs

g. Pledge Element 9: Inform and inspire the public.

- i. PE9 Action: Climate Change Education & Engagement

h. Pledge Element 12: Performance

- i. Performance: Reduce GHGs from Government Facilities

6. Implementation Strategy

a. Prioritization of Initiatives and Timeline

The implementation strategy unfolds with a carefully prioritized timeline, charting a clear course for key initiatives in New Lebanon's journey towards sustainability. In 2020, the town transitioned to energy-efficient LED street lights, marking an early but impactful step in reducing carbon emissions. Building on this success, 2021 witnessed the installation of an electric vehicle (EV) charger, promoting cleaner transportation options for the community. Looking ahead to 2022-2024, a comprehensive plan involves the integration of heat pumps in the Town Hall and Garage, targeting the reduction of fuel oil dependency. The strategic deployment of heat pumps aligns with the overarching goal of minimizing the carbon footprint associated with heating facilities.

Moving forward, 2023 signaled the introduction of solar panels in the Town Hall, a pivotal initiative aimed at harnessing clean and renewable energy to power municipal operations. As part of ongoing efforts, considerations for addressing diesel-related emissions are still to be determined (TBD). This structured timeline guides the phased implementation of initiatives and illustrates a proactive approach to sustainable development in New Lebanon.

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Benchmarking											
LED Lights											
EV charger											
Heat Pumps											
Solar Panels											

NYSStretch											
Energy Upgrades											
Diesel											

As previously indicated, the Climate Smart Communities Task Force is the entity entrusted with the implementation of the Climate Smart Communities initiative in New Lebanon. This responsibility will persist until further notice or an update regarding any changes.

7. Next Steps

As New Lebanon looks ahead, its unwavering commitment to sustainability remains a guiding force. The Taskforce will lead the evaluation of progress toward achieving greenhouse gas reduction targets and other goals, prioritizing initiatives aligned with the objectives outlined in the Climate Action Plan. The CAP itself is planned to undergo a comprehensive update in 2028, specifically tailored to assess progress towards the 2030 goals, with a strategic vision extending to the 2040 targets and initiatives.

Currently, New Lebanon is actively involved in the application process for Silver of the Climate Smart Communities program, with the anticipated submission of its application in the first week of January. Simultaneously, the NYSERDA Clean Energy Communities Electric Vehicle campaign and the ongoing heat pump initiative, supported by additional grant funds, are actively championing sustainable practices.

Looking forward, the town envisions a series of webinars focusing on heat pumps and geothermal options, strategically spotlighting federal and state incentives. Additionally, the next GHG inventory, scheduled for 2028, underscores New Lebanon's commitment to providing accurate and timely data for the broader regional efforts led by the Capital District Regional Planning Commission in assessing the county's GHG footprint. This role ensures that local data points play a pivotal role in informing and enhancing regional sustainability strategies.