

# Town of Gardiner Climate Action Plan 2019



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## MESSAGE FROM THE TOWN SUPERVISOR



The Town of Gardiner signed the Climate Smart Communities pledge in January, 2018. We set the town's course toward lower greenhouse gas emissions and more efficient use of energy in our municipal facilities and vehicles as well as in the homes, institutions and businesses in our community. A volunteer task force was formed and immediately went to work on development of a Government Greenhouse Gas Inventory based on the municipality's average consumption of electricity and fossil fuels during 2015, 2016 and 2017. The task force presented the first draft of the Government GHG Inventory in February, 2019. This Climate Action Plan refers to the final draft of the GHG Inventory and provides a blueprint for monitoring and lowering our energy use well into the future.

### ACKNOWLEDGMENTS

The Town would like to thank the Climate Smart Task Force, the municipal office staff and the Environmental Conservation Commission for their support of this important project. We also want to thank Central Hudson for provision of 2016-17 electricity data and the Climate Action Planning Institute (CAPI) for facilitating the creation of the Government Greenhouse Gas Inventory and the development of this Climate Action Plan.

### BACKGROUND

The Town is deeply committed to environmental sustainability through pursuit of climate change adaptation and mitigation strategies. Climate change is affecting the town in many ways, such as increased annual rainfall, more intense storm activity, flooding and extreme temperatures.

According to the report by the Intergovernmental Panel on Climate Change we are already seeing the consequences of 1°C of global warming through more extreme weather, rising sea levels and diminishing Arctic sea ice. United Nations Secretary General Antonio Guterres has stated: "There has never been a more important time to listen to science. Failure to heed these warnings and take drastic action to reverse emissions means we will continue to witness deadly and catastrophic heat waves, storms and pollution."

Adaptation planning is crucial to ensure that the Town will be resilient to the impacts of a changing climate not only for tomorrow or next year but for generations..

The focus of this Climate Action Plan is on climate change mitigation. A key component of the Plan development included assessing current sources of GHG emissions from both government operations and the broader community by conducting GHG emissions inventories, using these baselines to set emissions reduction targets, and finally outlining and quantifying various actions that can be taken to achieve these goals.

The Town's emissions reduction targets in this Climate Action Plan are modeled after New York State's Reforming the Energy Vision's goals, which are outlined in the 2015 NYS Energy Plan (<https://energyplan.ny.gov/Plans/2015.aspx>). New York State's goals include a 40% reduction in GHGs by 2030 (from 1990 levels), 80% by 2050. The Climate Leadership and Community Protection Act <https://www.nysenate.gov/legislation/bills/2019/s6599>, passed in 2019, sets an even more

aggressive goal of reduction of GHGs by 85% by 2050. 70% of all electrical energy generation must be from renewable energy sources by 2030.

The Supervisor, Town Board, Environmental Conservation Commission and the Climate Smart Gardiner Task Force will collaborate to support various initiatives to advance these priorities, both for government operations and for the broader community.

## INITIATIVES

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### NYSERDA'S CLEAN ENERGY COMMUNITIES PROGRAM

The Clean Energy Communities (CEC) Program was launched in 2016 (<https://www.nyserdera.ny.gov/All-Programs/Programs/Clean-Energy-Communities>). Communities may choose to pursue any of the ten High Impact Actions under this program, each with a focus on energy efficiency and/or renewable energy. Communities that complete a minimum of four actions become "designated" Clean Energy Communities by New York State and subsequently have access to NYSERDA grant funding.

Hudson Valley Regional Council (HVRC) is the Mid-Hudson regional administrator for this program, and as such has Clean Energy Communities Coordinators available to support the Town's pursuit of the High Impact Actions. In early 2018 the Town completed one High Impact Action with support from HVRC. Through participation in this program the Town was invited to join the "Climate Action Planning Institute," which facilitated completion of the Government GHG Emissions Inventory and supported development of this Climate Action Plan.

The High Impact Action completed by the Town included:

- **Energy Code Enforcement Training:** In late 2017 the Town's Building Inspector Andrew Lewis completed this NYSERDA training on behalf of the Town. The training focuses on enforcement of the energy conservation code, which involves site plan review and visits to both residential and commercial project sites.

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### "CLIMATE ACTION PLANNING INSTITUTE" & GOVERNMENT GHG EMISSIONS INVENTORY

In the 2018 the Town joined the "Climate Action Planning Institute" (CAPI), facilitated by Europa McGovern of the Hudson Valley Regional Council and Jim Yienger and Greg Mumby, of Climate Action Associates (CAA). Both organizations were regional NYSERDA subcontractors under Capital District Regional Planning Commission's NYSERDA Eastern Upstate CEC contract, and this project was made available under the Clean Energy Communities Program.

CAPI was an 11-month-long working group of nine local municipalities who collaborated to complete their Government GHG Emissions Inventories, with support from HVRC and CAA. Participants included both the Village and Town of New Paltz, as well as the Towns of Esopus, Philipstown, Rosendale and Saugerties, and the City of Kingston. Ulster County's Department of the Environment also provided support for this project.

Participation in CAPI facilitated completion of the Government GHG Emissions Inventory (for baseline years 2015-16-17) and ultimately development of this Climate Action Plan.

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## COMMUNITY GHG EMISSIONS

Climate Smart Gardiner will be producing a Community GHG Emissions Inventory, which will be included in an updated version of this Climate Action Plan.

At this time the Community Inventory data included in this Plan draws data from the [2012 Mid-Hudson Regional GHG Emissions Inventory](#) which was prepared by ICF International, a sub-consultant to VHB Engineering, Surveying and Landscape Architecture, P.C., in the course of performing work contracted for the New York State Energy Research and Development Authority (NYSERDA)

## GOVERNMENT GHG EMISSIONS INVENTORY

The GHG Emissions Inventory was completed in January, 2019 via the Town's participation in the the Climate Action Planning Institute from May 2018 – April 2019. A template GHG Emissions Excel Workbook was provided to all CAPI participants. The template Workbook was then populated with Town facilities and energy data in order to complete the Government GHG Emissions Inventory.

Mark Varian and Stephen Weir, Climate Smart Gardiner Task Force members, worked closely with Supervisor Marybeth Majestic and her staff to complete this project, accessing historical energy sourcing data at Town Hall.

## BASELINE YEAR & EMISSIONS SOURCES

- Fossil fuel combustion creates carbon dioxide and small amounts of methane and nitrous oxide. Carbon dioxide represents 98-99% of a fuel's GHG footprint. All municipal energy data was collected for the years 2015-16-17, and the average of these three years was established as the baseline to compare with future Government GHG Emissions Inventories, in order to measure progress towards the established emissions reduction targets.

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## PROCESS

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### Facility Master List

Creating the Facility Master List tab was step one for the government Inventory. All Town facilities were listed. Since most of the 11 facilities had one Central Hudson electric metered account the facility's account name and description were used to identify each Town facility in the GHG inventory. Facilities include the Highway Garage, Town Hall, Kennel, Transfer Station, three sewer districts, Majestic Park and the Majestic Park Recreation Center (aka the Pole Barn). The two street lighting accounts, which are not metered, were listed as Street Lighting #1 and Street Lighting #2.

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### Energy Provider Accounts

Each unique utility or energy supplier account was then listed and linked to one of the items on the Facility Master List. All relevant accounts were listed for the inventory period.

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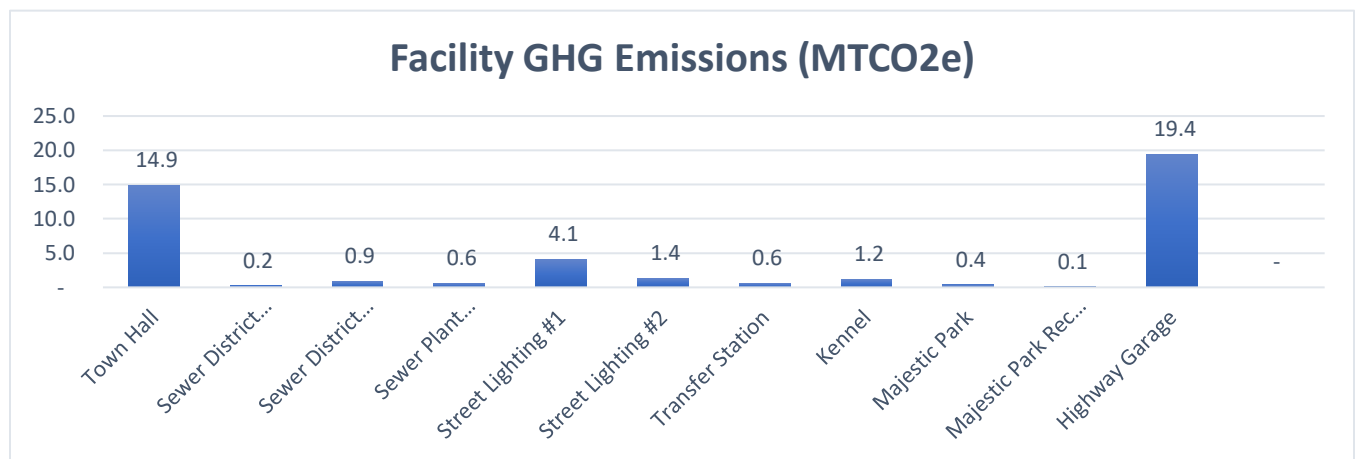
### Data Collection

The following data were included in the Government GHG Emissions Inventory:

- Electric data: The complete 2016-17 electricity data from Central Hudson were obtained on behalf of all CAPI participants directly from Central Hudson by HVRC and CAA, upon provision of all Town's Central Hudson account numbers (2015 electricity data were collected from the Town's invoice archives).
- Tank fuels: Fuel oil for Highway Department and propane for the Town Hall and Kennel
- Fleet fuels: All gasoline and diesel data associated with the Highway Garage. Reimbursements to Town employees who used their own vehicle while on Town business are also included.
- Employee Commute Survey: Not included

**EMISSIONS SUMMARY TABLES**

**FIGURE 1.1: GHG EMISSIONS RANKED BY FACILITY**



**FIGURE 1.2 GHG EMISSIONS BY ADMINISTRATIVE FUNCTION**

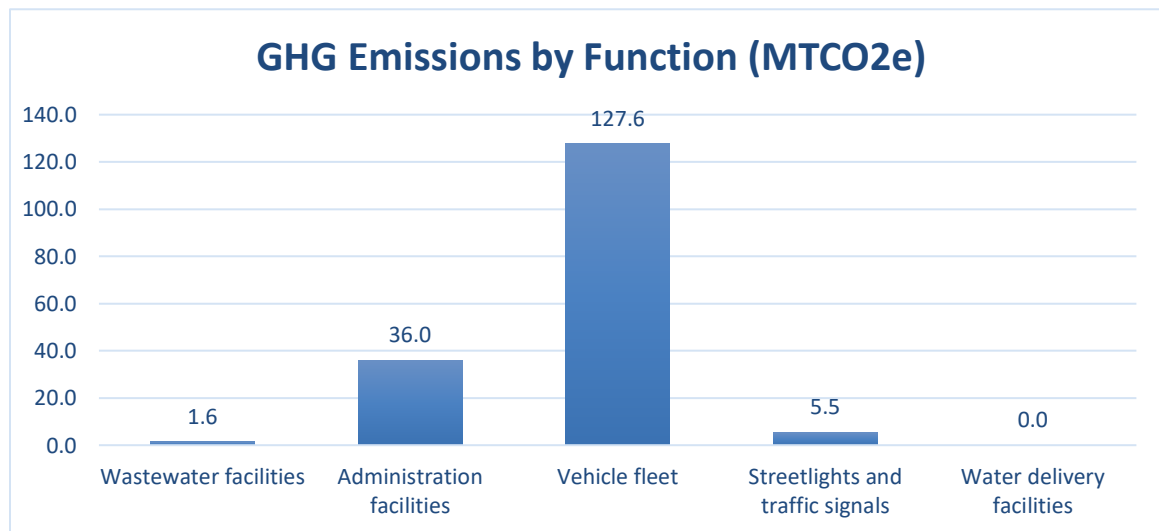


FIGURE 1.3: GHG EMISSIONS BY ENERGY TYPE

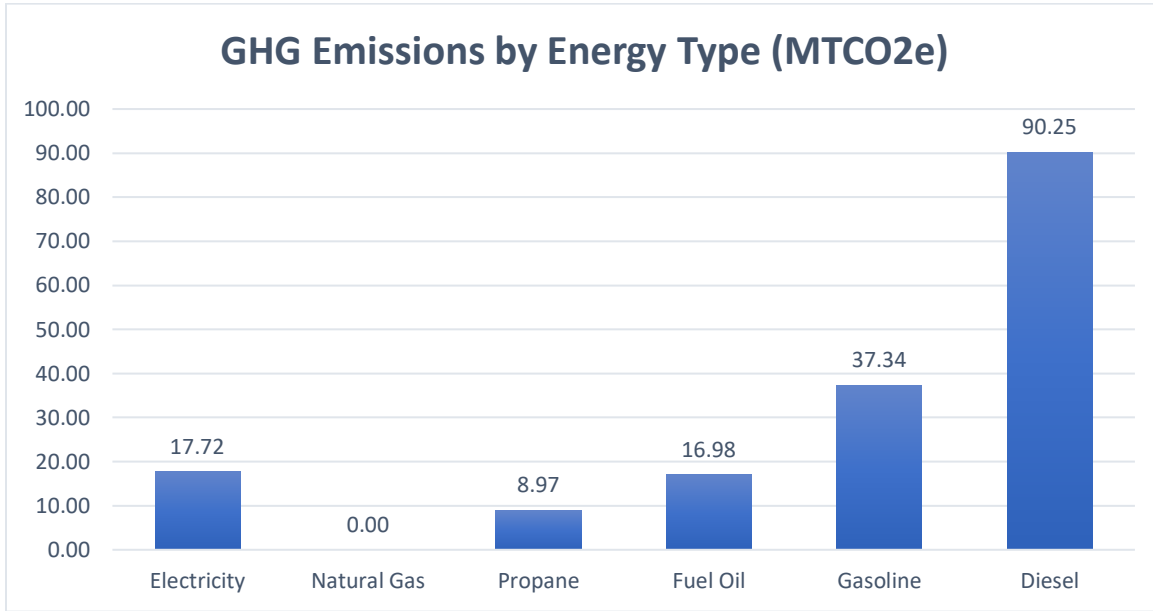


FIGURE 1.4: AVERAGE ENERGY COST BY FUEL

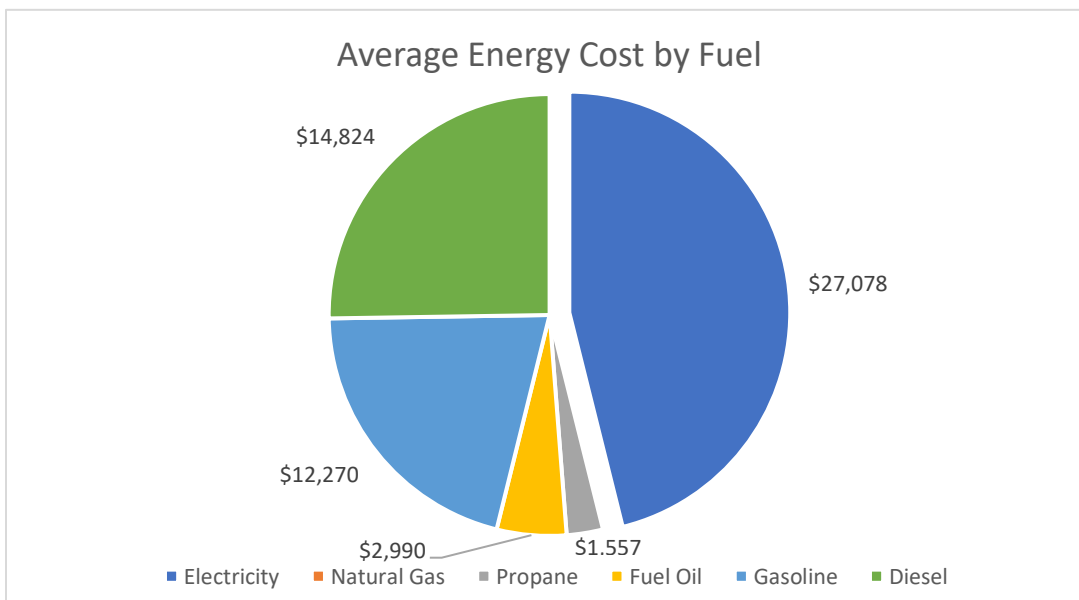
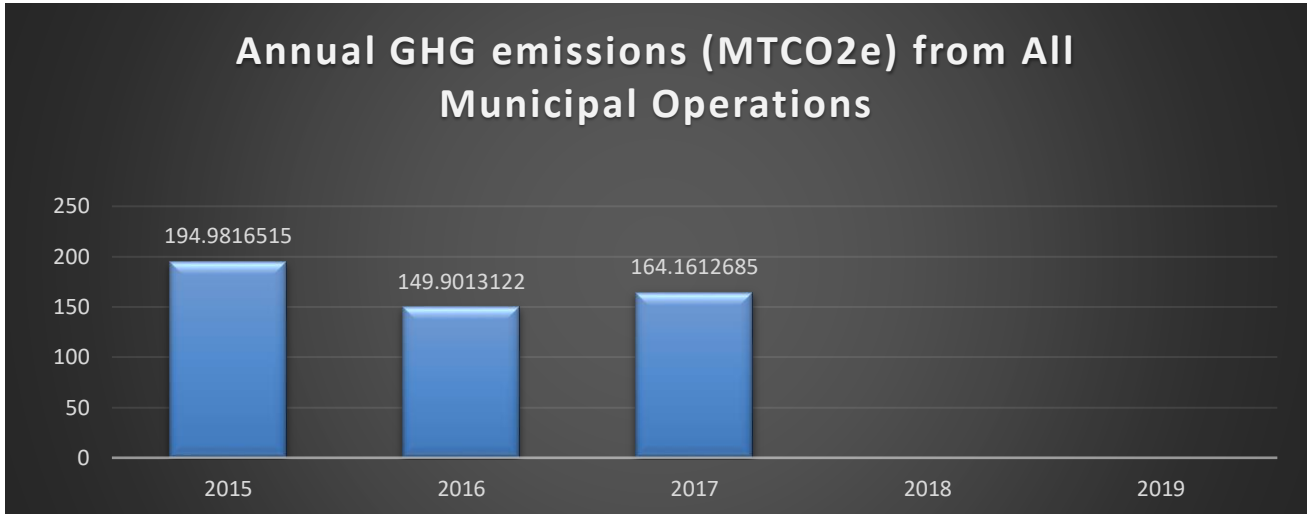




FIGURE 1.5: ANNUAL GHG EMISSIONS TRENDS FROM ALL MUNICIPAL OPERATIONS



FACILITY BY FACILITY EMISSIONS

FIGURE 2.1: TOWN HALL ELECTRICAL USE & COST

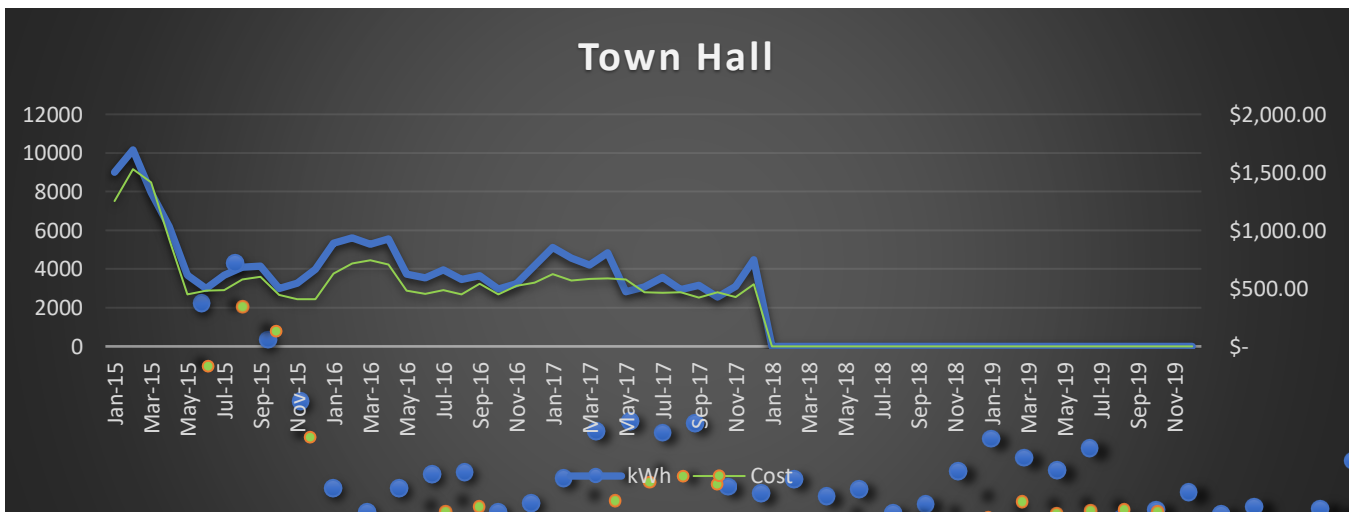
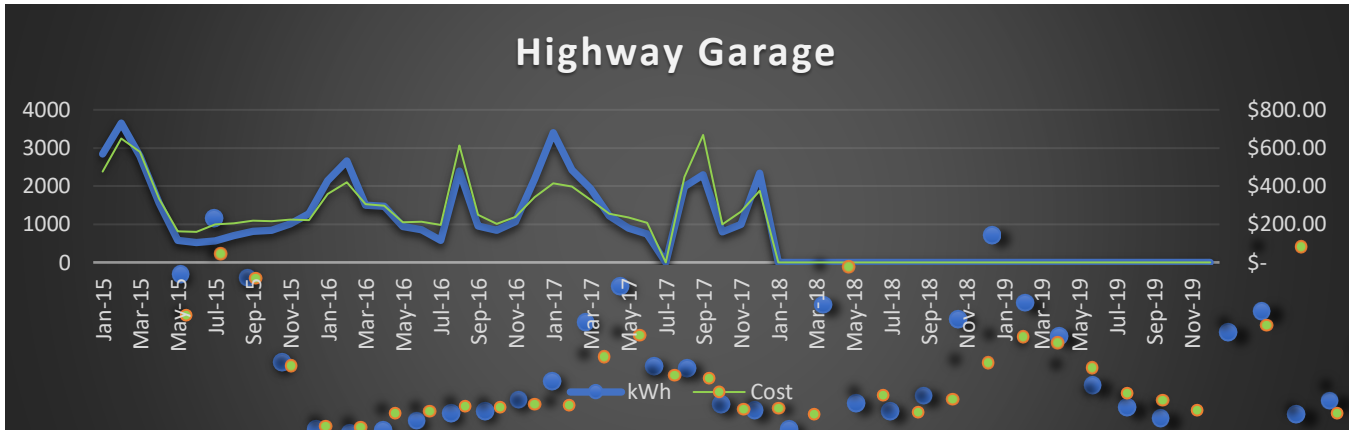


FIGURE 2.2: HIGHWAY GARAGE ELECTRICITY USE & COST



FLEET VEHICLE CONSUMPTION IN GALLONS

	CONSUMPTION					
	Gasoline			Diesel		
Department	2015	2016	2017	2015	2016	2017
Highway Garage	3573.20	3669.30	3676.60	9895.63	7590.30	8664.70
Town Hall	463.32	501.80	482.56			

## GOVERNMENT EMISSIONS REDUCTION TARGETS & STRATEGIES

### GOVERNMENT CLIMATE ACTION PLAN SCORECARD

The Town has adopted the goal of reducing government GHGs 20% by 2022 over the average of 2015/16/17 levels documented in the Government GHG Emissions Inventory. This goal can be achieved by pursuing a combination of strategies. The Climate Action Plan Scorecard below is built into the Town’s GHG Emissions Inventory Excel Workbook, and it quantifies the percent reductions that may be achieved against the baseline by pursuing a combination of various actions. Therefore, it can be adjusted and shaped according to the Town’s plans, and can support prioritization of strategies that will result in the most effective combination of cost savings and GHG emissions reduction.

CAP Score Card										
Baseline Emissions (MTCO2e)	171	NOTE: Cell C4 references the average of all the baseline year's GHG emissions, but may be manually changed to a single year's baseline GHG emissions if needed.								
Reduction Goal	20%									
Required Reduction (MTCO2e)	34									
Total Plan Savings (MTCO2e)	17									
Percent Reduction From Base	10%									
Emissions Reduction Plan Actions										
Sector	Action	GHG Savings (MTCO2e)	Electricity (kWh)	Natural Gas (therms)	Propane (gallons)	Fuel Oil (gallons)	Gasoline (gallons)	Diesel (gallons)	% Reduction From Baseline	
Renewable Energy / Energy Supply	Offset 100% of electricity with green power	12.2	91,227						0.07177041	
Renewable Energy / Energy Supply	Community Solar	-							0	
Renewable Energy / Energy Supply	Ground source heat / geothermal	-							0	
Renewable Energy / Energy Supply	Wind	-							0	
Renewable Energy / Energy Supply	Energy Storage	-							0	
Energy Efficiency	LED Lighting Retrofit	-							0	
Energy Efficiency	HVAC Improvements	-							0	
Energy Efficiency	LED Streetlight Conversion (savings obtained from NYPA cost estimate dated	5.0	37,423						0.02944155	
Energy Efficiency	WWTP Upgrades	-							0	
Energy Efficiency	Building Management System	-							0	
Green Fleets	Electric Car Procurement Policy	-							0	
Green Fleets	Increased Fleet Fuel Efficiency	-							0	
Green Fleets	Route Enhancements	-							0	
Solid Waste	Composting	-							0	
Solid Waste	Recycling	-							0	
Non-Energy GHG Reduction	Refrigerant Replacement	-							0	
Green Fleets	Idling Policy	-							0	
		-							0	
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## GOVERNMENT EMISSIONS REDUCTION STRATEGIES

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### ENERGY & FACILITIES

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#### ELECTRICITY

The town is considering joining a community choice aggregation which will provide eligible municipal facilities with 100% renewable energy. The town's residential and small commercial electrical customers will also benefit from this program. The GHG emissions currently produced by the town's municipal facilities will be reduced by 7%.

#### ENERGY EFFICIENCY

Energy audits of buildings are the first steps in determining the most effective energy conservation measures (ECMs) which will result in the most cost and energy savings.

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#### FUEL OIL

Prioritizing energy efficiency in future building construction and alterations, converting existing fossil fuel-based heat and air conditioning to ground and air source heat pumps. In 2005, as part of a renovation of Town Hall a ground source heat pump HVAC system was installed in a portion of the of the building.

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#### LED STREETLIGHT CONVERSION

The Town is pursuing LED streetlight conversion. This project will result in significant cost savings as well as a 3% decrease in Government GHG emissions against the baseline.

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#### SOLAR

The Town passed a Solar Law in 2012 in order to attract solar farm development within the town. While no solar farm developers have successfully established a facility in the Town there have been several inquiries and presentations. Through local community distributed generation residential, commercial and municipal customers can receive 100% renewable energy at discounted prices.

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### TRANSPORTATION

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#### FLEET VEHICLES

The Town has no automobile fleet. The Town-owned vehicles are trucks and heavy vehicles used by the highway department primarily to repair and maintain Town roads and drainage systems. Climate Smart Gardiner Task Force member Stephen Weir completed a Town vehicle inventory in 2019 and a reporting process was initiated to monitor the mileage and fuel consumption of Highway Garage trucks and equipment. Transitioning to more efficient and possibly hybrid or fully electric equipment in the future will be a priority.

Currently Town employees use their personal vehicles when they travel to conduct Town business. Purchase of a Town-owned hybrid or electric vehicle could save the Town money over the long term and reduce emissions from gas-driven vehicles.

## RESOURCES

### FUNDING SOURCES

- NYSDEC
  - [Climate Smart Communities grants](#): The Climate Smart Communities grant program provides 50/50 matching grants for eligible climate adaptation and mitigation projects.
  - [NYSDEC Zero Emission Vehicle Rebates](#)
    - EVs: \$5,000 rebate per eligible vehicle
- EV charging stations (scheduled to reopen in 2019): Up to \$8,000 rebate per port for Level II EV charging stations, 20% local cost share can consist entirely of in-kind contributions.
- [NYSERDA Funding Opportunities](#)
  - [FlexTech](#): This program provides a 50% cost share for municipal building energy audits.
- [NY Truck Voucher Incentive Program](#) (currently closed): Available in qualifying counties. [List of class 3 - 8 Electric Vehicles](#)

### INFORMATION SOURCES

- Ulster County Initiatives
  - [www.ulstercountyny.gov/ClimateActionPlan](http://www.ulstercountyny.gov/ClimateActionPlan): Ulster County's Climate Action Plan.
  - [Ulster County Sustainability Guide](#)

The Town's Community GHG Emissions Inventory tables and charts in this section reference data from [the 2012 Mid-Hudson Regional GHG Emissions Inventory](#) (2010 baseline year).

## COMMUNITY GHG EMISSIONS INVENTORY

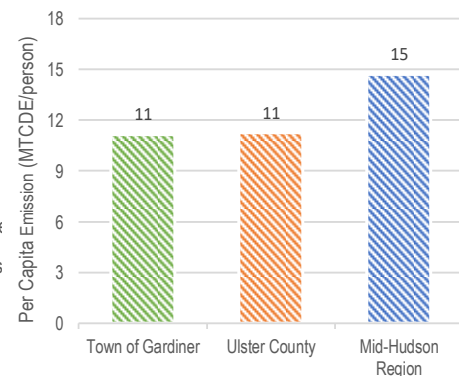
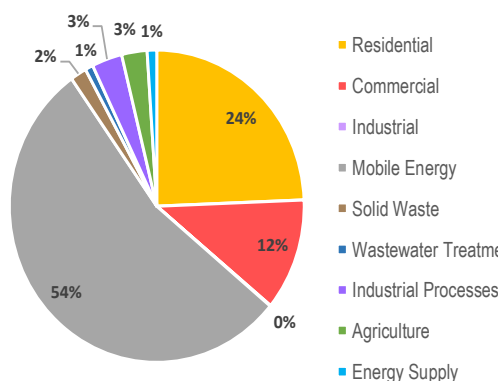
### Town of Gardiner

TABLE 1: Community GHG Inventory (2010)

GHG EMISSION SECTORS	MTCO <sub>2</sub> e*
Residential	15,538
Commercial	7,406
Industrial	41
Mobile Energy	34,546
Solid Waste	1,133
Wastewater Treatment	556
Industrial Processes	2,121
Agriculture	1,778
Energy Supply	669
<b>Total Emissions</b>	<b>63,788</b>
Population	5,713
Per Capita Emissions	11

\*Metric Tons of Carbon Dioxide Equivalent

FIGURE 1: Community GHG Emissions by Sector (2010)



The pie chart shows that the residential (24%) and mobile energy (54%) sectors are the most significant sources of GHG emissions, with commercial (12%) the next largest source. The remaining sectors represent 3% or less.

The Town's per capita emissions (11% MTCDE/person) are similar to Ulster County's and are significantly lower than the Mid-Hudson Region's as a whole (15 MTCDE/person).

This may be attributed in part to the Town's rural and residential character. Main Street is a major link between Rte. 9W on the east and Rte. 209 on the west. Routes 299 and 208 are major north-south State Highways running along the Town's east and west boundaries and connecting the town and lower Hudson Valley communities with New Paltz and Kingston. The traffic along these routes contribute to the high level of mobile GHG emissions.

2010 TOTAL COMMUNITY GHG EMISSIONS  
OF 63,788 MTCO<sub>2</sub>e  
IS EQUIVALENT TO CO<sub>2</sub> EMISSIONS FROM

**156,343,137**



Miles/year  
driven by an  
average  
passenger  
vehicle

**7,177,675**



gallons of  
gasoline  
consumed

## COMMUNITY EMISSIONS REDUCTION TARGETS & STRATEGIES

The community inventory, and therefore the emissions reduction targets and strategies, are very different than the government's and much larger, as they include all community-wide GHG emissions from the residential, commercial, industrial, transportation, and other sectors. Due to the sheer scale of community GHG emissions, it is very important to identify strategies for reducing them and to prioritize these strategies.

## COMMUNITY EMISSIONS REDUCTION STRATEGIES

### ENERGY & BUILDINGS

Central Hudson currently supplies the electrical energy to town residences and commercial and municipal facilities. The Town Board is considering the introduction of Community Choice Aggregation to join with other nearby communities to negotiate with third-party energy suppliers to provide electricity that is produced from 100% renewable energy sources

[Energize NY Finance](#) is available for energy efficiency and clean energy projects in commercial and nonprofit owned buildings, via Ulster County's membership in the Energy Improvement Corporation. This is also known as Property Assessed Clean Energy (PACE) financing and it allows commercial or not-for-profit property owners to pay back the cost of clean energy upgrades through a special charge on their property tax bill.

### TRANSPORTATION

The Town has shown that it welcomes and promotes the use of electric vehicles by residents and visitors by providing an EV charging station in the Gardiner Library parking lot. Other charging stations may be installed. Several charging stations are now available at local tourist attractions and commercial facilities.

## NEXT STEPS

This is intended to be a "living" document, with the goal of updating the Government GHG Emissions Inventory and the Scorecard annually in order to:

- Track the Town's progress towards its emissions reduction target.
- Establish priorities and goals for use of the Town's vehicle fleet and the purchase of new equipment with the goal of reducing the fleet's greenhouse gas emissions by 15% by 2022.
- Quantify energy and cost benefits of projects and upgrades that are continually being implemented.
- Guide the Town's planning and prioritization of future projects.
- Support access to funding opportunities.

## MONITORING AND VERIFICATION

Through collaboration with the CAPI working group the Town developed a GHG Inventory Excel Workbook that includes the option to update the Workbook annually over a 5-year timeframe. The Climate Smart Gardiner Task Force will present an

annual report on the Town’s energy use and greenhouse gas emissions to the Town Board and will continue to work with the Supervisor, Town Board and office staff to meet our carbon reduction goals.

