



The Town of Saugerties

Climate Action Plan 2019

Government Operations

Prepared by
The Conservation Advisory Commission Climate Smart Task Force

Adopted on
May 15, 2019

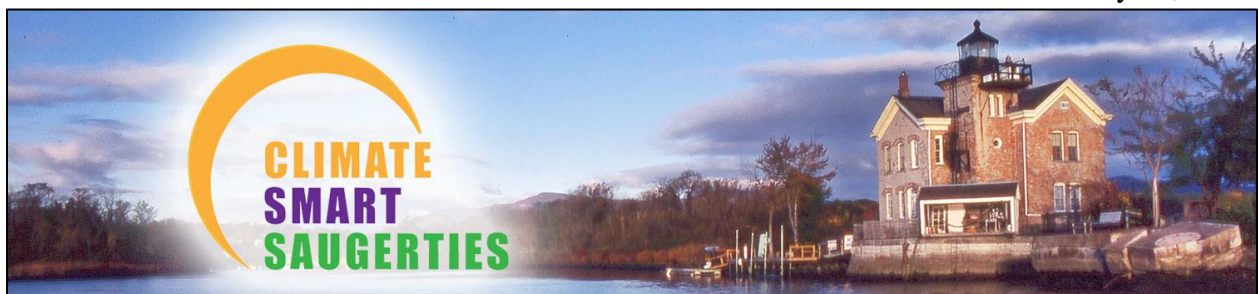


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TOWN OF SAUGERTIES CLIMATE ACTION PLAN

<http://www.climatesmartsaugerties.org/climate-science.shtml>

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A Message from Supervisor Fred Costello, Jr.



I am very proud to present the 2019 Town of Saugerties Government Operations Climate Action Plan (CAP) to our community. This plan is a strategy document that sets goals and outlines a set of initiatives to reduce Greenhouse Gas (GHG) emissions in our town government operations. It provides a basis for measuring the town's future progress in reducing carbon emissions against the 2016/2017 baseline GHG inventory. It also helps to guide those of us in town government in our on-going efforts to implement energy-

efficient, cost-effect measures that reduce the town's carbon footprint.

On behalf of the town board, our department heads and municipal staff, I want to thank and acknowledge the Conservation Advisory Committee and its Climate Smart Task Force, an all-volunteer team, who worked with staff liaisons over many months to prepare this Climate Action Plan. Their expertise and commitment are evident throughout the document.

Our town government has already made, and continues to make, enormous progress implementing energy-saving measures and reducing the town's carbon footprint. We have contracted with Central Hudson to replace all the town street lights to LEDs by mid-year. This can reduce streetlight energy use by as much as 65% which will generate cost savings and emission reductions. The town has purchased a fully electric vehicle for the Town Water/Sewer Department and a hybrid vehicle for the Police Department. More will be added to the town's vehicle fleet over the next few years as we reduce our reliance on gasoline and the emissions they produce. Three Electric Vehicle Charging Station have been installed this year. The former landfill will become a two-megawatt solar farm from which town government and the community can obtain their electricity. The solar farm will generate \$500,000 in revenue for the town over a 15-year period. A 2019 energy audit of three municipal buildings will provide guidance on where additional energy savings may be realized.

This action plan challenges us to significantly reduce our carbon emissions. I have no doubt that the Town of Saugerties will successfully meet that challenge. As we take the next steps, we are focused on our goal of a sustainable energy-efficient future.

The adoption of this plan demonstrates the town's commitment to do our part to protect our climate. Let's get to work.

I. EXECUTIVE SUMMARY

a. Significance of Climate Change

Clear proof of significant impacts of climate change on the environment and people worldwide were first fully confirmed by scientists in 1989—although indications that a dire future was coming were present as early as the 1950s, and the rest of us have more or less been rising to that awareness since. The understanding comes in two forms: worldwide and regionally, the former a wide and comprehensive view that confirms that our world is moving quickly into chaos and environmental degradation, and the latter, which impacts us on the local level.

The Northeast National Climate Assessment reported that the Northeast has populations that are highly vulnerable to climate hazards such as heat waves, ice storms, floods, droughts, hurricanes and major storms. Tropical Storm Irene (August 27-29, 2011) wreaked such havoc that streams and rivers wiped out bridges, displaced people and livestock, destroyed property and took lives. Clearly local infrastructure was not equipped to handle the excessive amounts of precipitation that flooded the area. Between 1958 and 2010, the Northeast experienced more than a 70% increase in the amount of precipitation falling in very heavy events (the heaviest 1% of all daily events).

Climate change is at a crisis stage causing significant adverse impacts.

News and media outlets daily report catastrophes, both natural or precipitated by some human activity, that illuminate the latest major storm event or consequence, or provides us with warnings about the polar ice caps melting, coral reefs dying, species

becoming extinct, and other disasters that were heretofore seen as nature-driven if they happened at all. Now these events are phrased within the context of human impacts of our activities since the Industrial Age that have raised the worldwide temperature.

The amount of warming in the Northeast is dependent on global emissions of heat-trapping gases. A warming of 4.5 degrees to 10 degrees Fahrenheit is projected by the 2080s unless global emissions are reduced substantially, and the frequency, intensity and duration of heat waves are expected to increase. These increases will adversely affect vulnerable populations, infrastructure, agriculture, and ecosystems (U. S. Global Change Research Program). The adverse economic consequences resulting from climate change are as severe as the physical damage these events cause.

According to the Hudson Valley Economic Development District Annual Report Update of 2016-2017, private sector job growth in the Kingston-Ulster region increased 1.15% (Total Non-Farm Jobs) and 1.71% (Private Sector Jobs). Jobs were concentrated in the service-providing industries in the region. While Ulster County enjoys a diverse economic base, the county shares problems faced by other Hudson Valley counties: a lack of infrastructure for development sites and a shortage of workforce housing that limits the ability of the county to host workers for its growing companies.

b. Summary of CAP Goals

A primary goal of the Climate Smart Task Force in preparing the Climate Action Plan is to reduce the town government Greenhouse Gas (GHG) emissions. The plan prioritizes GHG reductions by focusing first on those municipal entities that emit the most metric tons of carbon (MTC02). The targets are the vehicle fleet with 45% of total emissions and administrative facilities with 43% of total emissions. The plan's goal is also to continue to foster both short and long term cost-effective, energy-efficient technologies in administrative facilities. The task force recognizes the importance of promoting a climate smart culture throughout our municipal government and community-at-large. Ensuring that energy and resource efficiency are explicitly considered and examined throughout town government decision-making is another important goal of this plan. This plan seeks to accomplish these climate goals in a cost-effective way that saves the town and taxpayers money.

c. Focus Area and Major CAP Initiatives

The overall goal of the Climate Smart Task Force is to reduce our greenhouse gas emissions footprint to levels below those that endanger our town and the planet. The Town of Saugerties is joining with municipalities across the state in this effort by systematically analyzing our energy information to determine the most feasible means of meeting our energy needs. The CAP constitutes the report on our progress and a tool to both keep municipal officials informed and provide a pathway for achieving these goals.

This effort has been made possible because of a new "energy vision" supported by an army of resourceful volunteers, farsighted leadership, and state agency personnel engaged in the same overall goal: create a world that is as close to fossil-energy free as possible, and that carries within it the seeds of a healthy future.

The specific initiatives focus on the Town of Saugerties' emphasis on transitioning to solar as the primary electricity source for our facilities and vehicles, on reducing the use of gasoline and diesel fuels by gradually replacing town trucks and heavy equipment with more energy efficient models, and reducing use of fossil fuels by exploring more energy efficient ways of heating buildings.

II. INTRODUCTION

a. Local Climate-Change Impacts

Locally, the impacts of climate change become visceral and real. Vectors such as seven species of diseases-spreading ticks and exotic insects such as malaria-bearers, will proliferate north into newly defined temperate zones because of increased temperatures. Local farmers who lost significant fruit crops in the rainfall of 2018 may find themselves unable to survive as traditional Saugerties farmers anymore. Biodiversity will be impacted in any community—forests are under a diverse number of threats including invasive species impacts, high deer populations, and pollution largely due to climate change. The U. S. Army Corps of Engineers is currently studying the estuary and intercoastal waterway for ways to dramatically lessen the impacts of storm events by creating berms and barriers, principally in the metropolitan New York area. These will affect more than just the waterfront properties.

In Saugerties, we can deduce that because of the semi-rural nature of the town, the proximity of New York City, and the attractiveness of the area, the trend toward development and modest job growth will continue to result in increased stresses on the environment and climate change. We need to take steps now to plan for the future by reducing GHG producing activities. We also need to mitigate the impact of extreme weather events in the Northeast and contribute to our share of the solution.

Localities, thanks to far-sighted state initiatives such as the CAP and Renew the Energy Vision programs, are rising to the occasion. New York State's "Renewing the Energy Vision" (<https://rev.ny.gov/>) is the state's energy strategy which outlines various state-wide goals including GHG emissions reductions, energy efficiency and renewable. Solar farms are being promoted and built, electric vehicle charging stations and vehicles are catering to a new and enlightened energy clientele, and essential infrastructure such as re-sized culverts and rebuilt bridges are being placed into service. Water and sewer plants located in a flood plain are being “hardened” against climate change.

b. Climate Action Plan (CAP) Benefits for Town Government Operations

A CAP is a strategy document that sets goals and outlines a set of initiatives that reduce GHG emissions to combat climate change on the local municipal level. Using a GHG emissions inventory as the foundation, a CAP defines GHG reduction targets and provides a framework for achieving those targets. The CAP identifies priority actions and facilitates coordination across government departments. In addition, the CAP supports effective action over time by establishing methods for assessing progress and adjusting the local strategy if GHG targets are surpassed or not fulfilled. A CAP provides data that inform the town government about evidence--based measures

to reduce Greenhouse Gas (GHG) emissions. By developing such plans for their own operations, local governments take leadership roles and provide their communities with inspiration for even greater community-wide action.

III. PAST AND CURRENT CLIMATE PROTECTION INITIATIVES

a. Town Energy in the Climate Age

It all started with an ice arena and a partnership with the New York State Energy and Research Authority (NYSERDA)

Saugerties' commitment to implementing energy-efficient measures, reducing energy costs, and lowering greenhouse gas emissions spans two decades. In 2002, the Town began a partnership with NYSERDA's New Construction Program on a new ice arena, an

enormous project with significant budget constraints. With \$50,000 in incentives from NYSERDA the town installed a high efficiency brine chiller, an infrared ice temperature monitor, a smart-drive pumping system, and a clear ice reverse osmosis demineralization.



The ice arena has become a popular regional attraction. An energy efficient expansion of town hall, with the help of incentives through NYSEDRA's New Construction Program took place in 2005.

In 2006 the Town Board unanimously passed a resolution making Saugerties an Energy Smart Community and began a close and productive relationship with the Mid-Hudson Energy Smart Communities network. The following year, a

Green Energy Task Force was appointed that, in addition to establishing a baseline for the town's current emissions and recommending reduction targets, initiated a local cable access television show and local newspaper column emphasizing the connection between energy use and greenhouse gas emissions. Local energy-saving initiatives highlighted included:

- Town residents who had installed photovoltaic systems on their homes;
- Energy Star appliances and homes;
- Films of discussions with the Mid-Hudson Energy Smart Communities network regarding NYSERDA's programs, including incentive programs for job training and PV installations;

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- Public information meetings for people in the building and construction trades about the benefits of becoming an Energy Star home builder, as well as training and reimbursement opportunities through NYSERDA;
- Showcased local Saugerties business owners who had installed energy-saving equipment, like the owner of Total Tennis, whose 100,000 kw array was home to the largest solar installation in Ulster County. Total Tennis is currently in the process of expanding its solar footprint.

Saugerties was the first town in Ulster County to take the pledge.

In 2009, NYSERDA selected the Town of Saugerties as a pilot community for direct assistance under its Focus on Local Government Program, and the Town Board unanimously passed a resolution to take the

Climate Smart Communities pledge to reduce greenhouse gas emissions and become a Climate Smart Community Partner. Saugerties was one of only 31 municipalities in New York State to respond to the initial request from then DEC Commissioner Peter Grannis, and the first in Ulster County.



The government undertook an energy audit for the Greco Senior Center (the town's seniors center and main building for large meetings) more than ten years ago, resulting in the replacement of old boilers, and created an attractive rain garden at the center's parking area to illustrate the benefits of diverting storm water from local sewer treatment plants. A solar array for the Greco Senior Center, originally planned in 2009, was installed in 2017. The Town Hall/Donlon Wing also received an energy audit, and both buildings along with the Kiwanis Ice Arena Complex and the Glasco

Wastewater Treatment Plant are currently undergoing new energy audits (2019) under NYSERDA's FlexTech program.

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In collaboration with Solarize Hudson Valley and Sustainable Hudson Valley, a Solarize Saugerties Team formed in March 2016 to launch a Solarize Campaign. The campaign brought to the community the opportunity to obtain renewable energy through rooftop solar panels. The focus of the campaign was to make it simple and easy for local homeowners and businesses to get solar energy. The team presented several workshops with information about solar technology, benefits, choices and financing options. A solar open house was held to



allow the public to learn firsthand from a homeowner who had solar rooftop panels installed. As a result, there were sixty-six rooftop solar installations, and a donation of rooftop panels for the senior center by Direct Energy Solar, a company that participated in the campaign.

Seventy-four percent of the off-street lighting on town property has been converted to LED, and in March of 2019 the Town Board voted to have Central Hudson convert all of the Town of Saugerties street lights to LED.

Saugerties installed its first Electric Vehicle Charging Station for public use at the Kiwanis Ice Arena in 2017. Two more stations, one at the Greco Senior Center, and a second near the tennis courts at the Cantine Veterans' Memorial Complex, were installed in the spring of 2019 providing for a total of six charging units. The town added two fleet vehicles, an electric for the management of the town water-sewer district and a hybrid police vehicle.

The necessity of the times has also led the town to pursue various avenues to achieve climate stability. The CAC is currently pursuing waste stream management goals along energy-saving principles or in keeping with climate-control needs, including an intensive invasive species inquiry to protect the Esopus Creek, an important recreational and aesthetic resource.

The Town Highway Department's early participation in federal FEMA programs on bridges and culverts led to significant and often attractive projects to stabilize stream flows and protect our tributaries. FEMA officials advised other communities that struggled with the program to "do it like Saugerties did." Similar work on replacing undersized culverts came with the \$3 million NY Rising program, which also led to a dam repair (for fire protection purposes) and improvements to a sewer plant to protect against flooding during major storm events. These were all sophisticated and reliable responses to storm events locally.

A 20-megawatt 95-acre Geronimo Energy solar plant, one of five major solar projects in the state, has been approved by the Planning Board. A five-year effort to attract a solar company to Saugerties for its municipal energy needs is culminating with the development of a two-megawatt solar farm on the town's former landfill—a project estimated to bring in \$500,000 in revenues for the town over 15 years.

b. Climate Smart Communities (CSC)

The New York State Department of Environmental Conservation (NYSDEC) launched the Climate Smart Communities (CSC) initiative in February 2009 to foster state and local partnerships and to encourage climate protection. Municipal participation in the program begins with a pledge by the local government to set reduction goals for GHG emissions, to improve government energy efficiency, to encourage renewable energy use, and to take additional steps to combat climate change.

c. Conservation Advisory Commission Climate Smart Task Force



The Town Board appointed the Saugerties Conservation Advisory Commission (CAC) in March 2018 as a Climate Smart Task Force to help achieve New York State Climate Smart Community certification for the town. Certification means leadership recognition, access to grants, and free technical assistance for the town as it seeks to reduce its GHG emissions. Meeting monthly, the task force worked on specific certification actions recommended by the Climate Smart Communities program with the goal of reducing the town's GHG emissions. With the guidance of Hudson Valley Regional Council's regional Clean Energy Communities Coordinator, the task force work included: reviewing and selecting specific actions the town can take that reduce the emissions, reduce energy use, adapt to climate change, and achieve cost savings in the process. The task force's work has included:

1. Gathering and using data about electricity use to create a GHG inventory;
2. Recommending an energy audit of municipal buildings;
3. Documenting climate smart actions the town had already completed;
4. Recommending a town shade structure policy;
5. Supporting a food scraps composting program;
6. Documenting both street lighting and outdoor lighting converted to LEDs;
7. Documenting interior lighting upgrades for six government-owned buildings;
8. Creating a Climate Smart Saugerties Website and Facebook page;
9. Linking the Climate Smart Saugerties Website to the town website;
10. Adopting goals for specific energy and GHG emission reduction;
11. Setting a goal to maximize the use of renewable energy;
12. Organizing a **Go Smart Go Green Fair** to inform the public on a variety of climate smart products, services and actions that they can take.

d. Clean Energy Community (CEC)

Working with the support and direction of Clean Energy Communities Coordinator, Europa McGovern, and Climate Policy Analyst, Dazzle Ekblad, of NYSDEC's Office of Climate Change, Saugerties achieved designation as a Clean Energy Community in August 2018—only the fourth in Ulster County, thereby recognizing the town's leadership in reducing energy use, cutting costs and driving clean energy locally. CECs advance the Governor's Reforming the Energy (REV) strategy by demonstrating the importance of localities in helping New York reach its Clean Energy Standard mandate of having half of the state's electricity coming from renewable energy resources by 2030. Since then, Saugerties has been doing its part and recouping the benefits as a result.

Saugerties received the designation for completing four of the ten high-impact clean energy actions identified by NYSERDA as part of the Clean Energy Communities initiative. The four actions the town completed are: installing an Electric Vehicle charging station near the Kiwanis Ice Arena; joining the state's Uniform Solar Permit program, training a building inspector in energy issues, and completing the Solarize Saugerties program, which resulted in 66 rooftop solar installations.

e. Committees and Local Government Departments

Progress might not have happened had it not been for the active and highly positive commitment of the town boards, which have constantly and consistently supported energy-saving recommendations. An example is the support given to the town's arrangement with East Light Solar for a new solar farm coming to our former landfill, which is expected to yield almost \$500,000 in income over 15 years—from what has been an unproductive property since the closing of the landfill. The project was four-and-a-half years in the making.

As departments such as police and wastewater treatment became knowledgeable about the fiscal benefits that might accrue in following a comprehensive energy program, the town embraced the move into a more economical and cleaner future. The greatest benefits are likely to occur in the buildings and grounds department, where superintendent and staff already had a toehold on energy savings—because of the Helsmoortel Town Hall addition, the Kiwanis Ice Arena, the extensive LED replacement program undertaken for town lighting, the EV charging stations, and our initial experience with solar at the Greco Center.

IV. PUBLIC OUTREACH

a. Overview

Public outreach creates an involved citizenry that leads to an important partnership between the government and the governed. As representatives of the people, the Town Board seeks not only to inform the public but also to involve Saugerties citizens in a wide range of government-related

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activities. Citizen involvement in the affairs of town government is evidenced by the many volunteers who serve on the numerous boards and committees established by the Town Board.

The town government employs a variety of methods to inform and engage the public. The town website <https://townsaugerties.digitaltowpath.org> provides easy access to information related to all aspects of town government. Town Board meetings are videotaped; the website provides a link to where the meetings can be viewed. The site includes Town Board agendas, meeting minutes, officials contact information, committees and boards that support the work of the town government. *Lighthouse TV*, the community cable channel, is another medium used to inform and involve the public. The local weekly newspaper, the *Saugerties Times*, and the *Daily Freeman* inform the public about town government issues and decisions.

In September 2018 the Climate Smart Task Force launched a website www.ClimateSmartSaugerties.org that provides information about climate change, what citizens can do and what the town is doing to address the climate crisis.

b. Climate Action Plan (CAP) Outreach

A draft of the Saugerties Climate Action Plan was available to the general public for comments in the following ways:

- A copy was available for viewing at Town Hall in the Town Clerk's Office and at the Saugerties Public Library;
- The document was posted on the Town of Saugerties website;
- The document was posted on the Climate Smart Saugerties website;
- Information on the CAP was posted on *Lighthouse TV*23, the local cable bulletin board.

Following approval of the Town of Saugerties Climate Action Plan by the Town Board, the general public will be kept informed of progress toward meeting greenhouse gas emissions reduction targets as determined by subsequent analyses and reports. Updates will be posted on the Town of Saugerties website, the Climate Smart Saugerties website and in local newspapers.

V. OVERVIEW OF GREENHOUSE GAS (GHG) INVENTORY

According to the GHG Inventory, the Saugerties' town government operations produced 1,225.60 metric tons of greenhouse gas emissions and spent \$435,890 on energy costs in the 2016/2017 years average. The inventory was created with the assistance of the Hudson Valley Regional Council and Climate Associates over a two year period – 2018 and 2019 with data collected over the two –year period 2016 and 2017. Both organizations were funded via NYSERDA Clean Energy Communities Program contracts.

a. Developing a GHG Inventory Baseline

The Town of Saugerties' baseline GHG inventory is a tool that gives the town a comprehensive depiction of its energy consumption, the cost of that consumption, and the greenhouse gases emitted from that consumption. It provides the town with a roadmap to reducing emissions in the short term and over the course of the next five years and beyond. It gives the town the information it needs to compare future government GHG emissions and measure the success of the town's reduction goals.

b. Developing a Facilities Master List

A key step was to create a Facility Master List that included the town's sixty facilities and other structures (including streetlights) that use at least one form of energy. Each was assigned a category to indicate the type of infrastructure. Similar facilities, along with their energy use, were placed into sixteen groups. This makes the inventory more readable and useful for those in town government who will be using it as tool to reduce emissions and for the public who have a stake in our town's clean energy future.

c. Data Collection

The GHG inventory accounts for the emissions attributed to town government's operations that consume fossil fuels. The GHG Protocol, which the town followed, defines direct and indirect emissions as follows:

Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity.

Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

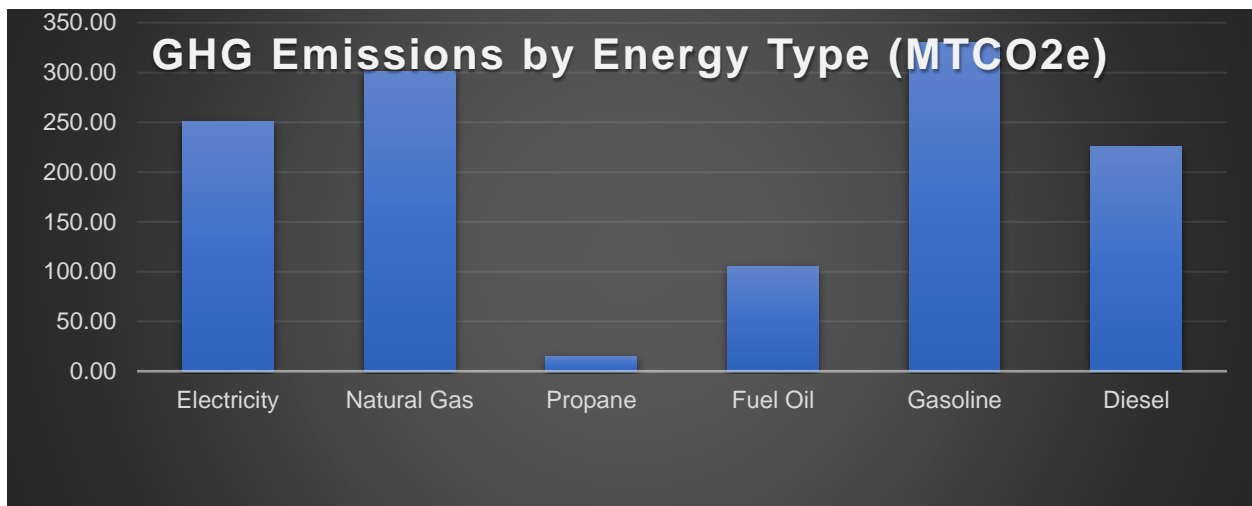
The following data were collected and included in the baseline GHG Inventory:

Scope 1 Fuels DIRECT EMISSIONS are natural gas, propane, heating oil, kerosene, gasoline and diesel.

Scope 2 Fuels INDIRECT EMISSIONS are electricity

VI. BASELINE ASSESSMENTS LEADING TO PLANNING AND ACTION

The first step toward reducing greenhouse gas emissions is to identify baseline levels of emissions in the town’s government operations most responsible for those emissions. This information was key to selecting our emissions targets, as well as the short-term and long-term reduction measures contained in this plan. This section is an indication of steps the Town of Saugerties has started now to reduce municipal emissions.



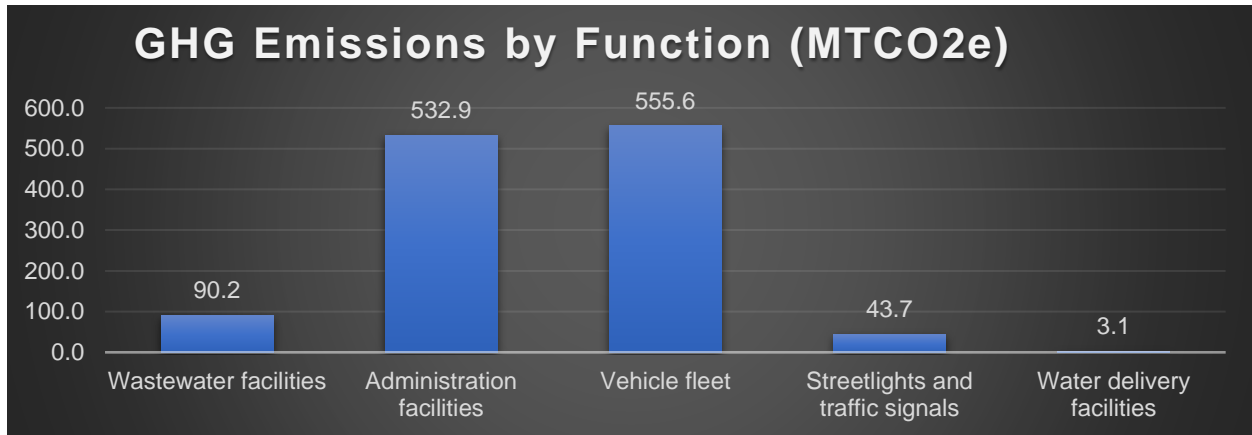
GHG Emissions by Energy Type

Vehicle Fleet

The Vehicle Fleet consisting of the vehicles and equipment used by the Police Department and the Highway Department provided the largest source of GHG emissions of 556 metric tons of carbon ((MTC), or 45% of the total Municipal GHG emissions. The costs for these two departments were: Gasoline \$74,394 and Diesel \$37,991 for a total of \$112,385.

The other department fleets (Transfer Station, Building Inspector, Parks & Rec, Animal Shelter, and Glasco (WWTP) combined emitted 140 metric tons of carbon, or 25 % of the total GHG for the whole vehicle fleet. The cost to our Town was \$19,815.32 in gasoline and \$8,329.09 in diesel.

Since completing the GHG inventory, the town has purchased one electric vehicle and one hybrid to begin the process of reducing emissions from the vehicle fleet. The GHG emission reduction after removing two conventional vehicles and replacing with one electric vehicle and one hybrid is equal to 7.47 metric tons of carbon.



GHG Emissions by Function

Administration Facilities

Administration Facilities were the next largest emitter of greenhouse gases, generating 532.9 metric tons of carbon or 43% of the town government’s total emissions. Most of the emissions were generated through the use of natural gas and electricity.

a. Natural Gas

The town has begun the process of having energy audits done at its municipal buildings to assess improvements that can be made to the heating and cooling systems as well as to the building envelope. The audits have been completed for the town hall complex, the senior center, the Glasco wastewater treatment plant, and the ice arena, specifically the chiller plant. We’re awaiting reports from the auditors and will make recommended changes accordingly, not just to natural gas, but to fuel oil and propane which are also used for heating buildings.

b. Electricity

Of the many facilities in this category, the Ice Arena uses the largest amount of electricity and generates the most GHG emissions. The chiller plant uses almost half of the Ice Arena’s electricity and generates the most GHG emissions with 22 tons of CO₂e. The chiller was state-

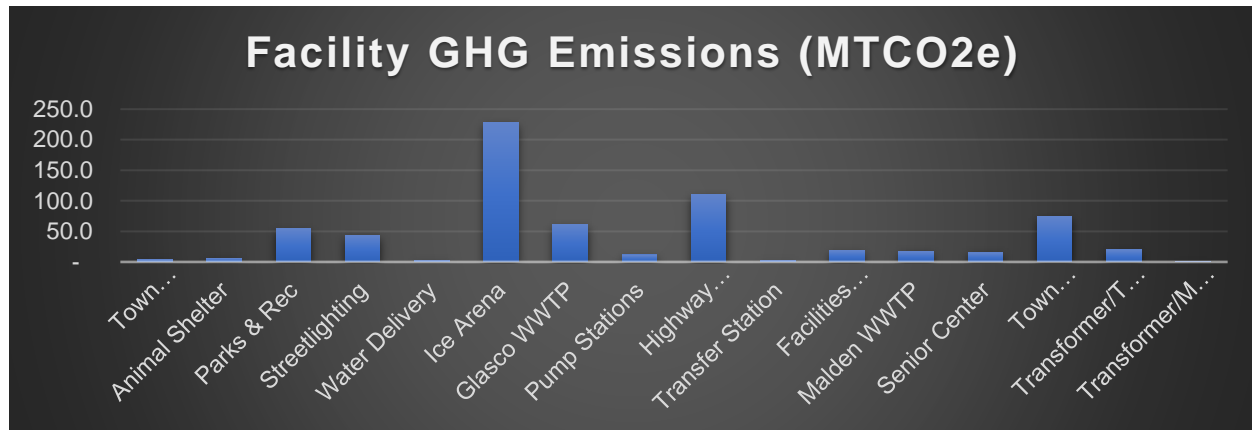
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of-the art in 2001, but it is no longer as efficient as the 2019 models now using a non-ozone depleting gas.

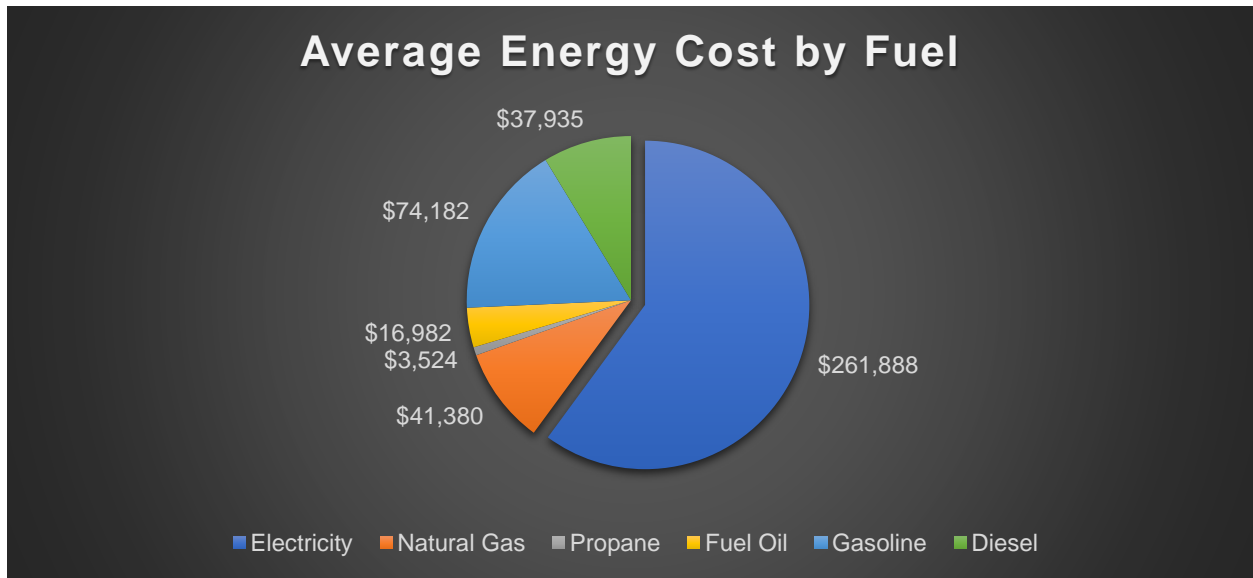
Our immediate goal is to apply for funding to help pay for a new high efficiency chiller plant. If we improve efficiency by, at minimum, 15%, we will reduce emissions by 4.5 metric tons.



GHG Emissions by Facility

To reduce administrative facilities' CO₂e emissions overall, the town government plans to purchase solar credits equaling up to 40% of the capacity at a 2 megawatt solar farm being installed on our existing capped landfill. This could reduce KWH usage by 800,000 and emissions by approximately 107 metric tons of carbon (MTCO₂e). The cost savings will be determined by how much it has cost us to date for each KWH (\$.1738 per KWH) and how much we will be paying for each KWH from the landfill solar farm. We are looking at a cost of \$.07/KWH, bringing the savings to about \$80,000.

The town will also purchase additional solar credits in the next few years, reducing emissions by approximately 115 metric tons of carbon.



VII. GHG EMISSIONS REDUCTIONS: GOALS, STRATEGIES AND TARGETS

Because of an energized and motivated Supervisor and Town Board, the task force has had the support to put together a realistic Climate Action Plan. Without the full participation and assistance of the town’s department heads and municipal staff, it would be impossible to bring a Climate Action Plan to fruition.

GOAL

Reduce GHG emission by 20% by the year 2025

STRATEGY

Following is the town’s strategy for achieving the goal.

FACILITIES

1. Prioritize recommendations in the recent audits pertaining to building envelopes. Also, explore the applicability of and potential for conversion to energy-efficient heat pumps, both ground and air source systems as a way of transitioning away from natural gas, fuel oil, propane and kerosene.
2. Continue energy audits of buildings not included in the 2019 group. This will help determine the most energy-efficient measures that will result in reductions of emissions and costs related to heating municipal buildings.

ELECTRICITY

- The town, as noted, has committed to purchasing carbon credits from the solar farm at the closed and capped landfill. We will continue to purchase offsets as new solar farms are constructed within the next two years.
- The town will pursue funding for a new state-of-the-art chiller plant to reduce emissions.
- The town will complete the conversion to 100% LED streetlights. At present, only 15% of the municipal streetlights are LEDs. Saugerties will retrofit the remaining 352 non-LED streetlights to LEDs by the summer of 2019. This will reduce our emissions by 30.84 MTCO₂e, our usage by 195,844 KWHs, and save \$27,039 in the cost of electricity.

SOLAR

- The town is exploring the option of putting solar arrays on other town buildings.

TOWN POLICIES

- The town has several noteworthy energy efficiency practices, but not all are codified in town law and they should be.
- Additional policies pertaining to updated building codes, purchasing policies, fleet management, just to name a few, are being explored.

VEHICLE FLEET

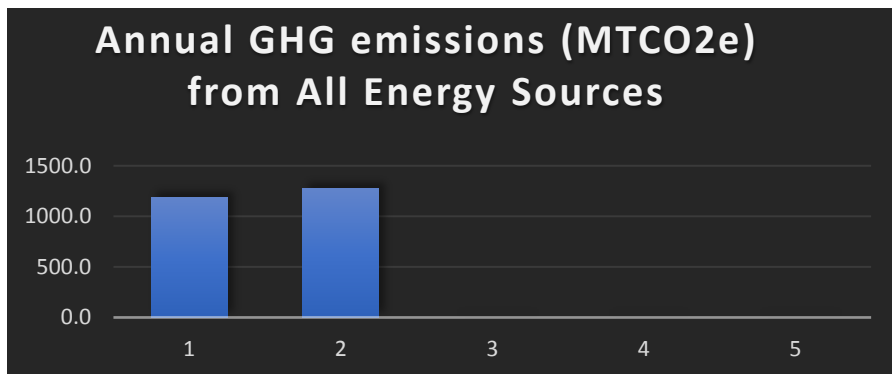
- Transition to electric and plug-in hybrids for town vehicles. For trucks and heavy equipment, implement a replacement policy of upgrading to higher efficiency models.

VIII IMPLEMENTATION



A total of 1225.60 metric tons of CO2 were emitted from all municipal operations on average for 2016 and 2017.

Source: Greenhouse Gas Inventory Data 2016 - 2017



All Municipal Operations	1181.30	1269.90	1225.60
Wastewater facilities	86.9	93.5	90.2
Administration facilities	539.7	526.1	532.9
Vehicle fleet	507.5	603.7	555.6
Streetlights and traffic signals	44.3	43.1	43.7
Water delivery facilities	2.8	3.4	3.1

This section of the Climate Action Plan addresses how the town can achieve the goal of reducing its Greenhouse Gas emissions by 20% and perhaps beyond that goal by the year 2025

The town’s vehicle fleet and administrative facilities are the largest emitters of Greenhouse Gas.

Vehicle Fleet

The town purchased one plug-in hybrid (PHEV) for the Police Department in 2019 to replace one that gets low miles per gallon. The Chief of Police has committed to replacing two inefficient vehicles per year with hybrids for five years starting in 2020. The town also purchased an electric vehicle (EV) for the Glasco Waste Water Treatment Plant which will replace an inefficient pickup truck. This plan also includes adding one electric vehicle to the fleet to replace conventional low efficiency vehicles for the next five years. These initiatives will result in a vehicle GHG emissions reduction of 51.1metric tons of MTCO2.

Administrative Facilities

The town has committed to purchasing up to 40% of the capacity of a two-megawatt solar farm at its long-closed landfill. These offsets reduce emissions by 107 metric tons of carbon. Additional solar offsets from solar farms set to be built will reduce an additional 115 metric tons of emissions. We will apply for funding to purchase a new high efficiency chiller plant. This will reduce emissions by an estimated 4.5 MTCO₂. The town will implement recommendations from the energy audits pertaining to energy efficiency and reducing the use of natural gas, heating oil, propane and kerosene.

Streetlights

The town will replace the remaining 352 non-LED streetlights with LEDs in 2019. The initiative will result in a total streetlights reduction of 30.85 MTCO₂.

Funding

All of these planned and anticipated reductions add up to 25% of the 2016/2017 total 1,225.60 emissions. These reductions are higher than our goal of 20%. The task force has considered the fact that five years in the world of municipal budgets and grant opportunities can bring unanticipated economic changes. Some projects or purchases may be postponed or reduced despite the best of intentions.

Appendix

There will be more GHG emissions reductions added to this list in the years to come. Some were mentioned previously in this plan and some are part of the project list in the Next Steps section of this plan. The commitment to make the Town of Saugerties a leader in combatting climate change will continue well into the future.

Metrics for Measuring Progress.

The projects list in Section IX Next Steps includes three types of actions: (1) actions that will result in a direct reduction of GHG emissions; (2) policy actions when implemented will result in energy savings and GHG emissions reduction; (3) community actions that will result in significant GHG reductions and heightened community awareness of the need to reduce community-wide GHG emissions and how to achieve those reductions.

1. The actions resulting in GHG emissions reduction will be quantified when the next government GHG emissions inventory is completed, and results are compared with the current inventory. Once finalized, the East Light Solar Plan will determine the exact amount of electricity the town will purchase. Cost, energy use and GHG emissions reduction will be available in a year. The two Electric Vehicle Charging Stations will be completed in May of 2019. Their cost will be \$4,974 when the \$16,000 rebate from

the Charge Ready NY program is received. The Kiwanis Ice Arena roof is scheduled to be upgraded this year.

2. Policy actions include: writing a Green Fleet Procurement Policy, a Vehicle Idling Policy, updating the Waste Paper Recycling Policy, creating a Tree Replacement Policy, writing a Fleet Inventory Policy, and establishing green building standards for government buildings. The recommended policies can be developed by town employees in consultation with the Department of Conservation (DEC) and NYSERDA. Once reviewed by the appropriate department heads and approved by the Town Board, the scorecard on progress can be a simple check list at the end of one year. The cost of implementation is staff time.

3. Audit Report Recommendations

An audit report with recommendations for the ice arena chiller, which uses a significant amount of electricity, is completed. The recommendations will be reviewed and consideration will be given regarding the availability of funds and a time-frame for implementing recommendations. Replacement of the chiller is estimated at \$250,000 with a payback of 15.6 years. However, interim energy saving steps can be taken until funding is identified for replacement.

Audit recommendations for the Waste Water Treatment Plant, Town Hall Helmoortel and Donlon Wings, and the Greco Senior Center will be assessed and action steps integrated into the CAP project list. A Government Solid Waste Audit will be an important first step in determining the quantity of waste generated by government operations and the possibility of reducing such waste. A process to determine how to and who will complete such an audit is needed. Undoubtedly it will yield recommendations for reducing waste. Food Scraps Recycling is an idea that is being discussed and implemented locally. The Saugerties Transfer Station is collecting food scraps now. Currently the cafeteria manager for the Saugerties School District is conducting a waste food audit to quantify the amount of food waste generated. This information will be given to Community Compost Co., a business that collects food waste and returns compost to its customers. At a recent meeting, it was estimated that between half-a- ton and one ton of food waste per week will be diverted from the local landfill if the school district participates in this plan. The cost to participate in the plan will be partially offset by savings in the cost of waste pickup.

4. Community Wide Actions

The task force recommends that a Community GHG Inventory and Community Climate Action Plan be developed to address the overall GHG emissions produced by the different sectors of the community. The task force obtained a Town of Saugerties community greenhouse gas emissions inventory (GHG), conducted in 2010 by New York State, that identifies and quantifies the sources of GHG emissions from community activities. It establishes a baseline from which future emission reductions and progress can be measured. The inventory reveals that the community produced 267,287 metric tons of GHG emissions. Mobile energy is the community's largest source of greenhouse gas emissions representing approximately 45% of the community emissions. Developing a Community GHG Inventory and creating a Community Climate Action Plan are steps that require significant community volunteer involvement. Forming a committee to develop a process for creating the inventory and the action plan is needed. To complete these initiatives, additional volunteers and grant funding will be required.

5. Prioritizing Projects

The Greenhouse Gas Inventory for Government Operations reveals that the town's vehicle fleet and the administrative facilities are the largest emitters of greenhouse gas. Determining priorities for project implementation two main factors need to be considered: the amount of greenhouse gas the project will reduce, and the funds available to implement the project. The town has relied on state grants to fund many of its energy-saving and GHG reduction initiatives in the past, and will continue to aggressively pursue grants to implement the projects in progress and the projects recommended in this plan, (See IX. Next Steps, page 23). Prioritizing projects for implementation depends largely on emission reductions, budgetary constraints, on the resources available, and on grants available to the town.

IX. NEXT STEPS

a. Climate Action Committee

The Climate Smart Task Force recommends a steady agenda of progress to achieve GHG emission- reduction goals by 2025

A designated Town Board member and a Climate Action Committee will be tasked to review the Projects List annually to determine progress on implementing actions designed to reduce GHG emissions. At the same time as new ideas and solutions emerge for reducing GHG emissions, they will be brought up, discussed, and new recommendations made to update the list. A progress report will then be generated on

an annual basis. The reports will be published on the town website to inform the public of efforts undertaken by town government and results achieved. The reports also serve to heighten public awareness and encourage citizens to reduce their carbon footprint.

b. Five-year Inventories

Progress towards achieving GHG reduction targets will be measured by conducting subsequent GHG inventories every five years. If goals and targets are being achieved, a new GHG Inventory baseline year will be established with new GHG emissions reduction targets and strategies to achieve those targets.

c. Appendix Updates

The Climate Action Plan will be updated by means of an updated appendix to the original plan with revised or new strategies as they emerge and new GHG emissions reduction targets. Future GHG emissions reduction targets will be based on subsequent GHG emissions inventories. Due to the ongoing nature of this process, it will be necessary to designate a committee to take responsibility for updating the plan, and to continue to partner with town employees to search for sources of funding for GHG reduction initiatives.

TOWN OF SAUGERTIES CLIMATE ACTION PLAN

<http://www.climatesmartsaugerties.org/climate-science.shtml>
<https://townsaugerties.digitaltowpath.org>

d. Projects List

PROJECTS	
In Process	Date
Chiller Study	2019-2020
WW Treatment Plant Audit	2019
Town Hall /Helsmoortel Audit	2019
Town Hall/Donlon Audit	2019
Purchase Hybrid Vehicle (police)	2019
Install 2 EV Charging Stations	2019
LED Street Light Replacement	2019
Kiwanis Ice Arena Roof Upgrades	2019
Waste Stream Management Efforts	ongoing
East Light Solar Plan at landfill	2021

Recommendations	
CCA Energy Management	2020
Green Fleet Procurement	2019-2024
Ice Arena Chiller Update	2020
Vehicle Idling policy	2020
Green Fleet Procurement Policy	2019
School District Food Scraps Recycling	2019-2020
Conduct a Gov. Solid Waste Audit	2020
Climate Resiliency Plan	2019
Update Waste Paper Recycling Policy	2019
Audit recommendations WWT Plant	2020
Audit recommendations Town Hall	2020
Audit recommendations Senior Center	2020
Community GHG Inventory	2021
Community GHG Climate Action Plan	2023
Conduct a Fleet Inventory	2020
Adopt a Fleet Inventory Policy	2020

The Climate Smart Task Force recommends a steady agenda of progress over the next five years contained in a Projects List. For instance, the town is planning energy-efficient roof upgrades at the Kiwanis Ice Arena for energy savings; addressing issues with the arena’s chiller—now 18 years old and being reviewed by auditors; entering into a major energy agreement for our own former landfill; examining the prospect of a historic Community Generation Solar Project; completing the conversion of all its streetlights to LED; adding new electric-hybrid police vehicles, instituting a town no-idle policy for its vehicles, if suitable; creating a climate resiliency plan and updating its wastepaper recycling policy. These are just among the innovative initiatives that have evolved as doable and economical in response to climate change.

The task force also anticipates that the continued application of the CAP will propose full reviews with changes, recommendations, and new ideas every five years as previously stated. A committee needs to remain active, working with leadership, staff, department heads and the public to ensure that the scourge of climate change is addressed to the fullest extent possible.

Acknowledgments

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