



2020  
Carbon Neutral Government  
Operations Report

## 1. Introduction

Resolution 315 of 2019<sup>1</sup> was adopted by the Ulster County legislature in September of 2019 to establish a policy regarding Ulster County's use of renewable energy. This policy reinforces Executive Order 1 of 2019 signed by the County Executive in June of 2019.

The resolution commits Ulster County to:

- Purchase 100% of the County's electricity for government operations directly from local renewable energy sources, or as an interim solution only, by obtaining Green-e Energy certified Renewable Energy Certificates (RECs).
- Continue to operate a net carbon neutral government.
- Decrease greenhouse gas emissions associated with its operations by 25 by the year 2025 and 80 by the year 2050 using the County's 2012 greenhouse gas emission inventory as a baseline.
- Ulster County shall supply 100% of its annual building and fleet electricity usage from locally generated renewable energy sources by the year 2030.
- Endeavor to achieve the Department of Environmental Conservation's Gold Climate Smart Community designation by the year 2025.
- Assist and support our towns and communities in increasing the use of green power and decreasing community wide greenhouse gas emissions by 80% by the year 2050.

The following report, prepared by the Ulster County Department of the Environment, is submitted to detail the status of each of these goals, and to inform whether these goals remain attainable and whether they should be modified or amended.

This report builds on data collection and analysis for the Annual Green Fleet Report, due for submittal by March 1<sup>st</sup> for the prior year of data, and the Building Benchmarking report, due for submittal by September 1<sup>st</sup> for the prior year of data.

## 2. Renewable Electricity Usage

Per Executive Order 1-2019, Ulster County purchases 100% of its electricity for government operations from renewable sources through a combination of on-site generation, distributed generation, renewable energy certificates and utility green power products. Per Resolution 315 of 2019, Ulster County distinguishes between local renewable electricity and non-local renewable electricity acquired through the purchase of RECs. Ulster County defines local generation as generation from a renewable source that occurs within the same utility territory and NY Independent System Operator (NYISO) zone as the load it serves. This includes generation from community distributed generation (CDG) sites.

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<sup>1</sup> Available here: [https://legislature.ulstercountyny.gov/sites/default/files/315.1%20-%2019\\_0.pdf](https://legislature.ulstercountyny.gov/sites/default/files/315.1%20-%2019_0.pdf)

## Local Renewable Generation

In 2020, purchased approximately 19.4% of its electricity from local renewable sources. This electricity was generated at the following locations:

*Table 1: Sources of Local Generation*

Site	System capacity	Type	Installation year	Ownership
New Paltz Substation Salt Shed	30.6 KW DC	Behind the meter	2011	Ulster County
Town of Ulster Landfill <sup>2</sup>	1.9 MW DC	Remote net metering	2018	Third Party
Natural Power Group Hydroelectric Facility – Wallkill	0.5 MW	CDG subscription agreement	1988	Third Party

Table 2 below shows the local electricity generation used by Ulster County government operations per year since the GHG inventory baseline year.

*Table 2: Total Local Renewable Electricity*

Year	Local Renewable Electricity Used (kWh)
2020	2,138,000 <sup>3</sup>
2019	2,021,961
2018	927,285
2017	37,447
2016	42,164
2015	37,793
2014	36,862
2013	40,358
2012	31,203

## Renewable Energy Credits

Since June of 2014, Ulster County has purchased RECs to ensure 100% of the electricity used for government operations is renewable. The renewable claim is made through the purchase and retirement of RECs certified by Green-e<sup>®</sup>, a third-party verification firm. Because they were not locally generated, these offsets are not counted as actual reductions in emissions (i.e. as progress toward GHG reduction goals). The GHG accounting in this inventory report assumes the absence of all offsets.

Table 3 shows the quantity of RECs retired each year to ensure Ulster County is using 100% renewable electricity for its government operations. RECs retired are a mixture of Green-e national renewable certificates and New York Generation Attribute Tracking System (NYGATs) certificates.

*Table 3: Renewable Energy Credits Retired for Ulster County Government Operations*

Year	RECs Retired (MWH)
2020	9,242
2019	9,378

<sup>2</sup> Generation data available here: <http://s44709.mini.alsoenergy.com/Dashboard/2a566973496547374143454b772b71413d>

<sup>3</sup> Estimated due to time delay on data from vendor

2018	10,803
2017	11,914
2016	12,217
2015	12,215
2014	6,000

### 3. Greenhouse Gas Inventory

In 2020, Ulster County produced 7,870 metric tons of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e) emissions. The following tables detail the County's emissions by scope and sector respectively.

Table 4: 2020 Government Operations Emissions by Scope (Metric Tons CO<sub>2</sub>e)

	CO <sub>2</sub> e <sup>4</sup>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
<b>SCOPE 1 – Direct Emissions</b>				
Mobile Combustion	4,318	4,235	4	78
Stationary Combustion	2,394	2,389	2	4
<b>SCOPE 2 – Indirect Emissions</b>				
Purchased Electricity	1,157	1,152	2	3
<b>TOTAL</b>	<b>7,870</b>	<b>7,777</b>	<b>8</b>	<b>85</b>

Table 5: 2020 Government Operations Emissions by Sector (Metric Tons CO<sub>2</sub>e)

	SCOPE 1	SCOPE 2
<b>Buildings and Other Facilities</b>		
Purchased Electricity	0	1,149
Stationary Combustion	2,388	0
<b>Streetlights and Traffic Signals</b>		
Purchased Electricity	0	2
<b>Transit Fleet:</b>		
Mobile Combustion	1,191	0
<b>Vehicle Fleet</b>		
Mobile Combustion	3,127	0
Purchased Electricity	0	2
<b>Water Delivery Facilities</b>		
Purchased Electricity	0	4
Stationary Combustion	7	
<b>TOTAL</b>	<b>6,713</b>	<b>1,157</b>

#### Biogenic Emissions

In 2020, Ulster County emitted 143 metric tons of CO<sub>2</sub>e from biogenic sources. These emissions are entirely attributed to the mobile combustion of ethanol and biodiesel.

Table 6: 2020 Biogenic Emissions (Metric Tons CO<sub>2</sub>e)

Sector	Biogenic Emissions (MT CO <sub>2</sub> e)
Transit Fleet	17
Vehicle Fleet	126
<b>TOTAL</b>	<b>143</b>

<sup>4</sup> Carbon dioxide equivalent or CO<sub>2</sub>e is calculated by adjusting the emissions of non-CO<sub>2</sub> greenhouse gases using the global warming potential of each gas.

### Optional Scope 3 Emissions

In 2020, Ulster County estimated the anthropogenic Scope 3 emissions attributed to employee commutes as 2,117 MT CO<sub>2</sub>e.

Table 7: 2018 Scope 3 Emissions (Metric Tons CO<sub>2</sub>e)

	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
<b>SCOPE 3</b>				
Mobile Combustion	2,117	2,075	2	40

### Progress Toward GHG Reduction Goals

Between the baseline year of 2012 and the most recent GHG inventory for 2020, Ulster County's emissions from government operations decreased by 20.3%.

The following figure compares Ulster County's 2020 emissions to the levels required to meet the County's 2025 and 2050 reduction goals.

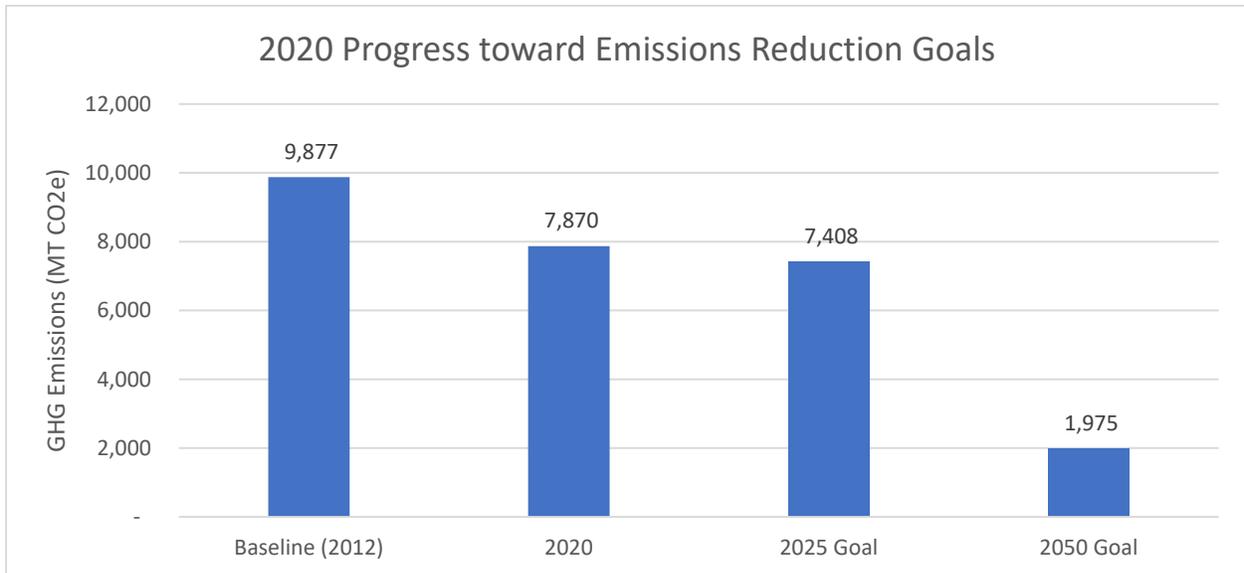


Figure 1: Progress Compared to 2025 and 2050 Goals

Figures 2 and 3 below show emissions trends by sector and energy type respectively.

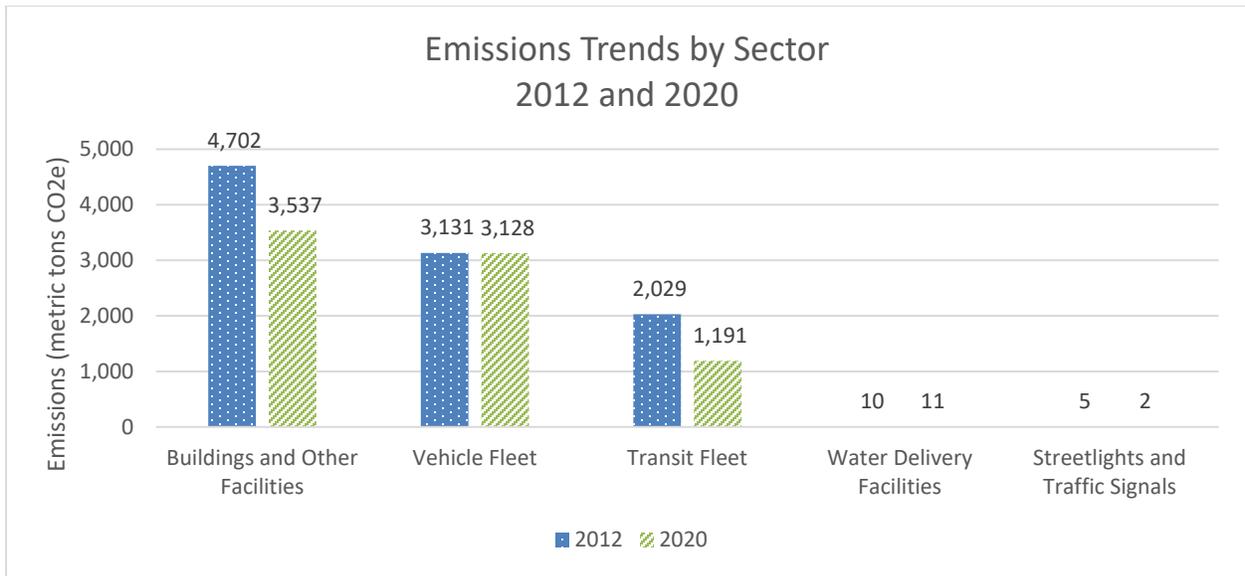


Figure 2: Emissions Trends by Sector

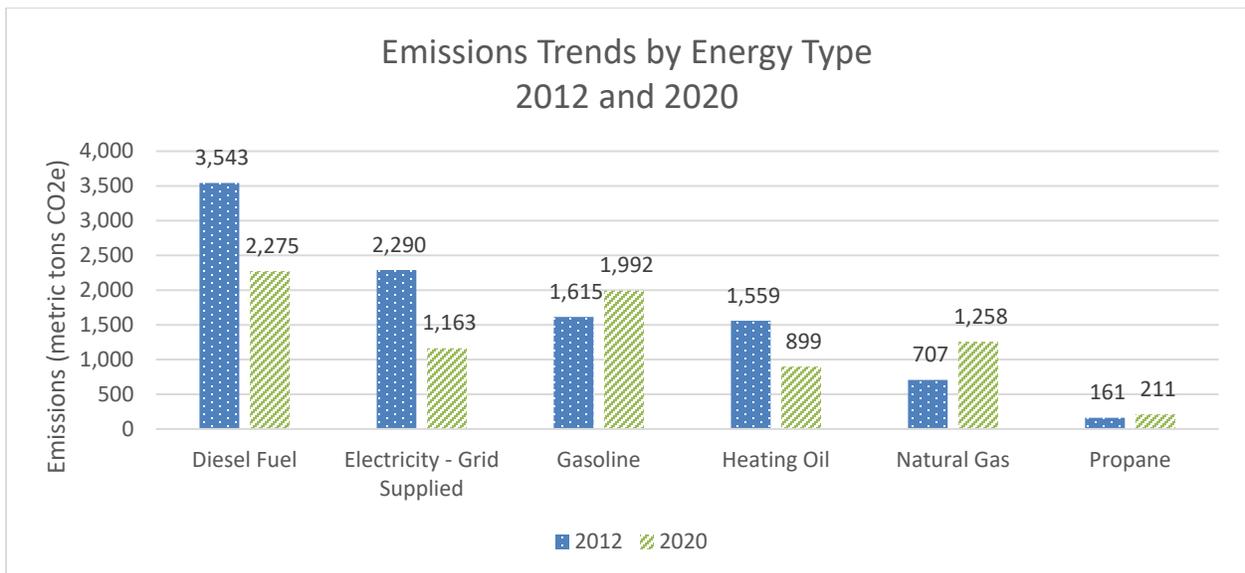


Figure 3: Emissions Trends by Energy Type

#### 4. Carbon Neutral Government Operations

Ulster County achieves net carbon neutrality through the purchase of offsets. Since 2015, Ulster County has purchased carbon offsets on the voluntary market to offset 100% of Scope 1 emissions and Scope 3 emissions attributed to employee commutes. Scope 2 emissions are offset by the purchase of Renewable Energy Credits (RECs). These offsets are not counted as actual reductions in emissions (i.e. as

progress toward GHG reduction goals). The GHG accounting in Section 3 of this inventory report assumes the absence of all offsets.

Table 8: Distinction between GHG measures as applied toward reduction goals

Mitigation Type	Measure
Avoided emissions (counts toward operational goals)	<ul style="list-style-type: none"> <li>Onsite generation (behind the meter)</li> <li>Remote Net Metering</li> <li>NYGATS RECs</li> <li>Community Distributed Generation (CDG)</li> </ul>
Offsets (counts toward carbon neutral government initiative only)	<ul style="list-style-type: none"> <li>National Green-e Renewable energy credits (RECS)</li> <li>Carbon credits</li> </ul>

Table 9: 2020 Net Zero Emissions Compared to Adjusted 2012 Baseline (Metric Ton CO2e)

Category	2012	2020	% Change
<b>Total Government Activity Emissions<sup>1</sup></b>	<b>9,877</b>	<b>7,870</b>	<b>-20.3%</b>
Avoided emissions	0	-207	
<b>Actual Government Emissions</b>	<b>9,877</b>	<b>7,623</b>	<b>-22.8%</b>
RECs	0	-954	
Carbon Credits	0	-6,669	
<b>Net Government Operations Carbon Emissions</b>	<b>9,877</b>	<b>0</b>	<b>-100%</b>

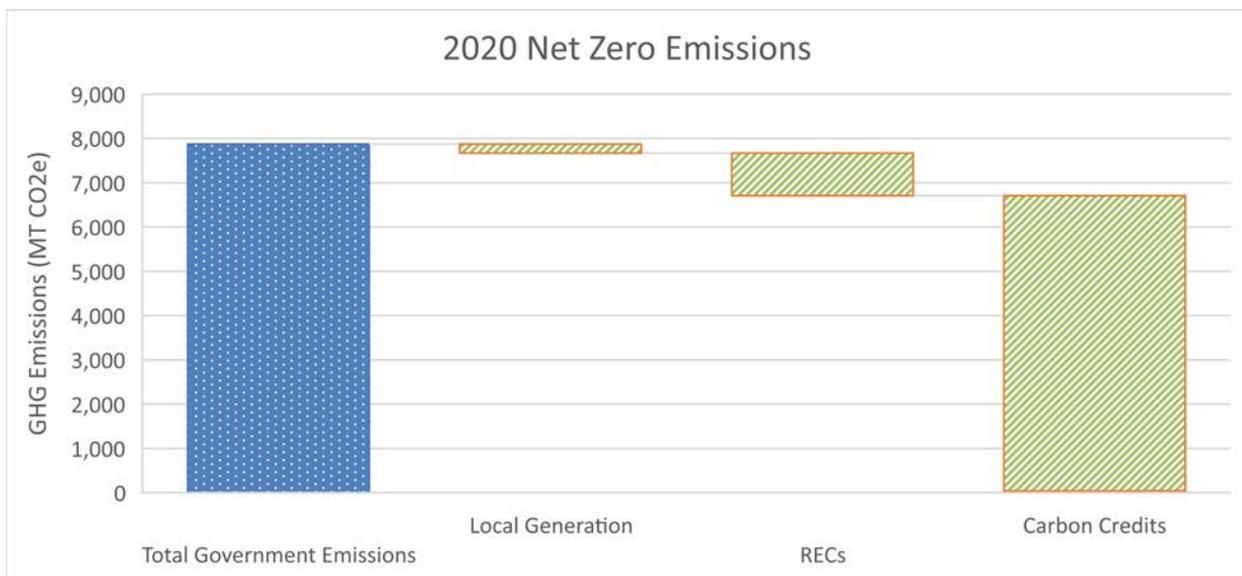


Figure 4: 2018 Net Zero Carbon Emissions

The following table details the offsets retired to meet the carbon neutral government operations mandate and the equivalent social cost of carbon per the EPA’s methodology. The table includes offsets for 100% of Scope 1 and 2 emissions only.

Table 10: Offsets and Social Cost of Carbon

Year	2020
Carbon Offsets Retired (MT CO2e)	6,669

RECs Retired (MT CO2e)	954
Social Cost of Carbon <sup>5</sup>	\$387,553

## 5. Climate Smart Communities Certification Status

Ulster County is currently Silver certified in the New York State Department of Environmental Conservation's Climate Smart Communities<sup>6</sup> program. The County received its original certification at the Bronze level in September of 2016 with a score of 264 points earned from completing 63 actions. The certification was increased to the Silver-level automatically when the DEC revised the program rules in 2018. Ulster County's certification is valid for 5 years and will expire on August 31, 2021.

## Appendices

### Appendix A: GHG Inventory Methodology and Assumptions

To track progress toward our GHG emissions goals, all energy usage is monitored and tracked by the Ulster County Department of the Environment. The annual GHG emissions inventory is calculated by aggregating this data by sector, scope, source and type and converting to metric tons of CO<sub>2</sub>-equivalent (MTCO<sub>2</sub>e) using EPA conversion factors.

#### *Ulster County Government Operations GHG Inventory Methodology*

The County references the Local Government Operations Protocol, Version 1.1 (LGOP) as a standard for accounting and reporting GHG emissions from government operations. This protocol was developed by Local Governments for Sustainability (ICLEI).

To the extent possible, Ulster County sets organizational boundaries for emissions accounting using the operational control approach. Per the ICLEI definition, Ulster County has operational control over a building or facility if either of these two conditions exist:

- Ulster County owns the building or facility, OR
- Ulster County has full authority to introduce and implement operational and health, safety and environmental policies.

The County accounts for leased facilities where it is possible to obtain the necessary data. Currently, the County does not estimate emissions for spaces where only part of the building is leased and the space is not sub-metered.

#### *ICLEI Reporting Sectors*

The County currently reports the following sectors and scopes:

- Buildings and Other Facilities: Scope 1 & 2
- Streetlights and Traffic Signals: Scope 2
- Transit Fleet: Scope 1

<sup>5</sup> Social Cost of Carbon values taken from the EPA's Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised July 2016)

<sup>6</sup> The DEC's program website is available here: <https://climatesmart.ny.gov/>

- Vehicle Fleet: Scope 1 & 2
- Water Delivery Facilities Scope 1 & 2

Ulster County does not own or operate facilities in the following sectors:

- Wastewater Facilities
- Port Facilities
- Airport Facilities
- Power Generation Facilities
- Solid Waste Facilities

#### *Other Process and Fugitive Emissions*

Ulster County currently does not collect data or estimate values for process and fugitive emissions.

#### *Biogenic source emissions*

CO<sub>2</sub> Emissions from biofuel usage are not included as Scope 1 emissions in this inventory in accordance with ICLEI protocol, as the carbon concerned is of biogenic origin and would have been emitted to the atmosphere through the natural process of decay. Biogenic emissions totals from combustion of biofuels are tracked and reported as supplemental information in this report.

Ulster County assumes all gasoline purchased for fleet, transit and non-road purposes is an E10 ethanol blend (10% ethanol). Since 2015, the Ulster County transit fleet has used a B5 biodiesel (5% biodiesel) blend in the summer months.

#### *Optional Scope 3 Emissions*

Ulster County currently reports one Scope 3 source: Employee Commute. Usage data was estimated for each reporting year based on current number of employees and assumptions based on employee home of record data.

## Emissions Factors Disclosure

Ulster County uses emissions factors published by the EPA in the document *Emissions Factors for Greenhouse Gas Inventories*<sup>7</sup> (last modified 3/9/3018).

100-year global warming potential (GWP) multipliers were applied as published in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report.<sup>8</sup>

Ulster County does collect and maintain data on vehicle miles traveled (VMT) for vehicle fleet and transit fleet vehicles. However, to simplify the accounting process for mobile combustion, methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) emissions were estimated on a per-gallon basis as described in the New York Community and Regional GHG Inventory Guidance (Version 1.0, September 2015). To do so, the CO<sub>2</sub> emission factors were multiplied by factors of 0.001 for CH<sub>4</sub> and 0.18 for N<sub>2</sub>O to obtain an emissions factor.

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<sup>7</sup> Available here: [https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors\\_mar\\_2018\\_0.pdf](https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf)

<sup>8</sup> Available here: <https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf>

## Appendix B: 2012 Baseline GHG Inventory

Ulster County completed its first GHG inventory for government operations in 2012, which was subsequently set as the baseline year. The 2012 report included emissions from purchased electricity, stationary fuel combustion, mobile combustion from government vehicle fleets, as well as emissions from County employee commutes.

### Baseline adjustments

The scope of Ulster County government operations has undergone structural changes since the 2012 baseline inventory. To accurately compare current operating conditions to the baseline year and quantify GHG increases or decreases over time, Ulster County normalizes its baseline to account for changes that are due to a change in the services provided by the government.

For example, in 2013, the Golden Hill Health Care center was sold to a private service provider and the County no longer needed to provide this service to its constituents. This change reduced the County's purchase of utilities and fleet fuel significantly, saving approximately 3.5 MWh of electricity use, 53,000 gallons of fuel oil, and 1,500 gallons of fleet fuels per year. Because this was a divestiture of services, the 2012 baseline GHG inventory was updated to remove the emissions from this property and government function.

For its GHG inventory, the County uses the following set of rules to determine whether a baseline adjustment is warranted:

*Table 11: Baseline Adjustment Methodology*

<b>Structural change</b>	<b>Baseline Adjustment?</b>
New areas of government jurisdiction (or insourcing)	Yes
Acquisitions of property due to growth	No
Divestitures of property due to change in jurisdiction (or outsourcing)	Yes
Divestitures of property due to consolidation or efficiency of services	No
Access to energy use data that was not previously available	Yes

Table 11 shows the baseline adjustments that have been made to date.

*Table 12: Adjustments to Normalize 2012 GHG Baseline*

<b>Baseline change</b>	<b>Effective Year</b>	<b>Reporting Sector</b>	<b>Scope</b>	<b>Change to Baseline Quantity (MT cO<sub>2</sub>e)</b>
<b>Golden Hill Health Care Center</b>	2012	Buildings and Other Facilities / Vehicle Fleet	1 & 2	-1,216.4
<b>Patriot's Project—Veteran's Housing</b>	2014	Buildings and Other Facilities	1 & 2	+19.3
<b>Sheriff's Substation—Wawarsing</b>	2015	Buildings and Other Facilities	1 & 2	+6.5
<b>Family and Child Advocacy Center</b>	2016	Buildings and Other Facilities	1 & 2	+10.2
<b>UCAT Kingston Expansion of Service</b>	2019	Transit Fleet	1	+358.4
<b>Previously unreported natural gas and fuel oil usage incorporated in baseline year</b>	2020	Buildings and Other Facilities	1	+53.7

Table 12 shows the 2012 baseline GHG inventory as updated for 2020.

Table 13: 2012 Baseline Government Operations Emissions by Scope (2020 Update)

	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
<b>SCOPE 1 – Direct Emissions</b>				
Mobile Combustion	5,160	5,062	5	93
Stationary Combustion	2,426	2,420	2	5
<b>SCOPE 2 – Indirect Emissions</b>				
Purchased Electricity	2,290	2,282	2	6
<b>TOTAL</b>	<b>9,877</b>	<b>9,763</b>	<b>9</b>	<b>104</b>

Table 14: 2012 Baseline Government Operations Emissions by Sector (2020 Update)

	SCOPE 1	SCOPE 2
<b>Buildings and Other Facilities</b>		
Purchased Electricity	0	2,279
Stationary Combustion	2,423	0
<b>Streetlights and Traffic Signals</b>		
Purchased Electricity	5	5
<b>Transit Fleet:</b>		
Mobile Combustion	2,029	0
<b>Vehicle Fleet</b>		
Mobile Combustion	3,131	0
Purchased Electricity	0	0
<b>Water Delivery Facilities</b>		
Purchased Electricity	0	6
Stationary Combustion	4	0
<b>TOTAL</b>	<b>7,586</b>	<b>2,290</b>

## Appendix C: Activity Data

The following table shows the quantities of energy purchased by Ulster County in 2020. These quantities form the basis for the greenhouse gas inventory.

Table 15: 2018 Activity Data

Energy Type	2020 Usage
Biodiesel (gal)	0
Diesel (gal)	221,242
Electricity (kWh)	10,937,314
Ethanol (gal)	24,932
Gasoline (gal)	228,164
Heating Oil (gal)	87,764
Natural Gas (CCF)	230,806
Propane (gal)	37,004

## Appendix D: Climate Action Plan Implementation

Table 16 lists action items from the 2019 Ulster County Government Operations Climate Action Plan<sup>9</sup> that are either completed, in-progress or ongoing.

Table 16: Climate Action Plan Implementation Status

Action Number	Description	Status
<b>BF-1</b>	Conduct additional building energy audits	Ongoing —Completed two (2) energy audits at 1 Pearl Street and 17 Pearl Street. Audits were completed as a residential home energy report due to the structure type of both buildings. The audits included a training component with DPW staff. (3/2020) —Completed a targeted geothermal audit and conceptual design at the Ulster County Office Building as Stage 3 of the Geothermal Clean Energy Challenge (10/2020)
<b>BF-2</b>	Implement lighting controls in County owned buildings	In progress —Purchased eighty (80) wall switch occupancy sensors for the Ulster County Law Enforcement Center (12/2020). Installation is in progress by Public Works staff in 2021. —Added the Development Court LED Lighting Retrofit project to the 2021-2026 Capital Improvement Program. The scope of the project includes implementation of improved/additional lighting controls at the facility. Design is planned to start in 2021.
<b>BF-6</b>	Complete interior lighting upgrades for 100% of building area	In progress —Added the Development Court LED Lighting Retrofit project to the 2021-2026 Capital Improvement Program. Design is planned to start in 2021.
<b>BF-11</b>	Upgrade HVAC equipment	In progress —Conducted an HVAC equipment inventory in 2020. —DPW added a block program capital replacement project to the 2021-2026 Capital Improvement Program for HVAC/Weatherization at various County buildings. Implementation is ongoing.
<b>BF-13</b>	Complete renewable energy feasibility studies	Ongoing —Ulster County completed a geothermal design and feasibility study as part of Stage 3 of the Geothermal Clean Energy Challenge (10/2020)
<b>BF-19</b>	Offset Scope 1 and 2 emissions from buildings and facilities	Ongoing —Ulster County continues to procure RECs and carbon credits as part of its Carbon Neutral Government Operations program.
<b>PP-4</b>	Improve vehicle inventory	Completed —The format of the Ulster County annual vehicle inventory was updated for the 2020 Green Fleet Report to comply with NYS DEC Climate Smart Communities requirements. All further inventories will be generated using the new format.
<b>PP-6</b>	Track building energy efficiency upgrades	Ongoing —The Ulster County Department of the Environment continues to track

<sup>9</sup> Available here:

[https://ulstercountyny.gov/sites/default/files/documents/environment/Ulster%20County%20Government%20Operations%20Climate%20Action%20Plan%202019\\_web.pdf](https://ulstercountyny.gov/sites/default/files/documents/environment/Ulster%20County%20Government%20Operations%20Climate%20Action%20Plan%202019_web.pdf)

		building energy efficiency upgrades. All upgrades that are eligible for utility incentive programs are submitted for rebate reimbursement.
<b>PP-12</b>	Encourage green business travel	In progress —The coronavirus pandemic required that most green business travel requirements be conducted remotely. The Information Services department supported this effort by providing equipment necessary for County employees to conduct business remotely as able. This shift in practices and capabilities will allow for more streamlined implementation of this action.
<b>PP-13</b>	Encourage UC Employee commuting on UCAT	Ongoing —Ulster County offers a reduced fare of \$0.30/trip for Ulster County employees using the UCAT service.
<b>PP-17</b>	Update the County's environmentally preferable purchasing policy	In progress —The Department of the Environment and Purchasing Department initiated a project to update the County's Green Purchasing policy in 2020 (11/2020).
<b>PP-23</b>	Adopt a PV-Ready construction standard	Completed —This action was completed in 2019 by the UC Legislature's adoption of Resolution No. 416.2 of 2019: Establishing A Policy For Consideration Of Solar Arrays On All New Or Renovated/Replaced Roofs On Ulster County Buildings (12/2019)
<b>S3-8</b>	Offset emissions from employee commutes	Ongoing —Ulster County continues to offset Scope 3 emissions from employee commutes through its Carbon Neutral Government Operations program.
<b>TF-1</b>	Complete a Transit Fleet Electrification Study	In progress —Ulster County commenced work on its transit fleet electrification study in 2020 and will complete the study in 2021. The study is partially funded through a NYSEDA grant. Ulster County has selected Creighton-Manning Engineering as the project consultant through a competitive procurement process.
<b>TF-4</b>	Install DC fast charging equipment at UCAT facilities for bus charging	In progress —Ulster County commenced a project in 2019 to install three (3) DC fast charging stations at the UCAT facility. The County has partnered with the New York Power Authority to complete the work using NYS DEC-administered Volkswagen Settlement funds. The project is schedule to be complete in October 2021.
<b>TF-10</b>	Offset Scope 1 and 2 emissions from transit operations	Ongoing —Ulster County continues to offset Scope 1 emissions from transit operations through the purchase of carbon credits.
<b>VF-6</b>	Install additional EV charging stations to support fleet operations	In Progress —Ulster County included a project for additional EV charging station installations in the 2021-2026 Capital Improvement Program. The project is planned to start in 2021.
<b>VF-11</b>	Offset Scope 1 and 2 emissions from vehicle fleet operations	Ongoing —Ulster County continues to offset Scope 1 and Scope 2 emissions from vehicle fleet operations though the purchase of RECs and carbon credits.