

Climate Action Plan Update

July, 2023

Town of Richland

Village of Pulaski



A MESSAGE FROM THE SUPERVISOR AND MAYOR

In 2016 a group of forward-looking community members drafted a Climate Action Plan for the Village of Pulaski and the Town of Richland. Last year the joint Village and Town Comprehensive Planning Board took up the task of reviewing the 2016 document. It was felt that measuring and evaluating the actions that were taken as part of the Climate Action Plan needed to be evaluated, to review what had been accomplished and continue to set clear goals for a path forward. Much has already been done to address climate change in our community. Since the last climate action plan update, the Town of Richland has installed a 22kW solar array that saves the Town roughly \$3,200 per year. The Village of Pulaski upgraded to air-source heat pumps in the Snow Memorial Building, saving \$1,000 per year and reducing annual emissions by an estimated 42,377 lbs of CO₂.

We are lucky enough to live in a beautiful setting, with lovely landscapes, scenic rivers and lakes, clean air and water, and gorgeous sunsets. However, our planet has never been hotter, and the ramifications of climate change will affect everyone. Having an updated Climate Action Plan helps us all protect our piece of the planet where we live and the others who live here with us. If we all do what we can, the collective effect will be measurable and have an impact.

This climate action plan provides a benchmark of the Town and Village's emissions, and outlines numerous actions that the Town, Village, and community members can take to reduce energy use, pollution, and save money. Together, we will enhance the quality of life in the Town of Richland and Village of Pulaski and create a healthier, more sustainable community for all.



Kern Yerdon, Town Supervisor, Town of Richland



Jan Tighe, Mayor, Village of Pulaski

ACKNOWLEDGEMENTS

This Climate Action Plan (CAP) was compiled by the Central New York Regional Planning and Development Board (CNY RPDB) in support of the DEC Climate Smart Communities Initiative, which includes climate action planning.

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The Central New York Regional Planning and Development Board

The Central New York Regional Planning and Development Board (CNY RPDB) is a public agency that was established in 1966 by Cayuga, Cortland, Madison, Onondaga, and Oswego Counties under the provisions of Article 12B of the New York State General Municipal Law. The CNY RPDB provides a comprehensive range of services associated with the growth and development of communities in Central New York with a focus on the following program areas: Energy Management, Community Development, Economic Development, Environmental Management, Information and Research Services, Intergovernmental Coordination, and Transportation Planning.

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EXECUTIVE SUMMARY

New York State (NYS) is already experiencing the impacts of climate change and has made climate mitigation one of the top priorities for the state. Currently, 367 local governments have adopted the NYS Climate Smart Communities (CSC) Pledge to reduce greenhouse gas (GHG) emissions and prepare for the effects of a changing climate. The Town of Richland and Village of Pulaski is joining other communities across the state to lead the way by developing Climate Action Plans to provide guidance for the implementation of energy efficiency and climate actions that will result in reduced energy demand, reduced cost to taxpayers and the local government, and reduced GHG emissions. In addition to energy and cost savings, these actions will improve community health and safety, help facilitate a growing green economy, and make the community more resilient to the changing climate.

By choosing to act now, the Town and Village are taking a leadership role in advancing New York State's climate goals as outlined in the Climate Leadership and Community Protection Act (also known as the Climate Act). The Town and Village have agreed to a municipal emissions reduction goal of 40% by 2030, and a community emissions reduction goal of 25% by 2030. Both the Town and Village have set long term goals of reaching net-zero emissions by 2050, in line with New York State's climate goals.

This CAP includes an extensive list of emissions reduction actions that the Town and Village can implement going forward, and includes guidance for what actions residents can do to help the community reach local emission reduction goals. The actions and reduction targets of this document will be periodically reevaluated and updated as needed to remain relevant to current and future technologies, best practices, and climate science.



Pulaski Farmers Market

Photo Credit: Pulaski Farmers Market





South Park

Photo Credit: Half-Shire Historical Society



Right: Barbara Youmans and Paul Ingersoll at Pulaski Cemetery on Memorial Day. Both are descendants of the first child born in Pulaski, Benjamin Ingersoll (1805)

Photo Credit: Half-Shire Historical Society

INTRODUCTION

BACKGROUND

The Climate Smart Communities (CSC) Program is a partnership between New York State and local governments to reduce energy use and greenhouse gas (GHG) emissions while adapting to a changing climate and fostering a green economy. Participating communities adopt a ten element Climate Smart Communities Pledge. These elements are:

1. Build a climate-smart community.
2. Inventory emissions, set goals, and plan for climate action.
3. Decrease energy use.
4. Shift to clean, renewable energy.
5. Use climate-smart materials management.
6. Implement climate-smart land use.
7. Enhance community resilience to climate change.
8. Support a green innovation economy.
9. Inform and inspire the public.
10. Engage in an evolving process of climate action.

The Town of Richland and Village of Pulaski adopted the CSC pledge in 2015. Since then, the Town and Village have engaged in climate actions through the CSC program that help reduce GHG emissions and strengthen community resiliency. As a result of these efforts, both the Town of Richland and Village of Pulaski became Bronze Certified Climate Smart Communities in March of 2022. The Climate Smart Communities program recognizes communities that have completed and documented climate mitigation and adaptation actions at the local level. Certified Bronze or Silver Climate Smart Communities are the foremost leaders of climate action in New York State.

As part of a continuing and evolving process of climate change mitigation and adaptation, and to further build upon municipal and community GHG inventories completed in 2021, the Town and Village have decided to compile an update to the existing 2016 Climate Action Plan (CAP). The CAP utilizes GHG inventory results as a baseline to develop a pathway towards reducing emissions across all sectors in the community and for municipal operations.

Local governments, such as the Town of Richland and Village of Pulaski, do not have direct control over most of the emissions created by the community. They can however take action to influence positive change in residents and businesses towards reducing GHG emissions. This CAP will highlight the types of actions the local government can implement to reduce emissions from municipal operations and to encourage emissions reductions within the Richland/Pulaski community.



Richland Hamlet residents ride the Half Shire Tram during the annual Hamlet Christmas Festival

Photo Credit: Half-Shire Historical Society

CLIMATE CHANGE AND GREENHOUSE GASES

Climate change is a real and documented threat that refers to long-term shifts in global temperatures and weather patterns, and the subsequent effects of these shifts. Throughout Earth's history these shifts have been caused by natural phenomena, such as variations in the solar cycle or volcanic eruptions. Since the 1800s, humans have been the main cause of climate change primarily due to emissions from the combustion of fossil fuels such as oil, coal, and natural gas.

An international panel of leading climate scientists, the Intergovernmental Panel on Climate Change (IPCC), was formed in 1988 by the World Meteorological Organization and the United Nations Environment Program to provide objective and up-to-date information regarding the changing climate. In its 2014 Fifth Assessment Report, the IPCC states that there is a greater than 95% chance that rising global average temperatures, observed since the mid-20th century, are primarily due to human activities. Anthropogenic GHG emissions, driven largely by economic and population growth, have led to atmospheric concentrations of carbon dioxide, methane, and nitrous oxide that are unprecedented in at least the last 800,000 years.¹

Ever increasing GHG emissions is having a significant impact on global temperatures through a process known as the greenhouse effect. Under normal circumstances, the greenhouse effect is what allows the Earth to be warm enough to be habitable for humans and other species (see Figure 1). Because of emissions from fos-

sil fuels and other anthropogenic sources, the greenhouse effect is contributing to a significant and rapid increase in global temperatures.² Significant effects of increasing global temperatures could include but are not limited to stronger and more frequent extreme weather events, rising sea levels, drought, mass species die-off, and increased risks of disease and epidemics. To stop the impacts of climate change from getting worse, mitigation of GHG emissions is necessary through the reduction and elimination of the use of fossil fuels.

Despite current and future efforts to halt GHG emissions, some effects of climate change will be inevitable. Therefore, it is crucial that the climate mitigation actions highlighted in this document also be paired with adaptation measures that help build the capacity for economic, social, and environmental resilience in the community. Climate adaptation can take the form of infrastructure assessments and resilience, emergency planning, and educational efforts to raise public awareness about potential climate change impacts.

New York State outlined projected climate impacts and vulnerabilities in its 2011 ClimAid assessment and 2014 supplement (ClimAid Report).³ The ClimAid report projects changes to ecosystems (e.g., increased presence of invasive species and shifts in tree composition), while water quality and quantity may also be impacted due to changes in precipitation. Scientific

² IPCC. 2007. Fourth Assessment Report. https://archive.ipcc.ch/publications_and_data/ar4/wg1/en/faq-1-3.html

³ NYSERDA. 2014. Climate Change in New York State: Updating the 2011 ClimAID Climate Risk Information.

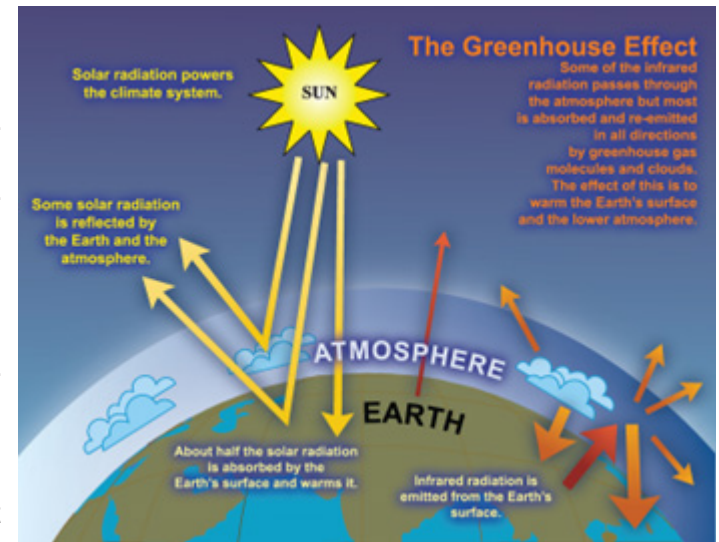


Figure 1: The Greenhouse Effect

evidence suggests that the impacts of global climate change will be different in various regions, and will include temperature shifts, more extreme heat events, sea level rise and coastal flooding, more frequent intense precipitation events, and human health risks.

We have already experienced and will continue to experience the effects of a changing climate in New York State and abroad. The economic, social, and environmental consequences of these effects show that the need for climate action and resilience is pressing. The goal of building community resilience in order to protect the health and livelihood of residents and natural systems serves as a motivating factor in the assessment of greenhouse gas contributions and effective sustainability planning.

¹ IPCC. 2014. Fifth Assessment Report. <https://www.ipcc.ch/report/ar5/syr/>

THE PURPOSE OF A CLIMATE ACTION PLAN

A CAP is a strategy document that serves as a roadmap for the community and local government to implement climate mitigation actions, set emissions reduction targets, and reduce greenhouse gas emissions. It utilizes municipal and community wide GHG inventories as a baseline for its strategies and targets.

Municipal governments play an important role in helping to reach New York State emissions targets (see Figure 2) through local action and influence. This CAP provides goals for reducing emissions from municipal operations and from the Richland/Pulaski community as a whole and includes specific recommendations for sectors such as transportation, energy and efficiency, promotion and education, waste, and natural resources. The objectives of this Climate Action Plan are to:

- (1) Provide municipal elected officials, community leaders, and residents with information and support to advance sustainability programs throughout the community;
- (2) Identify opportunities for emission reduction programs and initiatives; and
- (3) Engage and encourage local participation in greenhouse gas emission reduction strategies.

The Richland/Pulaski Comprehensive Planning Committee, an advisory group for the Town and Village, in collaboration with the Central New York Regional Planning and Development Board began meeting monthly since the summer of 2022 to discuss emission reduction goals and specific strategies for reaching them. The committee agreed on a short-term goal of reducing municipal emissions by 40% by 2030, and community emissions by 25% by 2030. They have set a long term goal of net-zero emissions by 2050, as that is the statewide emissions requirement outlined in the CLCPA.

New York's Nation-Leading Climate Targets

- 85% Reduction in GHG Emissions by 2050
- 100% Carbon-free Electricity by 2040
- 70% Renewable Energy by 2030
- 9,000 MW of Offshore Wind by 2035
- 3,000 MW of Energy Storage by 2030
- 6,000 MW of Solar by 2025
- 22 Million Tons of Carbon Reduction through Energy Efficiency and Electrification

Figure 2: New York State Climate Targets

Climate Leadership and Community Protection Act (CLCPA)

In 2019, New York State adopted the Climate leadership and Community Protection Act (CLCPA). The CLCPA is New York State's ambitious emissions reduction plan with the goal of making electricity 70% renewable by 2030 and 100% carbon neutral by 2040, reducing GHG emissions 40% below 1990 levels by 2030 and 85% below 1990 levels by 2050, and includes additional provisions to address climate adaptation, climate justice, and the transition to a green economy.

In December 2022, the Climate Action Council's Scoping Plan was approved and adopted. The Scoping Plan outlines recommended policies and actions to help meet the goals and requirements of the nation-leading Climate leadership and Community Protection Act, including actions such as requiring zero-emissions heating equipment in new construction single-family and low-rise buildings in 2025 and requiring 100% light-duty zero emissions vehicle sales by 2035.

Climate Impacts in the Northeast¹

Temperature: Average temperatures across the Northeast have risen more than 1.5 degrees Fahrenheit since 1970, with even more significant changes in average winter temperatures, rising 4°F between 1970 and 2000.

Precipitation: The Northeast region is projected to see a 20 to 30% increase in winter precipitation, and, due to increases in temperatures, less winter precipitation will fall as snow and more will fall as rain.

Additionally, heavy, damaging rainfall events have already increased measurably across the Northeast in recent decades. For example, Hurricane Irene and Superstorm Sandy brought intense rains to the region in 2011 and 2012, causing widespread flooding.

Drought: Rising summer temperatures coupled with little change in summer rainfall are projected to increase the frequency of short-term (one to three month) droughts in the Northeast, therefore increasing stress on both natural and managed ecosystems.

¹ US EPA, <http://www.epa.gov/climatechange/impacts-adaptation/northeast.html>

FRAMEWORK FOR THIS CAP

As noted previously, local governments like the Town of Richland and Village of Pulaski do not have direct control over the majority of emissions that are created in the community. However, local governments do have the ability to exert important influence in areas that indirectly impact community-wide emissions, as described below.

Municipalities have power over land use.

- o The permitting of renewable energy facilities, like solar and wind farms, and battery energy storage is critical to meeting the state's clean energy targets, and municipalities play a critical role in defining rules and processes for local development

- o Smart Growth strategies is still critical to facilitate public transit and non-motorized forms of travel by allowing and incentivizing mixed-use and higher density development.

Municipalities have police powers to address public health and safety.

- o Municipalities can pass a local law to enforce green building codes such as the NYStretch Energy Code in their community.

Municipalities control vital public infrastructure.

- o Some municipal facilities are very energy-intensive (such as the wastewater treatment plant) and upgrades to more efficient technology can provide substantial cost savings as well as emissions reductions.

- o Some municipal facilities can be leveraged to provide lower-carbon forms of electrical and thermal energy to the community.

Municipalities purchase lots of energy and energy-intensive materials.

- o By installing renewable energy on their facilities or properties, or subscribing to community solar projects, or purchasing Renewable Energy Certificates, they can lower the carbon footprint of their energy purchases.

- o Municipalities can implement enforceable green purchasing policies which require the use of lower-carbon products.

Municipalities set the local economic development agenda and policies.

- o Municipalities can enact policies that encourage or even require the use of clean energy technologies (e.g., PILOTs, "density bonuses", or waivers for minimum parking requirements) by commercial businesses.

- o Municipalities can establish partnerships with local schools, businesses, and non-profit



Winter festival

Photo Credit: Half-Shire Historical Society



Town of Richland Solar Array; Photo Credit: CNY RPDB

organizations to address the workforce development needs for emerging clean energy markets, especially for disadvantaged communities.

Municipalities can “walk the talk” and set a powerful example for the community.

- o By organizing local Community Choice Aggregation programs, including those with op-out community distributed generation (CDG), municipalities can provide an affordable alternative for residents in the community to purchase green electricity.

- o Municipalities can support local education efforts to promote electric vehicles or community solar, heat pumps, and other clean technologies and earn points and grants through the NYSERDA Clean Energy Communities Program for doing so.

- o Municipalities can purchase electric vehicles, install charging stations, and install energy efficient heat pumps on their own property to demonstrate the viability of these technologies.

Municipalities such as the Town of Richland and Village of Pulaski can create climate action

Clean Energy Saves Money and the Environment

In 2019, the Town of Richland installed a 22kW solar array at the Central Waterworks facility utilizing funding from the New York State Energy Research & Development Authority’s Clean Energy Communities program. The solar panels generate enough electricity to offset 100% of the electric use at the water building. The array saves the town roughly \$3,200 per year and reduces greenhouse gas emissions by 11.4 metric tons annually.

plans such as this one that address these and other policies. It is important that local elected officials adopt and support these measures. Not only do they benefit the community, but send an important signal to state and federal lawmakers that they must continue to support and facilitate local climate action. Having documents such as this climate action plan demonstrates that the local government is taking the threat of climate change seriously.

The Town of Richland and Village of Pulaski also recognize the importance of fairness when incorporating climate mitigation efforts. The cost of certain actions must be borne by those who can afford it to mitigate

the cost burden on those who cannot and who otherwise would be disproportionately impacted by the effects of climate change. Though the financial cost may seem high for some climate actions, the social, economic, and environmental consequences of not addressing climate change will be far greater in the short and long term. The emissions reduction strategies noted within this CAP are structured in a way to reflect these considerations.

CLIMATE ACTION ACCOMPLISHMENTS

The Richland/Pulaski community has been proactive in adapting to climate change and has taken steps to reduce greenhouse gas emissions. In addition to becoming a certified Bronze Climate Smart Community in 2022, the Town and Village are designated NYSEERDA Clean Energy Communities. By participating in Climate Smart Communities and Clean Energy Communities the Town and Village have earned over \$1.6 million in funding towards energy efficiency and emissions reduction projects that save taxpayer dollars.

Some actions that the Town and Village have taken to reduce emissions and save money include:

- o Replacing streetlights with high efficiency LED bulbs in the Town and Village which led to a 40% cost savings for the Town's lighting districts.
- o Installing a 22kW solar array at the Central Waterworks facility.
- o Replacing the heating and cooling system at the Snow Memorial Building with high efficiency air source heat pumps.

Climate change will bring significant changes to weather patterns and will increase the frequency and intensity of extreme weather events. The Town and Village have been proactive in respond-



H. Douglas Barclay Courthouse

ing to these extreme weather events by partnering with Oswego County to increase the capacity and capability of the community to be resilient to these events. Oswego county is a designated StormReady community by the National Weather Service.

The community participates in the National Incident Management System (NIMS). NIMS establishes a command and management structure with emphasis on preparedness, mutual aid and resource management. NIMS provides training for emergency responders and others that work with response agencies during emergencies and disasters. These include fire, emergency medical services, and law enforcement personnel, as well as municipality chief elected officials, schools, hospitals, volunteer agencies and others.

The Oswego County Soil and Water Conservation District (SWCD) develops erosion and sediment control plans, assists

with stormwater facility permitting, works on streambank restoration to reduce erosion and sedimentation, and provides assistance in the identification of green infrastructure opportunities.

Photo Credit: Half-Shire Historical Society



Pulaski Farmer's Market

Photo Credit: Half-Shire Historical Society

Heat Pumps: The Clean Heating and Cooling Technology of The Future

Heat pumps are a very efficient and low-carbon way to heat and cool your home or business. They operate in a similar manner to your refrigerator, transferring heat from one place to another using refrigerants. During the summer, heat pumps take heat from warm indoor air and remove it, therefore cooling your home. In the winter, heat pumps pull heat from cold outdoor air and transfer it inside, warming the home. Heat pumps can also utilize heat stored underground for heating or pump heat underground to cool homes. These systems are known as geothermal heat pumps. Both air source and geothermal heat pumps are more efficient and reliable than traditional gas furnaces and HVAC systems, saving consumer dollars as well as reducing fossil fuel emissions.

The Village of Pulaski installed heat pumps at the Snow Memorial Building, which houses the library, police, and village offices, in 2021. These heat pumps fulfill the heating and cooling needs for the entire building. Since their installation, the Village has been saving around \$1,000 annually on heat and cooling costs, and has reduced its carbon emissions by an estimated 42,377 lbs of CO₂ per year.



(Bottom) Heat pumps located in the library

Photo Credit: Jan Tighe

(Top) Air source heat pump installed at the Snow Memorial Building

Photo Credit: Jan Tighe



TIMELINE 2003-2023

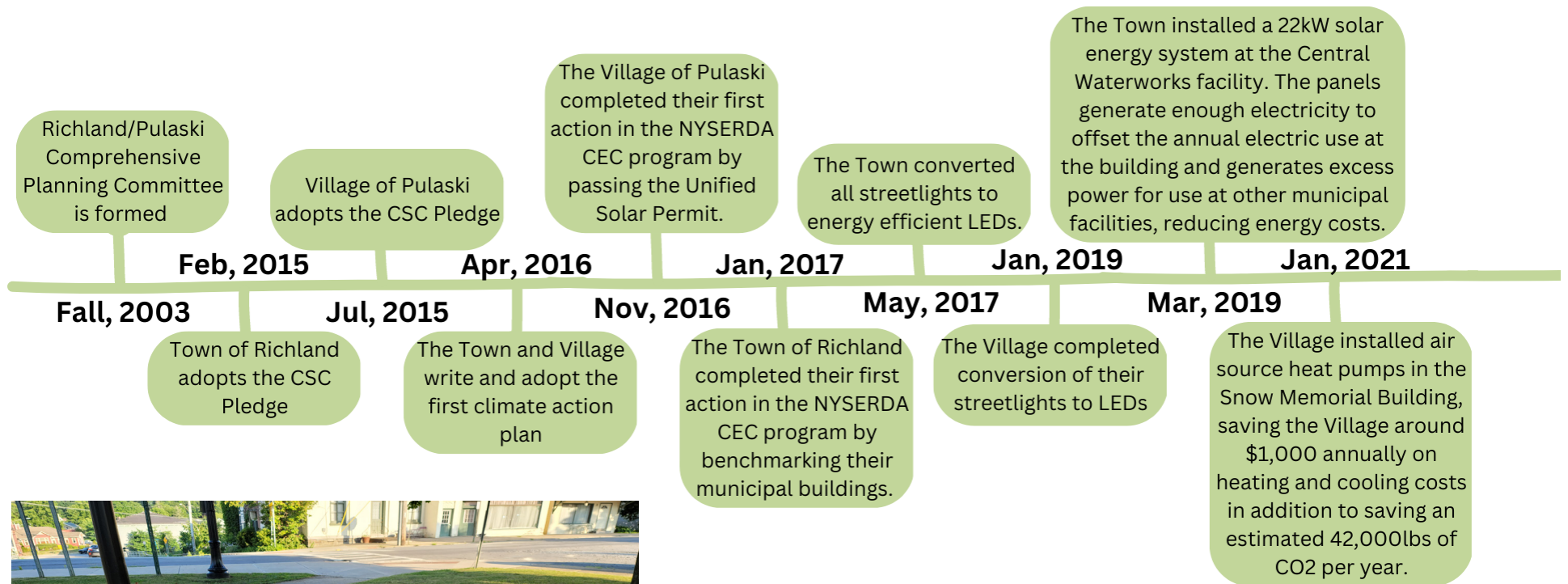


Table at the Farmer's Market
Photo Credit: Half Shire Historical Society

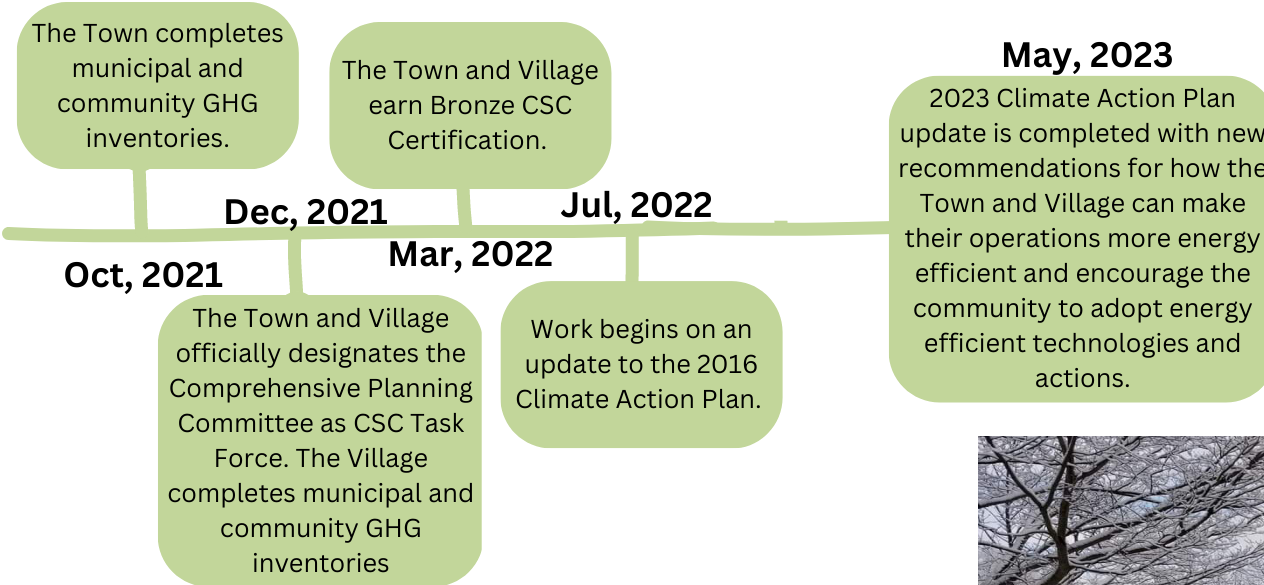


Barb Fuller at the Farmer's Market
Photo Credit: Half Shire Historical Society



Alaina Lowry, 6th generation Richland farm family member at the County Fair

Photo Credit: Half Shire Historical Society



Salmon River
Photo Credit: Half Shire Historical Society

GREENHOUSE GAS INVENTORY SUMMARY: TOWN OF RICHLAND





In 2021, the Town of Richland completed a Greenhouse Gas Inventory in collaboration with the Central New York Regional Planning & Development Board (CNY RPDB) utilizing emissions and energy use data from 2019.

In 2019, the Town of Richland's community emissions totaled 49,869 MTCO₂e. The transportation sector contributed to the largest percentage of emissions, accounting for 38,684 MTCO₂e, or 77% of the community's total emissions. Residential energy use was the next highest emitting sector, producing 5,863 MTCO₂e, or 12% of total community emissions, followed by the commercial/industrial energy use sector, which produced 2,169 MTCO₂e, or 4% of total emissions. The waste sector emitted 1,852 MTCO₂e, or 4% of emissions, followed by the wastewater sector which contributed 1,301 MTCO₂e, or 3% of emissions.

Municipal emissions in the Town of Richland totaled 355 MTCO₂e in 2019. The vehicle fleet sector contributed to the largest percentage of emissions, accounting for 283 MTCO₂e, or 80% of the government's total emissions. Buildings and facilities was the second largest emitting sector, producing 44 MTCO₂e, or 12% of total municipal emissions, followed by the water delivery facilities sector, which produced 27 MTCO₂e, or 8% of total emissions, and the streetlights and traffic signals sector, which produced 1 MTCO₂e, or 0% of total emissions.

This Climate Action Plan uses the data gathered in the 2021 GHG inventory report as a baseline for analyses to determine which energy efficiency strategies will be most effective. The strategies presented in this document are based on goals that will help Richland to reduce emissions, energy use, and dollars spent on municipal and community operations in the short term by 2030 and eliminate them by the year 2050.

1 MTCO₂e =

-  CO₂ emissions from 112 gallons of gasoline consumed
-  CO₂ emissions from 2.3 barrels of oil consumed
-  CO₂ emissions from 41.7 propane cylinders used for home barbeques
-  Carbon sequestered by almost 1 acre of U.S. forests in one year

2019 Municipal Emissions by Sector (MTCO₂e)

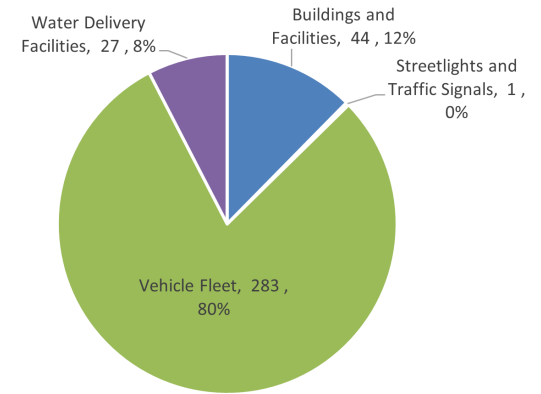


Figure 3: 2019 Municipal Emissions by Sector, Town of Richland

2019 Community Emissions by Sector (MTCO₂e)

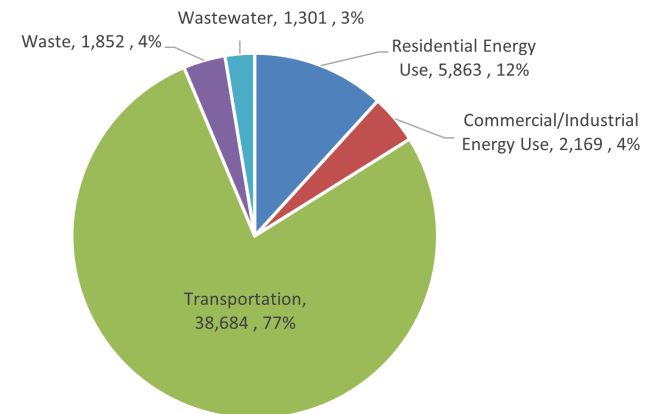
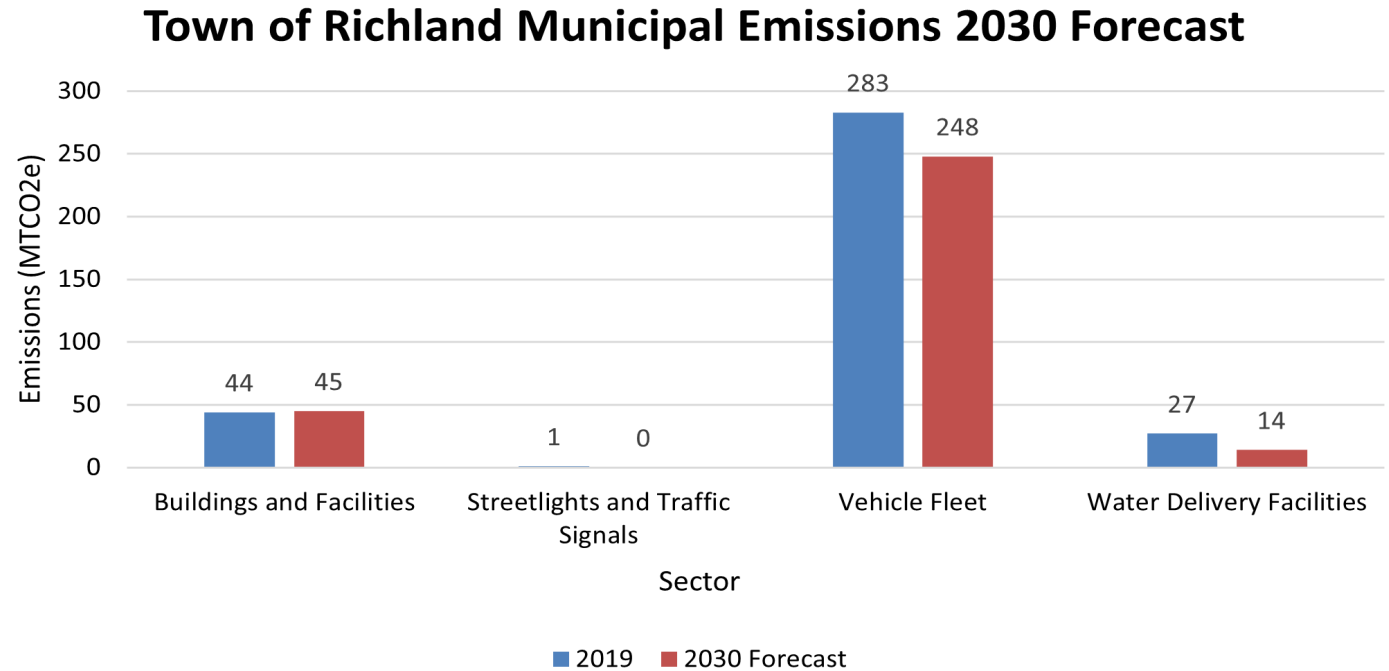


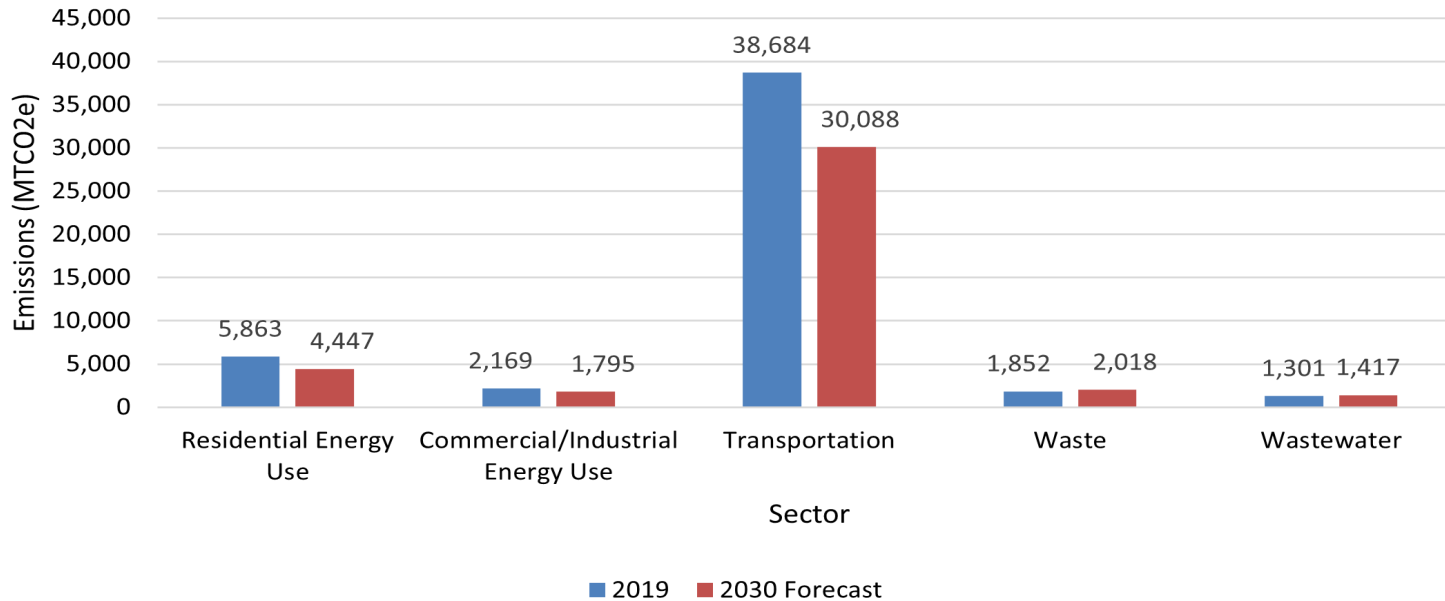
Figure 4: 2019 Community Emissions by Sector, Town of Richland

Assuming a business-as-usual scenario, municipal emissions in the Town of Richland in 2030 are expected to decrease from 355 MTCO₂e in 2019 to 307 MTCO₂e in 2030, a decrease of about 14%.

Figure 5: 2030 Municipal Emissions Forecast, Town of Richland



Town of Richland Community 2030 Forecast



Community emissions in the Town of Richland are expected to decrease from 49,869 MTCO₂e in 2019 to 39,765 MTCO₂e by 2030, a decrease of around 20%.

Figure 6: 2030 Community Emissions Forecast, Town of Richland

GREENHOUSE GAS INVENTORY

SUMMARY: VILLAGE OF PULASKI

In 2021, the Village of Pulaski completed a Greenhouse Gas Inventory in collaboration with the Central New York Regional Planning & Development Board (CNY RPDB) utilizing emissions and energy use data from 2019.

In 2019, the Village of Pulaski's community emissions totaled 22,371 MTCO₂e. The transportation sector contributed to the largest percentage of emissions, accounting for 11,248 MTCO₂e, or 50% of the community's total emissions. Commercial/industrial energy use was the next highest emitting sector, producing 5,018 MTCO₂e, or 23% of total community emissions, followed by the residential energy use sector, which produced 5,008 MTCO₂e, or 22% of total emissions. The waste sector emitted 1,085 MTCO₂e, or 5% of emissions, followed by the wastewater sector which contributed 12 MTCO₂e, or 0% of emissions.

In 2019, the Village of Pulaski's municipal emissions totaled 171 MTCO₂e. The vehicle fleet sector contributed to the largest percentage of emissions, accounting for 77 MTCO₂e, or 77% of the government's total emissions. Water and sewer was the second largest emitting sector, producing 49 MTCO₂e, or 29% of total municipal emissions, followed by the buildings and facilities sector, which produced 37 MTCO₂e, or 21% of total emissions, and the streetlights and traffic signals sector, which produced 8 MTCO₂e, or 5% of total emissions.

This Climate Action Plan uses the data gathered in the 2021 GHG inventory report as a baseline for analyses to determine which energy efficiency strategies will be most effective. The strategies presented in this document are based on goals that will help Richland to reduce emissions, energy use, and dollars spent on municipal and community operations in the short term by 2030 and eliminate them by the year 2050.

2019 Municipal Emissions by Sector (MTCO₂e)

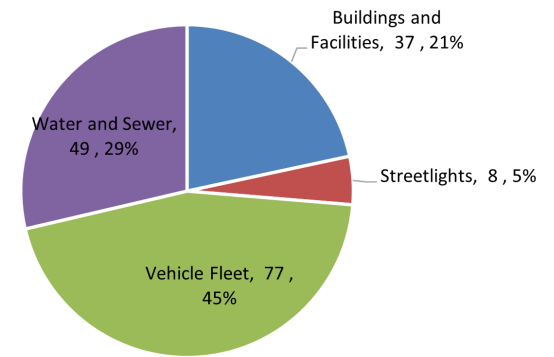


Figure 7: 2019 Municipal Emissions by Sector, Town of Richland

2019 Community Emissions by Sector (MTCO₂e)

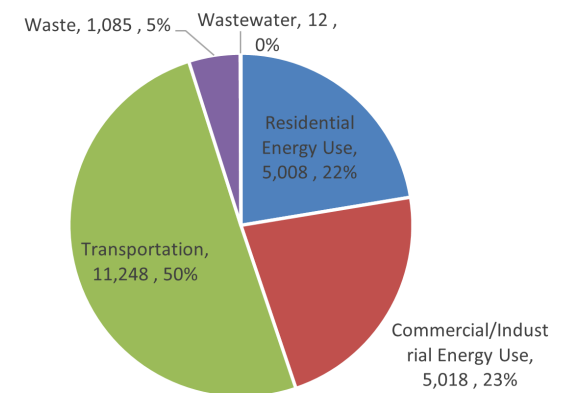






Figure 8: 2019 Community Emissions by Sector, Town of Richland

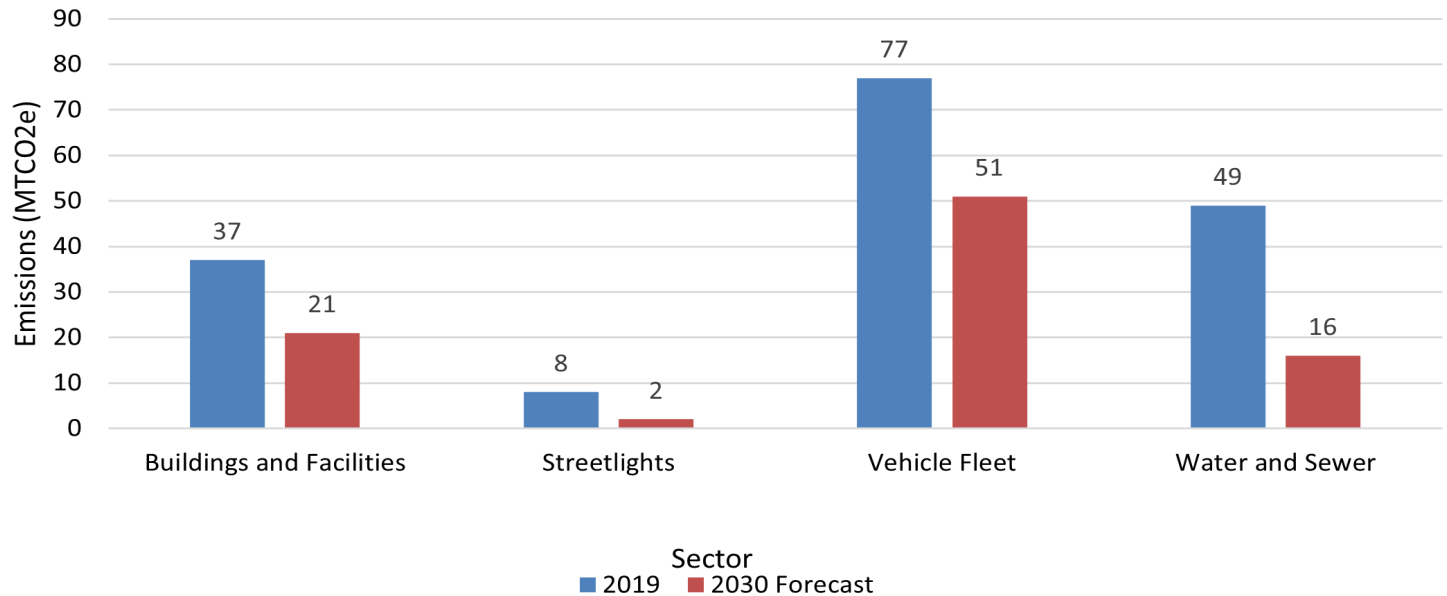
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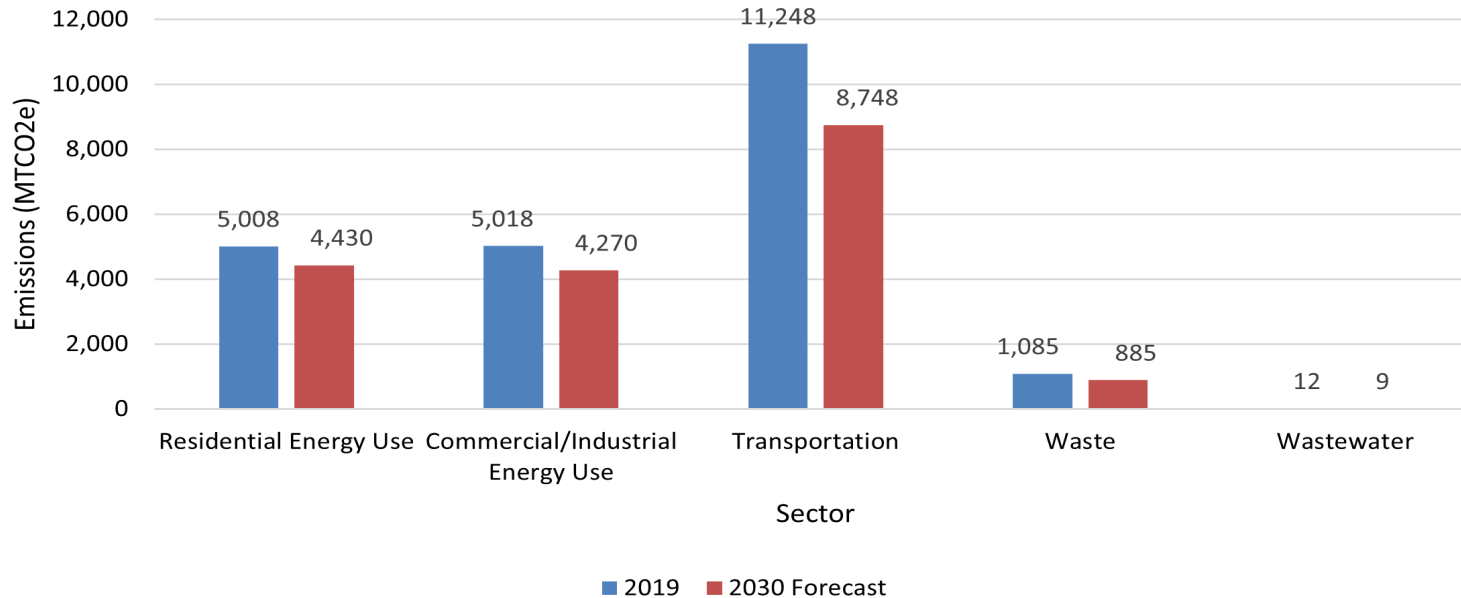
Village of Pulaski Municipal Emissions 2030 Forecast

Assuming a business-as-usual scenario, municipal emissions in the Village of Pulaski in 2030 are expected to decrease from 171 MTCO₂e in 2019 to 90 MTCO₂e in 2030, a decrease of about 47%.

Figure 9: 2030 Municipal Emissions Forecast, Village of Pulaski



Village of Pulaski Community 2030 Forecast



Community emissions in the Village of Pulaski in 2030 are expected to decrease from 22,371 MTCO₂e in 2019 to 18,342 MTCO₂e in 2030, a decrease of about 18%.

Figure 10: 2030 Community Emissions Forecast, Village of Pulaski

EMISSIONS REDUCTION

TARGETS

The Town of Richland and Village of Pulaski Comprehensive Planning Committee has set short-term and long-term goals for emissions reductions from both municipal operations and the larger community as described in the table below. The Town and Village plan to reassess the long-term goal within 10 years to be consistent with statewide emissions reduction goals moving forward. Without any action, it is anticipated that municipal emissions in the Town will decrease by 14% while the Village will see municipal emissions decrease by 47%. On the community side, assuming a business-as-usual scenario, community emissions from in the Town are expected to decrease by 20% and decrease by 18% in the Village. The reason for the forecasted decrease is due to the anticipated “greening” of the electrical grid, electrification of buildings, and the gradual phase out of fossil fuel powered internal combustion engines.

	Short-Term Goal: 2030	Long-Term Goal: 2050
Municipal Operations	Reduce emissions from municipal operations by 40% from 2019 levels by 2030	Reach net-zero emissions
Community	Reduce emissions from the community by 25% from 2019 levels by 2030	Reach net-zero emissions



Fernwood Dam, Autumn 2015

Photo Credit: Dawn Holyński

REDUCTION STRATEGIES

During the summer, fall, and winter of 2022, the Richland/Pulaski Comprehensive Planning Committee met regularly to discuss emissions reduction strategies for both municipal operations and the community as a whole. As mentioned in the introduction, though local governments do not have direct control over the majority of emissions created in the community, there are actions that the Town and Village can take to reduce emissions from their own operations and exert influence towards positive change in reducing community GHG emissions. The strategies listed in Appendix A are focused on these actions that municipal governments can take to either reduce emissions from municipal operations or encourage emissions reductions within the wider Richland/Pulaski community.

To assist with strategy implementation, a number of metrics were developed for each strategy, including impact on emissions reductions, achievability, estimated cost, timeframe for implementation, and priority score. The priority scores reflect feedback from the committee in terms of whether the strategy should be a high, medium, or low priority for the Town and Village moving forward. High priority actions received a score of 3, medium priority received a score of 2, and low priority received a score of 1. Scores were averaged to provide the priority score seen on the table in Appendix A.

TRANSPORTATION

Utilizing efficient methods of transportation would reduce the amount of vehicle miles traveled (VMT) and the amount of gasoline and diesel use which would therefore reduce emissions, fuel costs, and reliance on foreign fossil fuels. Encouraging community members to walk or bike, when possible, instead of driving will allow municipalities to reduce VMT. High quality low-carbon forms of transportation provide multiple co-benefits besides energy savings and emission reductions, including congestion reductions, road and parking facility cost savings, consumer savings and affordability, improved mobility for non-drivers, support for strategic land development objectives (i.e. reducing sprawl), and improved public fitness and health.

Easy off/on access to I-81 in the Village of Pulaski does not currently exist. This means that vehicles traveling both north and south-bound that exit I-81 in the Village of Pulaski for a quick rest stop do not have the ability to immediately enter back into I-81 in the direction in which they were traveling. Instead, vehicles heading north on I-81 that exit to visit the Byrne Dairy, for example, are then required to travel through the village via Rome Rode to Route 11 to Richland Road in order to again enter I-81 traveling north, adding an extra 2 miles to their trip in Pulaski. This route also requires passing through four stop lights where vehicles idle as they wait for a green light. Accidents are prevalent along this route with large trucks navigating the narrow village roads. The same is true for vehicles traveling south. Adding easy off/on access to I-81 in the Village of Pulaski would reduce vehicle miles traveled through the Village of Pulaski, reducing fuel usage, costs, and emissions while improving air quality through the historic district.

In 2022, Governor Hochul announced regulations that would require all new passenger cars, pickup trucks, and SUVs sold in the state to be zero emissions by 2035. The Town of Richland and Village of Pulaski could consider doing a fleet-study to identify and eventually replace aging gas- and diesel-powered cars and trucks with new electric or zero-emission variants. These vehicles are significantly more energy efficient, require less maintenance, and save money in the long term compared to fossil fuel powered vehicles. For example, the Village has an aging 2015 Ford Taurus sedan in its fleet. If the Village were to replace that vehicle with a 2023 Chevy Bolt EUV, the Village would see an average savings of over \$1,000 in annual operating costs (See Figure 11). The municipalities can also utilize fleet management software to ensure the most fuel-efficient routes possible are used, saving additional money on fuel costs.

Residents can consider utilizing the Federal and State incentives to purchase an battery-electric or plug-in hybrid vehicle. The Village of Pulaski has been proactive in promoting the use of electric vehicles (EVs) by installing 4 public charging ports behind the municipal office. Additional public charging stations can be installed in the Town and Village to support current and future residents and visitors that have adopted EVs.

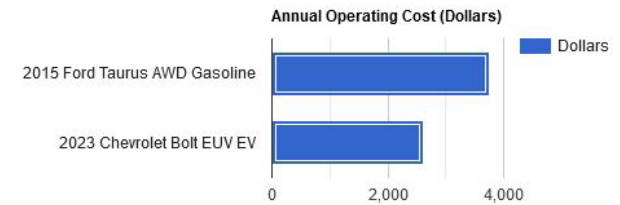


Figure 11: Annual operating costs of a 2015 Ford Taurus and 2023 Chevrolet Bolt EUV EV. Data acquired from the U.S. Department of Energy, Alternative Fuels Data Center.



ENERGY AND EFFICIENCY

Energy efficiency will play a key role in mitigating community and municipal emissions. One of the biggest ways the local government work to reduce emissions from buildings and improve efficiency is through education. The Town of Richland and Village of Pulaski can provide information on energy efficient heating and cooling (such as heat pumps), Federal, State, and Local incentives for insulation upgrades, LED lighting upgrades, and residential solar information. By incorporating energy efficient technology within municipal buildings, the municipality can show residents that these technologies are effective, save money, and feasible.

The Village of Pulaski has taken steps to do this through the installation of air source heat pumps at the Snow Memorial Building. The Village did a clean heating and cooling demonstration of the technology to residents, and put up an educational bulletin board promoting the benefits of switching to heat pumps. The Town of Richland is also proactive in its approach to adopting energy efficient technology with the installation of a 20kW solar energy system at the Central waterworks facility. This installation produces enough electricity to offset 100% of the electric use by the water building, and generates additional excess power that offsets the electric usage at the Richland Orwell Road facility, currently the Town's largest electric user. The Town and Village should continue to replace aging heating/cooling systems and lighting with new energy efficient technology in its municipal buildings.

The Town of Richland can prioritize weatherizing and increasing energy efficiency in the water building which currently has very little insulation and is heated with propane. The Town could save an average of \$2,500 a year on propane costs by switching to heat pumps, with even greater savings when combined with weatherization. Because of the Town solar array, electricity to run the heat pumps would be available at a low cost. Residents and businesses can incorporate these energy ef-



ficient technologies in their buildings by taking advantage of state and federal rebates available for energy efficient technology. Rental properties should especially be targeted for energy efficiency upgrades as they benefit both the landlord by increase the value of their property and the tenant by saving on utility costs.

The Town of Richland and Village of Pulaski can also consider modifying local laws to influence energy efficiency in the larger community. Adopting the NYStretch energy code would establish a minimum building standard for energy efficiency that would provide energy and monetary savings higher than that of the current Energy Conservation Construction Code of New York State.

Oswego County is currently going through the process of adopting Open C-PACE which will provide a unique opportunity for commercial property own-

ers to finance energy upgrades, on-site renewable projects, and water conservation measures at their properties.

An increasingly popular way for a local government to overcome the financial hurdles of installing a photovoltaic system is through the "solar services model" also known as a Power Purchase Agreement (PPA). Through this type of arrangement, the owner of a property can provide the space for a power producer to install the system. The property owner then agrees to buy the power produced from that system at a set rate that is competitive with grid electricity. This is particularly attractive to government entities that are unable to take advantage of tax-based incentives for renewable energy. The Village of Pulaski has enrolled in Community Solar for their municipal electric accounts, saving the Village money through renewable energy credits each year.

WASTE

Waste generated in the Town of Richland and Village of Pulaski is sent to the Bristol Hill Landfill and/or the Oswego County Energy Recovery Facility for disposal. The decomposition and combustion of this waste creates GHG emissions and other pollutants that can be reduced by decreasing the waste stream through composting.

Composting produces fertilizer that can be used for farms or gardens, returning nutrients to the soil that were removed with food production and reducing the need for synthetic fertilizers. Composting also reduces the volume of material sent to the landfill and energy recovery facility, reducing disposal costs. The Town and Village could consider pursuing a pilot curbside organic waste pickup program for interested residents. The municipality would pick up organic waste (excluding products such as meat and dairy as these require an industrial composter) and compost it. The compost produced could be provided to residents for use on their gardens free of charge. Composting can be done at an individual level or at scale.

Additionally, the Town and Village can engage in an education campaign to encourage residents to reduce waste through environmentally conscious purchasing decisions, such as products that contain no single-use plastic. The municipalities can set an example by changing their own policies to prohibit single use plastic products for municipal events when possible, and encourage residents to “lug their mug” and “pack their plate” at public events where food is served.



Community clean up events such as Monday Night Clean Up help keep the community free of litter while educating residents and youth on the importance of environmental stewardship.



NATURAL RESOURCES

Planting trees in strategic ways to shade buildings can reduce energy used to cool buildings. Trees that are properly planted with energy savings in mind can reduce the amount of energy (electricity, natural gas, or other fuel) used to cool and heat buildings. This not only reduces associated emissions, but also saves money. Tree planting can also reduce storm water runoff, decreasing the amount of water that needs to be treated at wastewater treatment facilities. Trees also serve as a carbon sink for CO₂ released by municipal and community activities. Some form of carbon sequestration will be needed to meet long term net-zero emissions goals. Finally, tree planting increases the aesthetic appeal of homes, increasing property values.

Richland and Pulaski can also ensure the resilience of natural systems and resources through open space conservation and smart growth strategies, such as maintaining hiking trails and protecting open space through conservation land grants, landowner incentives, regulation, fee acquisition, the purchase of conservation easements, and promotion of smart growth principals. Farmers can continue to implement agricultural practices that protect surface and ground water quality. Installation of agricultural Best Management Practices (BMPs) will reduce nutrient and sediment loading from agriculturally-rich watersheds.

Richland and Pulaski can update local maps that display low elevation areas in the town and village that may be susceptible to flooding and display this information on the town and village websites, along with preparedness guidelines. The Town and Village can remove branches, ice jams, and other debris from local tributaries to reduce the potential for flooding.



*Deer Creek Wildlife Management Area
Photo Credit: CNY RPDB*



*Salmon River
Photo Credit: Half-Shire Historical Society*

SCHOOL DISTRICT

The Pulaski Academy and Central School District is an essential component of the community. Education is crucial for the growth and development of future generations of citizens. The work done by the school district in turn benefits the community. However, school districts also have an impact on the environment. School buildings consume energy and generate waste, and transportation to and from school contributes to air pollution. Superintendent Jennings and the Pulaski Central School District recognizes the importance of minimizing the district's environmental impact and have been proactive in reducing their carbon footprint wherever possible. Below is a statement from Mr. Jennings, which highlights the strategies and actions taken by the district to improve energy efficiency, reduce emissions, and save money.

“The Pulaski Academy and Central School District is committed to doing its part to control energy use and costs for taxpayers. The District emphasizes energy efficiency in long range planning and regularly audits energy usage through participation in the NYSERDA Benchmarking Program. Short-term capital outlay projects, large capital projects, and preventative maintenance plans all have elements which address the need to upgrade and replace outdated and obsolete systems, fixtures, and processes.

Our work includes investing in energy efficient boilers and pumps, and planning for HVAC control updates. Ventilation units are also updated and replaced regularly. Extensive building envelope work has been completed at the elementary school with additional assessment of other District facilities planned. Lights throughout the District are being updated to LED fixtures. Electricity service upgrades are being reviewed to accommodate the possible future use of electric vehicles, as well as solar panels. Newer maintenance equipment, computers, operational software, and instructional hardware have also provided opportunities to improve how we use energy.

The District takes very seriously its responsibility to be thoughtful stewards of our facilities and emphasize energy efficiency in our planning and daily work.”



Tom Jennings, Superintendent, Pulaski Academy & Central School District



PACS students during graduation

Photo Credit: Pulaski Academy and Central School District



Tom Jennings, Superintendent of Pulaski Academy & Central School District

CONCLUSION

This Climate Action Plan provided an opportunity for the Town of Richland and Village of Pulaski to develop energy efficiency and emission reduction strategies. This planning effort encouraged local participation and brought together representatives from the local government, citizens, and other key stakeholders to evaluate regional strengths and goals. The process provided a chance to gather information on sustainable community and economic development projects, to give community leaders support to advance sustainable projects, and to identify goals for new sustainable programs and initiatives.

Bella Deer

Photo Credit: Half-Shire Historical Society



Participants in the planning process worked to identify goals and strategies to improve the environment and address climate change through energy management, infrastructure, land use, and transportation. As a blueprint for the future, the Climate Action Plan efficiently summarizes an action-oriented guide containing strategies to ensure that Richland and Pulaski meet the needs of current and future generations. In addition, the document will now provide state and local officials with the information needed for long-term commitments and investments in economic, social, and environmental resilience.

Our thanks go to the local leaders and community members for a job well-done. Town and Village officials are encouraged to now focus on implementation of these recommendations, to review the progress made on a regular basis, and to re-evaluate emission reduction goals. In this way, Richland and Pulaski will continue to protect natural resources, reduce emissions, become more resilient to climate change, and serve as a prominent showcase for energy efficiency and environmental stewardship.

Jefferson Street, Pulaski

Photo Credit: Half-Shire Historical Society



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APPENDIX A: CLIMATE ACTIONS

METRICS KEY

Impact of implementation	% Reduction of total emissions
Low	<10%
Moderate	10-20%
High	>20%

Estimated Cost	Dollars
Low	<\$10,000
Medium	\$10,000 - \$100,000
High	>\$100,000

Timeframe	Years
Short-term	0-5 years
Medium-term	5-10 years
Long-term	>10 years

Climate Actions							
Sector	Strategy	Description	Impact of Implementation (Low, moderate, high emissions reductions)	Achievability (low-hanging fruit, moderate effort, heavy lift)	Estimated Cost (low, medium, high)	Timeframe for implementation (short-term, medium-term, long-term)	Priority Score (low = 1, medium = 2, high = 3)
Transportation: Municipal	Reduction in fleet mileage	Track fleet miles and optimize fleet routes to reduce fuel usage, emissions, and costs.	Moderate	Low-hanging fruit	Low	Short-term	2
Transportation: Municipal	Light duty fleet conversion to low or zero-emission vehicles	Convert existing gas powered light duty vehicles (sedans, SUVs, small pickup trucks, etc.) to low or zero emissions vehicles such as EVs, hydrogen fuel cell, or biofuel vehicles.	Moderate	Moderate effort	Medium-High depending on vehicle & rebates	Medium-term	2
Transportation: Municipal	Heavy duty fleet conversion to low or zero-emission vehicles.	Convert existing gas and diesel powered heavy duty vehicles (snow plows, garbage trucks, large pickup trucks, etc.) to low or zero emissions vehicles.	High	Heavy lift	High	Medium to Long-term	2
Transportation: Municipal	EV Charging Stations	Install publicly accessible electric vehicle charging stations on municipal property.	Low	Low-hanging fruit	Low w/ZEV grants; High with no outside funding	Short-term	3
Transportation: Municipal	Fleet efficiency policy	Adopt a policy to establish minimum fuel efficiency requirements for fleet vehicle purchases.	Moderate	Moderate effort	Low	Short-term	3
Transportation: Municipal	Anti-idling ordinance	Adopt a policy to prohibit municipal fleet vehicles from idling when not in use.	Low	Low-hanging fruit	Low	Short-term	3
Transportation: Community	Expand pedestrian and bicycle paths	Reduce vehicle miles travelled by creating pedestrian and bicycle friendly sidewalks and paths.	Moderate	Moderate effort	Medium	Short-term	3

Climate Actions							
Sector	Strategy	Description	Impact of Implementation (Low, moderate, high emissions reductions)	Achievability (low-hanging fruit, moderate effort, heavy lift)	Estimated Cost (low, medium, high)	Timeframe for implementation (short-term, medium-term, long-term)	Priority Score (low = 1, medium = 2, high = 3)
Energy/Efficiency: Municipal	Heat pumps in municipal buildings	Install air source or geothermal heat pumps in municipal buildings.	Moderate	Moderate effort	Medium-High	Short to Medium-term	2
Energy/Efficiency: Municipal	Building energy efficiency retrofits	Removing outdated insulation, HVAC, and lighting technologies with new, energy efficient technology such as LEDs.	Low-Moderate	Moderate effort	Medium	Short to Medium-term	2
Energy/Efficiency: Municipal	Solar PV	Install solar panels on municipal buildings and property.	High	Heavy lift	High	Medium-term	2
Energy/Efficiency: Municipal	100% Renewable Energy Commitment	Adopt a pledge to source all electricity for municipal buildings from renewable energy sources.	High	Moderate effort	Medium	Medium to Long-term	2
Energy/Efficiency: Municipal	Lighting occupancy sensors	Install sensors in municipal buildings that automatically turn off lights if they do not detect movement after a certain amount of time has passed.	Low	Low-hanging fruit	Low	Short-term	3
Energy/Efficiency: Community	"Solar Ready" building code	Adopt a building code requiring new buildings to have roofs capable of supporting solar panels.	Low	Low-hanging fruit	Low	Medium-term	2
Energy/Efficiency: Community	"EV Ready" building code	Adopt a building code requiring new buildings to have a dedicated circuit for 240v electric vehicle supply equipment terminating in a receptacle or junction box located in close proximity to the proposed location of the EV parking space.	Low	Low-hanging fruit	Low	Medium-term	2
Energy/Efficiency: Community	Ban on new gas stations	Prohibit the construction of new gas stations and pumps within the Town and Village. Existing gas stations and convenience stores will not be affected by this policy.	Moderate	Low-hanging fruit	Low	Short-term	3
Energy/Efficiency: Community	NYSStretch Energy Code	Adopt the NYStretch energy code, which saves more energy than New York's minimum code and is a more stringent local standard to the ECCCNYS.	High	Moderate effort	Low	Medium-term	3
Energy/Efficiency: Community	Mandatory energy benchmarking and disclosure of results upon property sale for commercial buildings	Require commercial property owners to benchmark building energy use and disclose energy use information prior to a buyer accepting.	*	Low-hanging fruit (Heavy lift to enforce)	Low	Short-term	2

*This action doesn't have a direct reduction on emissions, but could inform the municipality on the efficiency of commercial buildings

Climate Actions							
Sector	Strategy	Description	Impact of Implementation (Low, moderate, high emissions reductions)	Achievability (low-hanging fruit, moderate effort, heavy lift)	Estimated Cost (low, medium, high)	Timeframe for implementation (short-term, medium-term, long-term)	Priority Score (low = 1, medium = 2, high = 3)
Promotion/Education	Community Solar Campaign	Conduct a campaign to encourage residents to enroll in community solar.	Dependent on # of signups	Moderate effort	Low	Short-term	3
Promotion/Education	Heat Pump & Building Efficiency Campaign	Conduct a campaign to encourage residents to purchase heat pumps and do energy efficiency retrofits. Connect residents with available incentives and rebates.	Dependent on adoption rate of energy efficient building technology	Moderate effort	Low	Short-term	3
Promotion/Education	EV campaigns	Conduct a campaign to encourage residents to purchase electric vehicles and connect them with available state and federal incentives.	Dependent on # people switching to EVs	Moderate effort	Low	Short-term	3
Promotion/Education	Waste Reduction & Education Campaign	Encourage residents to reduce waste through composting, recycling, and purchasing products that come with sustainable packaging.	Low	Low-hanging fruit	Low	Short-term	3
Promotion/Education	Promote Carpooling	Encourage residents to carpool to work reducing the number of vehicles on the road and emissions.	Moderate	Low-hanging fruit	Low	Short-term	3
Waste: Community	Compost Bins for residents	Provide compost bins for free or at a reduced cost to residents to divert food waste that would normally go to landfills.	Low	Low-hanging fruit	Low	Short-term	2
Waste: Municipal	Environmentally preferable purchasing policy (Low waste products when feasible)	Adopt a policy that requires the municipality to purchase low waste and sustainably sourced products when feasible.	Low	Moderate effort	Low	Short-term	2
Natural Resources: Community	Tree Planting Campaign	Provide residents with tree saplings to plant on their property and around the community where permitted.	Low	Moderate effort	Low-Medium	Medium-term	3
Natural Resources: Municipal	Zoning for the protection of natural areas	Develop and implement a local zoning ordinance that helps to conserve natural areas, and base the local ordinance on the conservation of high value areas identified in a natural resource inventory.	Low-Medium	Low-hanging fruit	Low	Short-term	3

APPENDIX B: ACRONYMS EXPLAINED

CEC: Clean Energy Communities. CEC is a NYSERDA program that rewards municipalities that complete certain high-impact action items with points. Once enough points are earned, communities can become eligible for points based grants. Certain actions such as community campaigns can also earn communities grants upon completion. Communities can become designated after completing at least four high-impact actions.

CNY RPDB: Central New York Regional Planning and Development Board. The CNY RPDB is a public agency that provides a range of services associated with the growth and development of communities in Cayuga, Cortland, Madison, Onondaga, and Oswego Counties.

CSC: Climate Smart Communities. CSC is a New York State DEC program that helps local governments take action to reduce greenhouse gas emissions and adapt to a changing climate. The program offers grants, rebates for electric vehicles, and free technical assistance for municipalities. Municipalities are awarded with points for actions completed through the program. When a certain number of points is reached, municipalities can submit an application to become a certified Bronze or Silver Climate Smart Community.

DEC: New York State Department of Environmental Conservation. The NYS DEC is a state agency tasked with conserving improving and protecting New York's natural resources and environment and to prevent, abate, and control water, land, and air pollution in order to enhance the health, safety, and welfare of the people of New York State and their overall economic and social well-being. The DEC administers several incentive programs and grants to assist communities in reducing their climate impact.

GHG: Greenhouse Gas. Greenhouse Gases are gases in the Earth's atmosphere, such as water vapor, methane, carbon dioxide, and nitrous oxide, that allow sunlight to enter the atmosphere but also trap heat in the atmosphere, causing rises in Earth's atmospheric temperatures.

ICLEI: ICLEI-Local Governments for Sustainability is a non-profit organization that provides tools to local governments to assist with greenhouse gas inventories and climate action planning.

kW: Kilowatt. kW is a unit of power equal to 1,000 watts.

kWh: Kilowatt hour. A kilowatt-hour (symbolized kWh) is a unit of energy equivalent to one kilowatt (1 kW) of power expended for one hour (1 h) of time.

MTCO₂e: Metric Tons of Carbon Dioxide Equivalent. MTCO₂e converts the warming potential of each greenhouse gas (i.e. carbon dioxide, nitrous oxide, methane, etc.) into one measurement.

NYSERDA: New York State Energy Research and Development Authority. NYSERDA is a public benefit corporation created in 1975. Its goal is to help New York meet its energy goals of reducing energy consumption, promoting the use of renewable energy sources, and protecting the environment. NYSERDA offers a variety of incentive programs to help New York residents achieve these goals.

PV: Photovoltaic. Solar PV systems convert sunlight directly into electricity.

VMT: Vehicle Miles Traveled and Daily Vehicle Miles Traveled. Vehicle Miles Traveled (VMT) is the total number of miles driven by all vehicles within a given time period and geographic area. It is used by regional transportation and environmental agencies for planning purposes. VMT is influenced by factors such as population, age distribution, and the number of vehicles per household. However, the greatest factor by far is how land uses are arranged.