



2022

Government Operations Greenhouse
Gas Inventory Report

1. Introduction

[Executive Order No. 1 of 2023](#) commits the Ulster County government to reducing its greenhouse gas emissions by forty percent (40%) by 2030 and eighty-five percent (85%) by 2050, with an interim target of twenty-five percent (25%) by 2025.

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.

Ulster County completed its first greenhouse gas inventory for government operations in 2012. The County currently uses 2012 as the baseline year for its greenhouse gas inventory as it provides the best available dataset that is consistent with existing protocols.

Ulster County purchases 100% of its electricity from renewable sources through a combination of on-site solar, remote net-metering, community distributed generation, and national Green-e certified renewable energy credits (RECs).

2. Greenhouse Gas Inventory

In 2022, the Ulster County government produced 7,545 metric tons of CO₂-equivalent (CO₂e) emissions. The following tables detail the County's emissions by scope and sector respectively.

Table 1: 2022 Government Operations Emissions by Scope (Metric Tons CO₂e)

	CO ₂ e ¹	CO ₂	CH ₄	N ₂ O
SCOPE 1 – Direct Emissions				
Mobile Combustion	5,075.5	4,977.8	5.2	92.5
Stationary Combustion	2,469.9	2,466.1	1.5	2.3
SCOPE 2 – Indirect Emissions				
Purchased Electricity ²	0	0	0	0
TOTAL	7,545.3	7,443.8	6.6	94.9

Table 2: 2022 Government Operations Emissions by Sector (Metric Tons CO₂e)

	SCOPE 1	SCOPE 2
Buildings and Other Facilities		
Purchased Electricity	0	0
Stationary Combustion	2,463.7	0
Streetlights and Traffic Signals		
Purchased Electricity	0	0
Transit Fleet		
Mobile Combustion	1,557.2	0
Vehicle Fleet		
Mobile Combustion	3,518.3	0
Purchased Electricity	0	0
Water Delivery Facilities		

¹ Carbon dioxide equivalent or CO₂e is calculated by adjusting the emissions of non-CO₂ greenhouse gases using the global warming potential of each gas.

² Ulster County purchases renewable energy credits for 100% of its electricity usage.

Purchased Electricity	0	0
Stationary Combustion	6.2	0
TOTAL	7,545.3	0

Biogenic Emissions

In 2022, Ulster County emitted 191 metric tons of CO2e from biogenic sources. These emissions are entirely attributed to the mobile combustion of ethanol and biodiesel.

Table 3: 2022 Biogenic Emissions (Metric Tons CO2e)

Sector	Biogenic Emissions (MT CO2e)
Transit Fleet	49.1
Vehicle Fleet	142.0
TOTAL	191.0

3. Progress Toward GHG Reduction Goals

Between the baseline year of 2012 and the most recent GHG inventory for 2022, Ulster County’s emissions from government operations decreased by 25.5%.

The following figure compares Ulster County’s 2022 emissions to the levels required to meet the County’s 2025, 2030 and 2050 reduction goals.

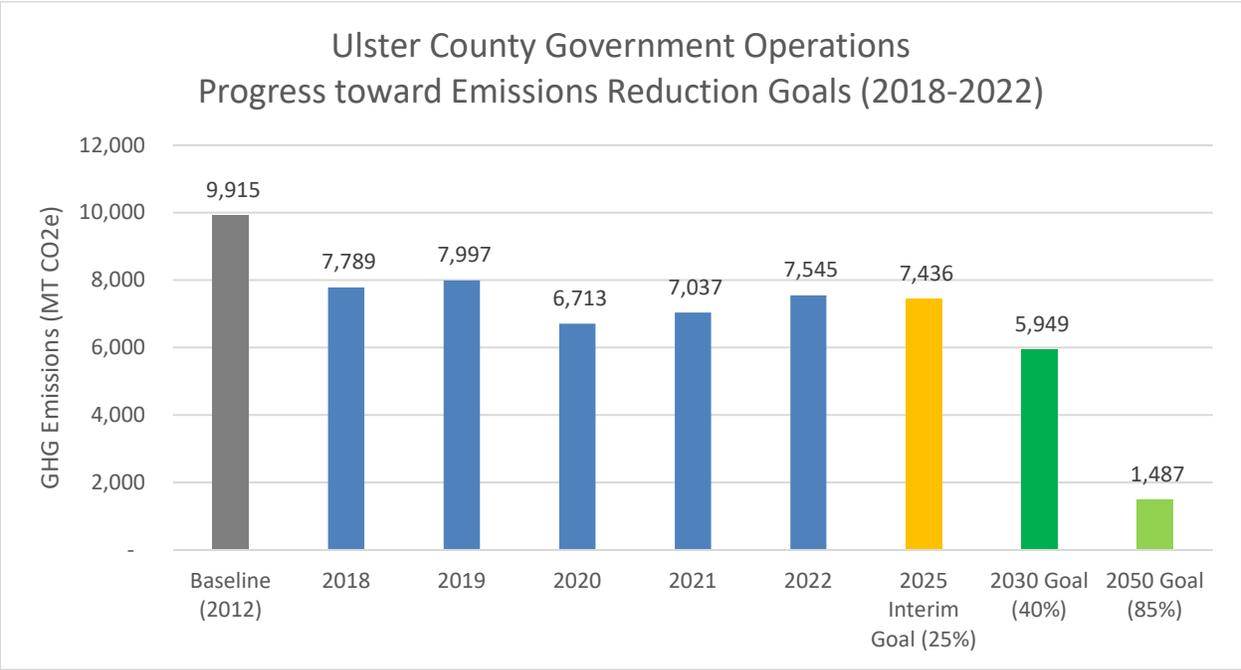


Figure 1: Progress Compared to 2025, 2030 and 2050 Goals

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

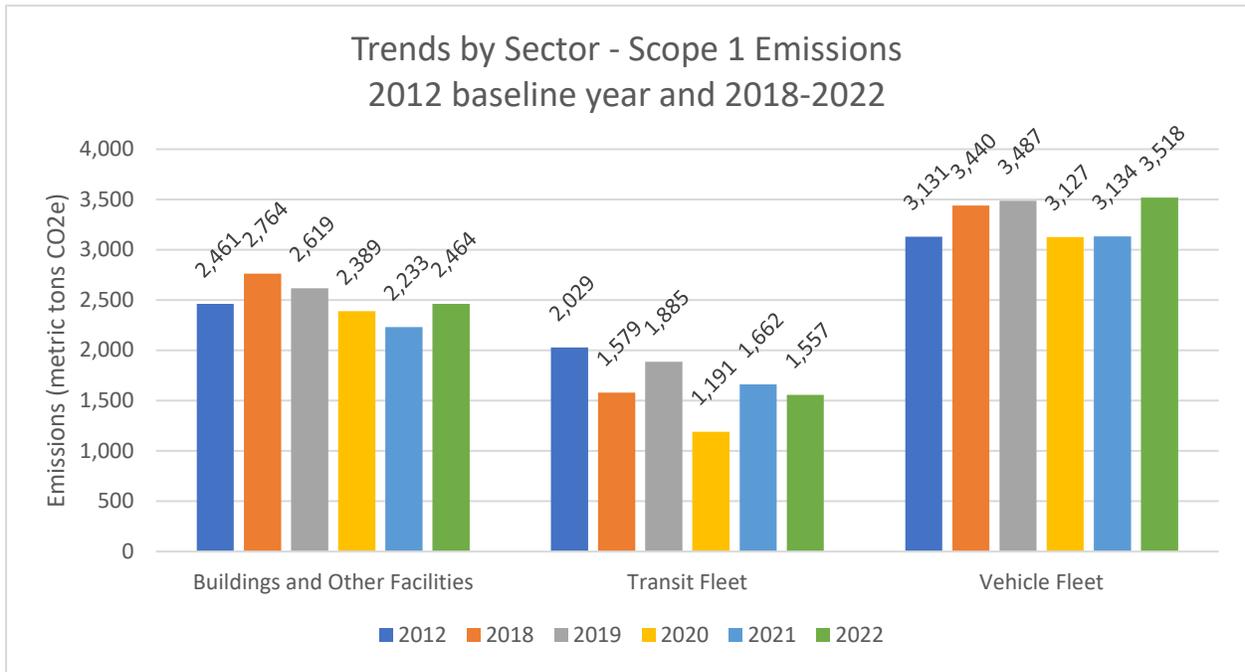


Figure 2: Scope 1 Emissions Trends by Sector

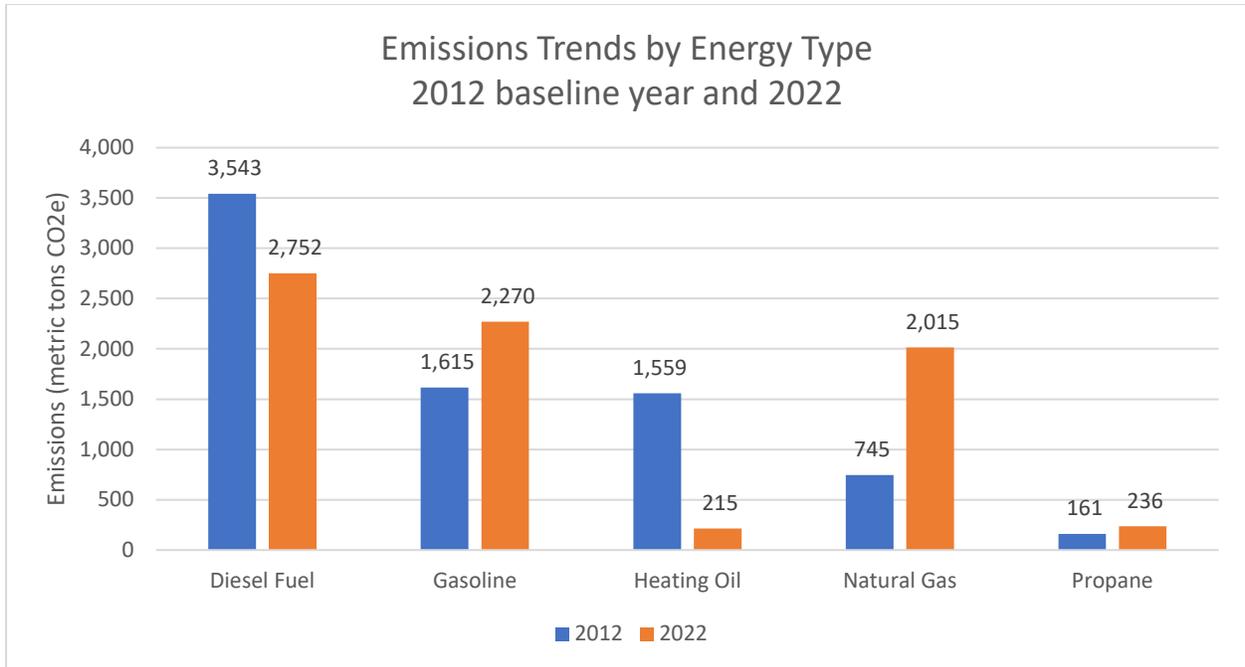


Figure 3: Emissions Trends by Energy Type

4. Local Renewable Electricity Usage

Per Executive Order 1-2023, Ulster County’s goal is to purchase 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.

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®, 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.

RECs retired are a mixture of purchased Green-e national renewable certificates and New York Generation Attribute Tracking System (NYGATs) certificates.

Ulster County distinguishes between local renewable electricity and non-local renewable electricity based on the location of generation. Non-local renewable electricity is acquired through the purchase of RECs. Ulster County defines local renewable 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 if the renewable attributes are either conveyed by contract or purchased separately as RECs.

Table 4: Renewable Energy Credits Retired for Ulster County Government Operations

Year	RECs Retired (MWH)
2022	9,299
2021	8,864
2020	8,906
2019	9,149
2018	10,803
2017	11,914
2016	12,217
2015	12,215
2014	6,000

Local Renewable Generation

In 2022, approximately 32% of Ulster County’s electricity came from local renewable sources. This electricity was generated at the following locations:

Table 5: 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 ³	1.9 MW DC	Remote net metering	2018	Third Party

³ Generation data available here: <http://s44709.mini.alsoenergy.com/Dashboard/2a566973496547374143454b772b71413d>

Natural Power Group Hydroelectric Facility Wallkill	0.5 MW	CDG subscription agreement	1988	Third Party
Natural Power Group Hydroelectric Facility Wappingers Falls	2.0 MW	CDG subscription agreement	UNK	Third Party
East Light Partners Community Solar ELP Myer	2.9 MW DC	CDG subscription agreement	2021	Third Party
East Light Partners Community Solar ELP Union Vale	2.6 MW DC	CDG subscription agreement	2021	Third Party

Table 6: Distinction between GHG measures as applied toward reduction goals

5. Climate Smart Communities Status

Ulster County is currently Silver-level certified in the New York State Department of Environmental Conservation’s (DEC’s) Climate Smart Communities⁴ program, with the County's first five-year Silver-level CSC recertification was announced in June 2021. More information is available in County Executive Ryan's [press release](#) and the County's full [CSC certification report](#).

To date, the requirements to earn Gold-level certification in the Climate Smart Communities program have not been defined by the DEC. When available, the Gold-level requirements will be published by the DEC at the Climate Smart Communities program [Certification Levels](#) page.

The Ulster County Department of the Environment continues to pursue completion of additional action items in the program to prepare for a future recertification application for Gold-level status.

⁴ The DEC’s program website is available here: <https://climatesmart.ny.gov/>

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 CO₂-equivalent (MTCO₂e) 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
- 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

CO2 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*⁵ (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.⁶

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 (CH₄) and nitrous oxide (N₂O) 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 CO₂ emission factors were multiplied by factors of 0.001 for CH₄ and 0.18 for N₂O to obtain an emissions factor.

⁵ Available here: https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

⁶ 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 7: Baseline Adjustment Methodology

Structural change	Baseline Adjustment?
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 8: Adjustments to Normalize 2012 GHG Baseline

Baseline change	Effective Year	Reporting Sector	Scope	Change to Baseline Quantity (MT cO₂e)
Golden Hill Health Care Center	2012	Buildings and Other Facilities / Vehicle Fleet	1 & 2	-1,216.4
Patriot's Project—Veteran's Housing	2014	Buildings and Other Facilities	1 & 2	+19.3
Sheriff's Substation—Wawarsing	2015	Buildings and Other Facilities	1 & 2	+6.5
Family and Child Advocacy Center	2016	Buildings and Other Facilities	1 & 2	+10.2
UCAT Kingston Expansion of Service	2019	Transit Fleet	1	+358.4
Previously unreported natural gas and fuel oil usage incorporated in baseline year	2020	Buildings and Other Facilities	1	+53.7

COVID Vaccination Center at Best Buy	2022	Buildings and Other Facilities	1	+38.5
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Table 12 shows the 2012 baseline GHG inventory as updated for 2022.

Table 9: 2012 Baseline Government Operations Emissions by Scope (2022 Update)

	CO ₂ e	CO ₂	CH ₄	N ₂ O
SCOPE 1 – Direct Emissions				
Mobile Combustion	5,159.9	5,061.6	5.2	93.2
Stationary Combustion	2,464.9	2,458.2	2.1	4.6
SCOPE 2 – Indirect Emissions				
Purchased Electricity	2,290.3	2,281.7	2.2	6.4
TOTAL	9,915.1	9,801.5	9.5	104.2

Table 10: 2012 Baseline Government Operations Emissions by Sector (2021 Update)

	SCOPE 1	SCOPE 2
Buildings and Other Facilities		
Purchased Electricity	0	2,279.4
Stationary Combustion	2,461.4	0
Streetlights and Traffic Signals		
Purchased Electricity	4.8	4.8
Transit Fleet:		
Mobile Combustion	2,028.9	0
Vehicle Fleet		
Mobile Combustion	3,131.0	0
Purchased Electricity	0	0
Water Delivery Facilities		
Purchased Electricity	0	6.0
Stationary Combustion	3.6	0
TOTAL	7,624.9	2,290.3

Appendix C: Activity Data

The following table shows the quantities of energy purchased by Ulster County in 2022. These quantities form the basis for the greenhouse gas inventory.

Table 11: 2022 Activity Data

Energy Type	2022 Usage
Biodiesel (gal)	2,738
Diesel (gal)	264,810
Electricity (kWh)	11,000,000 ⁷
Ethanol (gal)	28,720
Gasoline (gal)	253,715
Heating Oil (gal)	21,006
Natural Gas (CCF)	369,844
Propane (gal)	41,484

⁷ Due to limitations with data access from Central Hudson, this information is currently estimated. It will be updated when available.

Appendix D: Climate Action Plan Implementation

The following table lists action items from the 2019 Ulster County Government Operations Climate Action Plan⁸ that are either completed, in-progress or ongoing.

Table 12: Climate Action Plan Implementation Status

Action Number	Description	Status
BF-1	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)
BF-2	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 completed by Public Works staff in 2021. —The Development Court LED Lighting Retrofit project is a component of the 2023-2028 Capital Improvement Program. The scope of the project includes implementation of improved/additional lighting controls at the facility. Design was completed in 2022 and the project went out to bid for construction in early 2023.
BF-6	Complete interior lighting upgrades for 100% of building area	In progress —the Development Court LED Lighting Retrofit project is a component of the 2021-2026 Capital Improvement Program. —The County is assessing replacement of fluorescent lighting at the SUNY Ulster Kingston Center facility.
BF-11	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.
BF-13	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)
BF-14	Conduct a rooftop solar assessment	In progress —Completed assessment projects for several County facilities in advance of roof replacements. —Additional assessments are planned per EO 1-2023
PP-1	Develop materials management annual plan and report	In progress —UC DPW is reporting waste and materials diversion annually to the UCRRA

⁸ Available here:

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

PP-4	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. The vehicle inventory was updated for 2022.
PP-5	Seek grant funding for climate change mitigation projects	Ongoing —Ulster County was awarded funding in 2022 for the completion of a Community Climate Action Plan
PP-6	Track building energy efficiency upgrades	Ongoing —The Ulster County Department of the Environment continues to track building energy efficiency upgrades. All upgrades that are eligible for utility incentive programs are submitted for rebate reimbursement.
PP-10	Develop organic waste program for government buildings	In progress —Planning discussions between DWP and Dept. Of the Environment are taking place to begin a pilot food scrap collection program for select County buildings to launch in 2023.
PP-12	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.
PP-15	Integrate sustainability review procedures into the capital planning process	Completed —The Environmental Considerations Checklist for Capital Projects was implemented in 2021 and adopted by resolution of the UC Legislature.
PP-16	Right-size the local government fleet	Ongoing In 2022, there were 6 new EVs purchased. The County Fleet Manager continued to review opportunities for fleet rightsizing
PP-17	Update the County's environmentally preferable purchasing policy	In progress —The Department of the Environment and Purchasing Department are working to update the policy in alignment with the NYS OGS Green Purchasing Communities Program and Executive Order 1-2023.
PP-23	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)
TF-1	Complete a Transit Fleet Electrification Study	Completed —Ulster County completed its transit fleet electrification study in 2021. The study was partially funded through a NYSERDA grant. Ulster County selected Creighton-Manning Engineering as the project consultant through a competitive procurement process.
TF-4	Install DC fast charging equipment at UCAT facilities for bus charging	Completed —Ulster County completed the project to install three (3) DC fast charging stations at the UCAT facility in 2021. The County partnered with the New York Power Authority to complete the work using NYS DEC-administered Volkswagen Settlement funds.
TF-7	Purchase full size electric bus(es)	Ongoing —UCAT put three 35-foot electric buses into service in 2022 and is procuring additional vehicles.

VF-6	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.
VF-7	Purchase electric grounds maintenance equipment	In progress —DPW is procuring electric equipment for replacements when needed.