

Ulster County Climate Action Plan For Government Operations



Central Hudson EV Summit
December 5, 2019

Amanda LaValle, Coordinator
Ulster County Department of the Environment

Ulster County Climate Action- What's at Stake?



Green New Deal for Ulster County



- Reducing Emissions Community Wide
- Preparing for the Impacts of Climate Change
- Equitable Transition
- Protecting our Natural Resources
- 100% Locally Generated Renewable Energy for Building Electricity
- Green Careers Academy
- Economic Development for All



Green New Deal for Ulster County



Ulster County purchases 100% renewable electricity and offsets all other emissions (building heating and mobile emissions) by purchasing carbon credits. As a result, Ulster County government is a Net Carbon Neutral Operation.



Green New Deal for Ulster County

ULSTER COUNTY EXECUTIVE
244 Fair St., P.O. Box 1800, Kingston, New York 12402
Telephone: 845-340-3800
Fax: 845-334-5724

PATRICK K. RYAN
County Executive



MARC RIDER
Deputy County Executive

EXECUTIVE ORDER NO. 1-2019

REGARDING THE COUNTY'S USE OF RENEWABLE ENERGY FOR THE YEARS 2019 AND 2020

WHEREAS, the County of Ulster has a clear governmental interest in protecting the environment and human health within the County and beyond; and

WHEREAS, overwhelming consensus exists among the world's leading climate scientists, the Intergovernmental Panel on Climate Change (IPCC), regarding the impacts of greenhouse gas emissions and carbon pollution including a rapid and unprecedented increase in atmospheric temperatures; and,

WHEREAS, it is in the best interest of the County to accelerate the reduction of carbon pollution by maximizing its usage of locally generated renewable energy, reinforcing its commitment to protect the environment and human health in Ulster County and beyond; and,

WHEREAS, pursuant to Section C-25(B) of the Ulster County Charter, the Ulster County Executive has the power and duty necessarily implied or incidental thereto to "supervise, direct and control the administration of all departments" of the County; and,

WHEREAS, starting in 2014, Ulster County has purchased 100% of its electricity from renewable energy sources; and,

WHEREAS, this environmental leadership, commitment to renewable energy and net carbon neutral government operations has been recognized by the NYS Department of Environmental Conservation and the United States Environmental Protection Agency; and,

WHEREAS, pursuant to Section C-74(B)(2) of the Ulster County Charter and Section A16-1(B)(2)(a) of the Ulster County Administrative Code, the Purchasing Director has the authority and the discretion to execute utility contracts.

NOW, THEREFORE, I, PATRICK K. RYAN, County Executive of the County of Ulster, in accordance with the aforementioned and in furtherance of my statutory duties, do hereby order and direct the following:

1. It shall be the responsibility of the Department of Purchasing, in close coordination with the Department of the Environment, to ensure that for the years of 2019 and 2020, 100% of the County's electricity is purchased directly from local renewable energy sources or by obtaining Green-e Energy certified Renewable Energy Certificates (RECs).
2. Ulster County shall endeavor to continue to operate a net carbon neutral government and furthermore decrease greenhouse gas emission associated with its operations (through conservation, efficiency, on-site/local renewable generation) by 25% by 2025 and 80% by 2050 using the County's 2012 greenhouse gas emission inventory as a baseline.
3. Ulster County shall endeavor to supply 100% of its annual building and fleet electricity usage from locally generated renewable energy sources by the year 2030.
4. It shall be the responsibility of the Department of Environment, in close coordination with the Departments of Purchasing, Planning and Public Works, to implement the June 2019 Climate Action Plan for county government operations to meet the County's carbon emission reduction goals, drive deployment of clean technology and improve climate resilience.
5. It shall be the responsibility of the Department of the Environment Coordinator to act as the Climate Smart Communities Coordinator for government operations.
6. Ulster County government shall support ways to decrease energy use, decrease greenhouse gas emissions and increase the use of green power across our community and sets a goal of decreasing community wide greenhouse gas emissions by 80% by 2050 (below 1990 levels) using the regional GHG emissions inventory as a baseline.
7. This Executive Order shall take effect immediately and shall remain in effect until otherwise superseded or revoked.

The County of Ulster

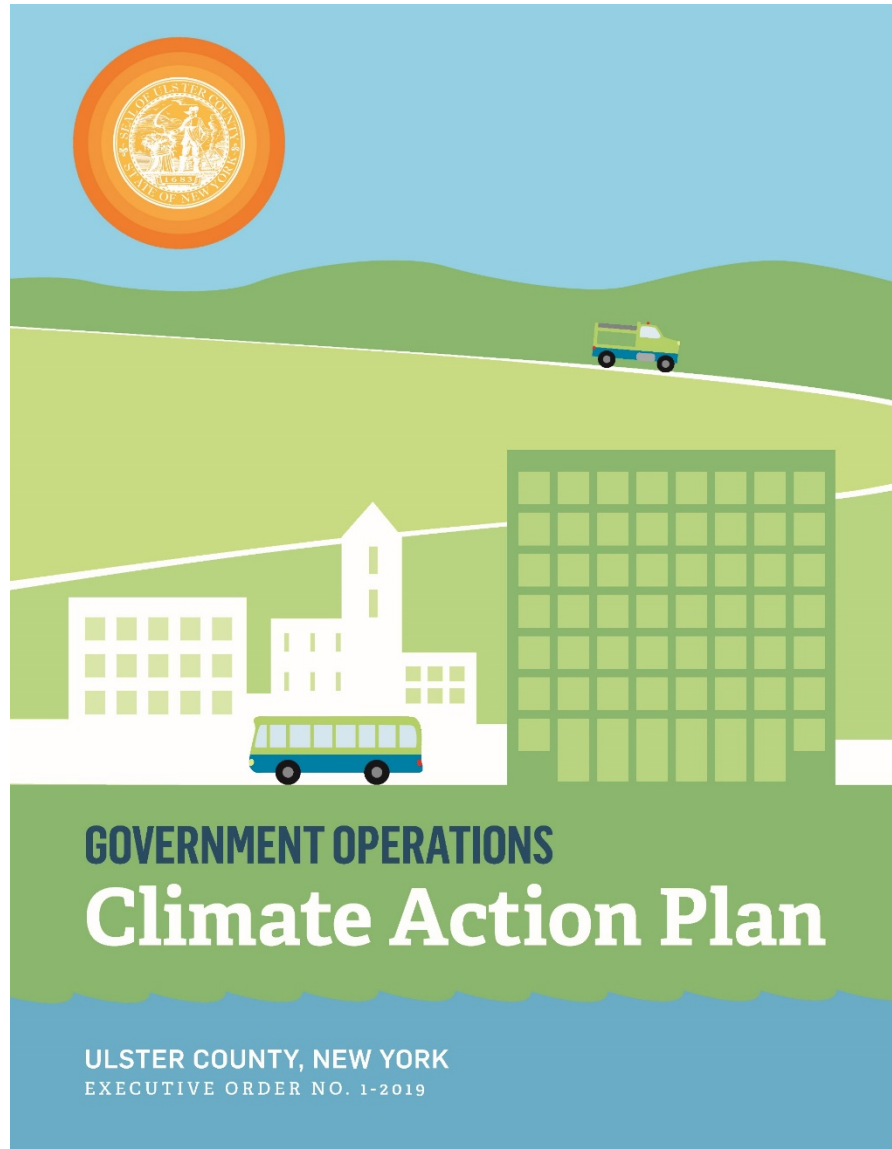
A handwritten signature of Patrick K. Ryan in black ink, written over a horizontal line.

Patrick K. Ryan, County Executive

Dated: June 18, 2019
Kingston, New York

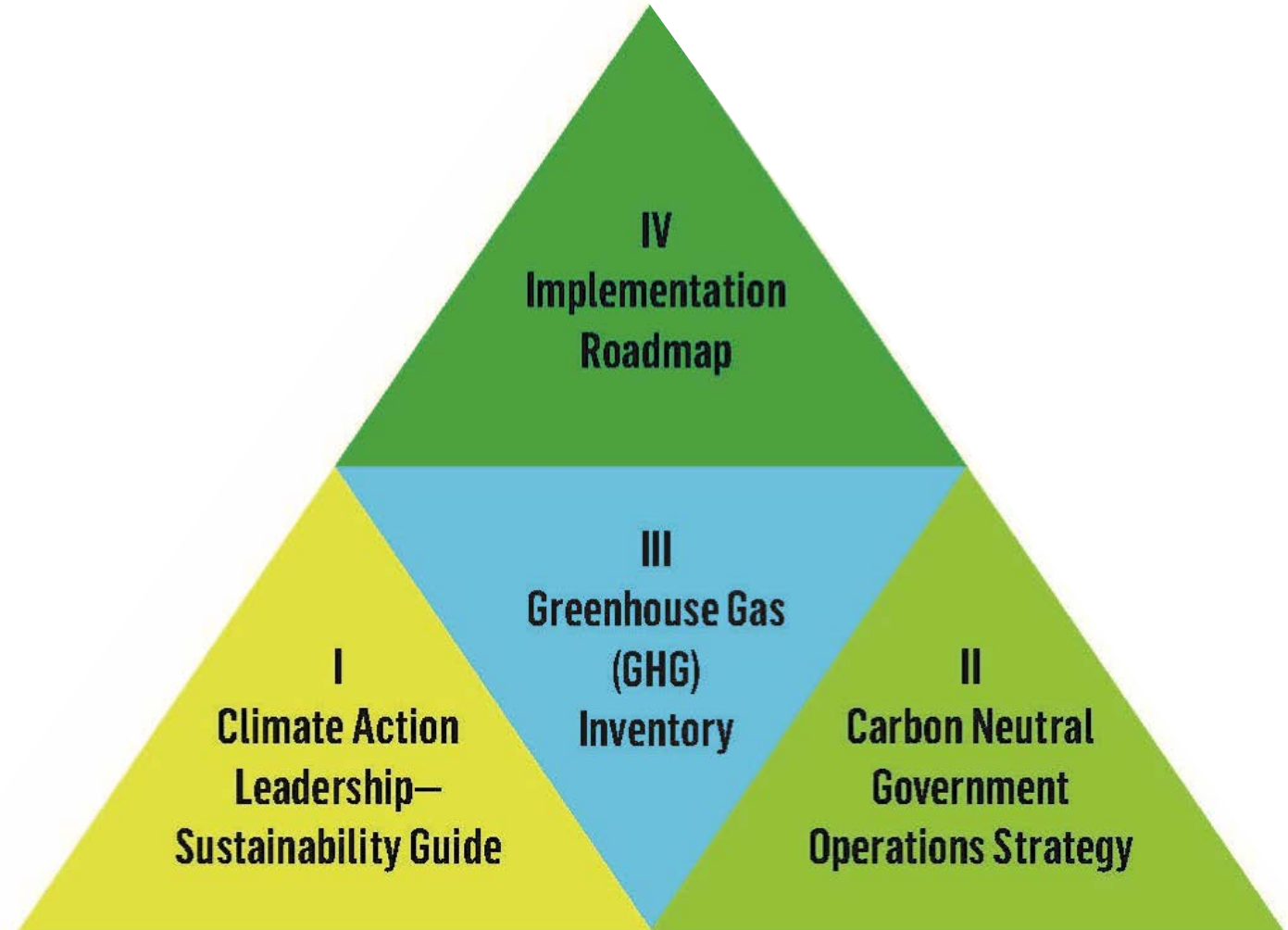
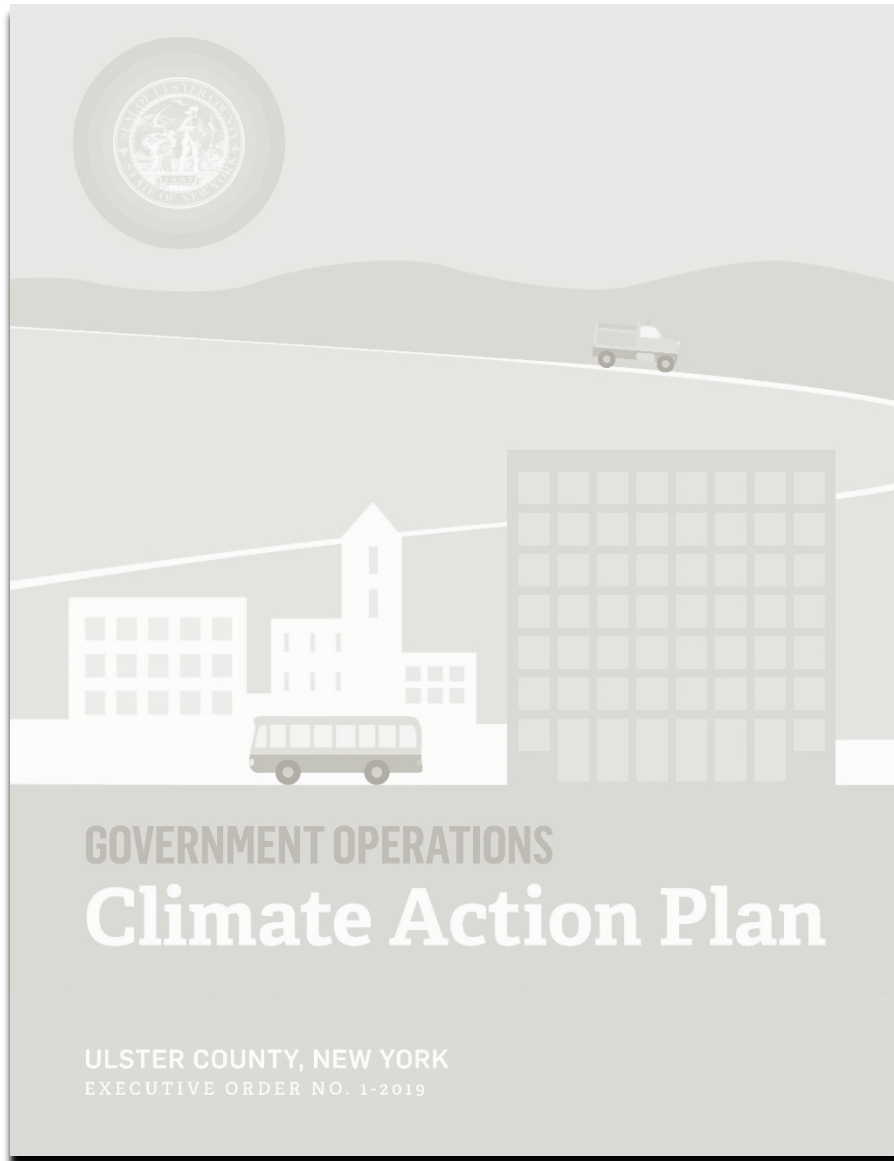
25% Reduction in GHG
Emission by 2025
80% Reduction by 2050
All Building Electricity from
Local Sources by 2030

Ulster County Climate Action Plan Framework

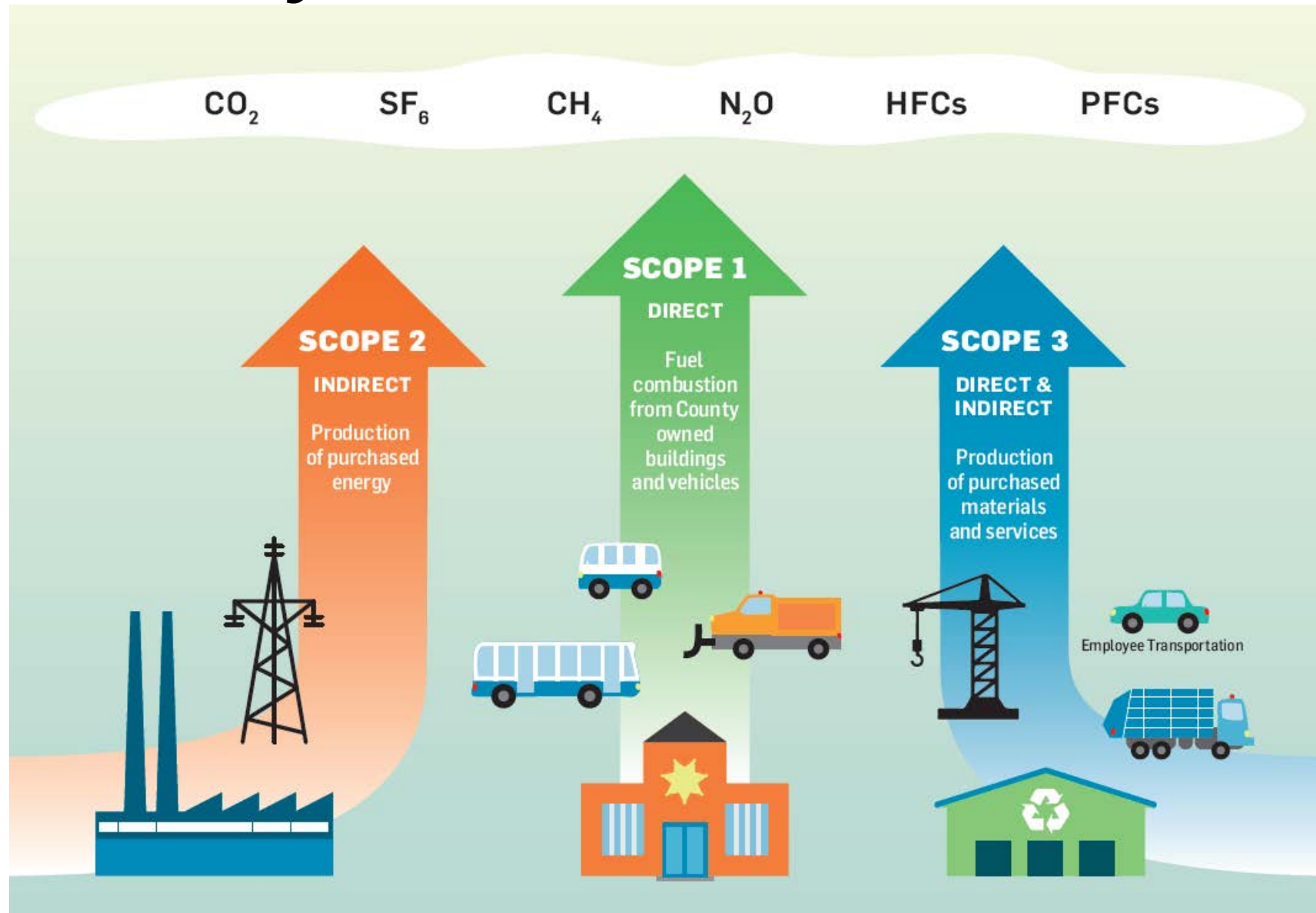


- Focus is on County Government Operations, GHG emissions reduction
- How do we meet our goals?
- How do we do so in a way that helps us learn and increases our capacity for future action?
- How do we help other municipalities and organizations take on similar action?

Ulster County Climate Action Plan Framework

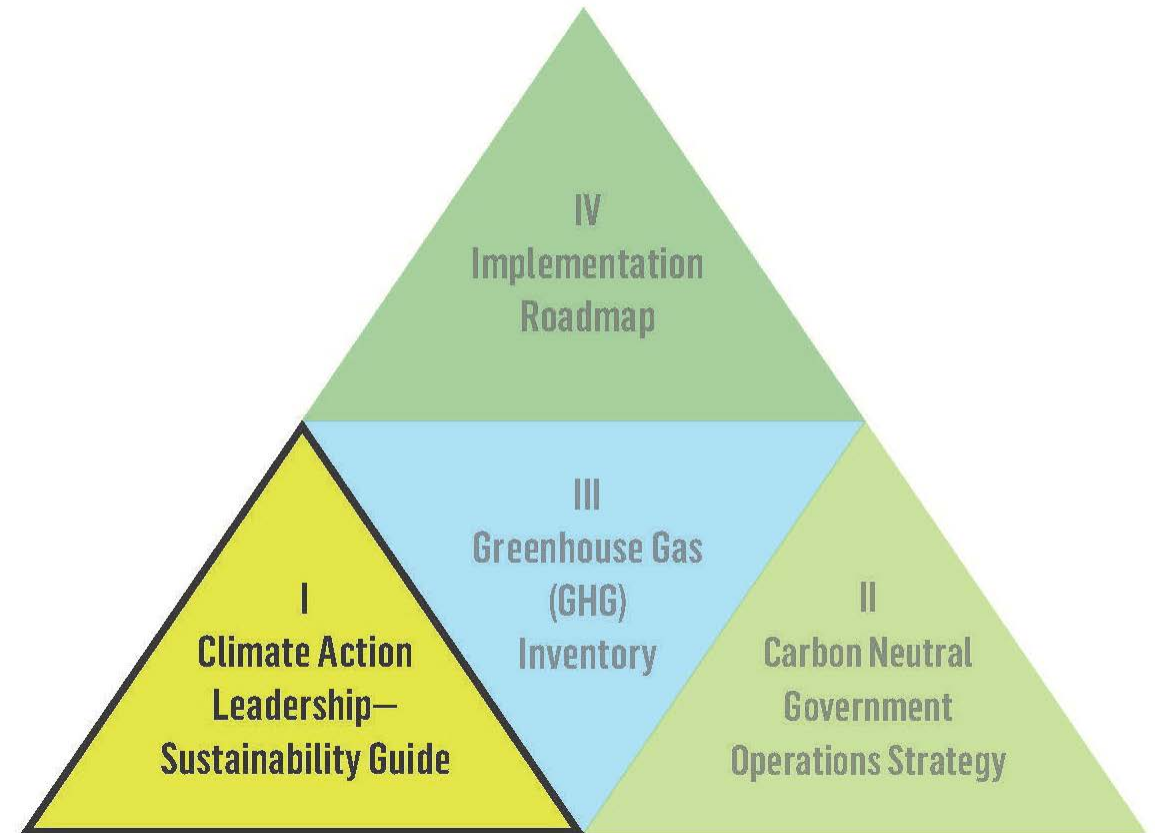


Ulster County Climate Action Plan Framework



Ulster County Climate Action Plan Framework

- I – Climate Action Leadership
- II – Carbon Neutral Operations Strategy
- III- Greenhouse Gas Inventory
- IV – Implementation Roadmap



Ulster County: Climate Action Leadership



- 2008 Energy Policy
- First designated NYSERDA Clean Energy Community in NYS
- One of two Silver Certified Clean Energy Communities in NYS
- Recognized by EPA as one of the top 30 municipal green power purchasers in the nation
- 2017 NYS DEC Environmental Excellence Award Winner
- Purchase Renewable Power for all our electricity
- Operate a net carbon neutral County Government Operation.



Climate Smart
Communities
Certified Silver



Ulster County: Climate Action Leadership



Ulster County Government
Sustainability Initiatives:
Environmental Executive Orders,
Laws, Resolutions & Procedures

Ulster County Department of the Environment

November 2019

Patrick K. Ryan, County Executive

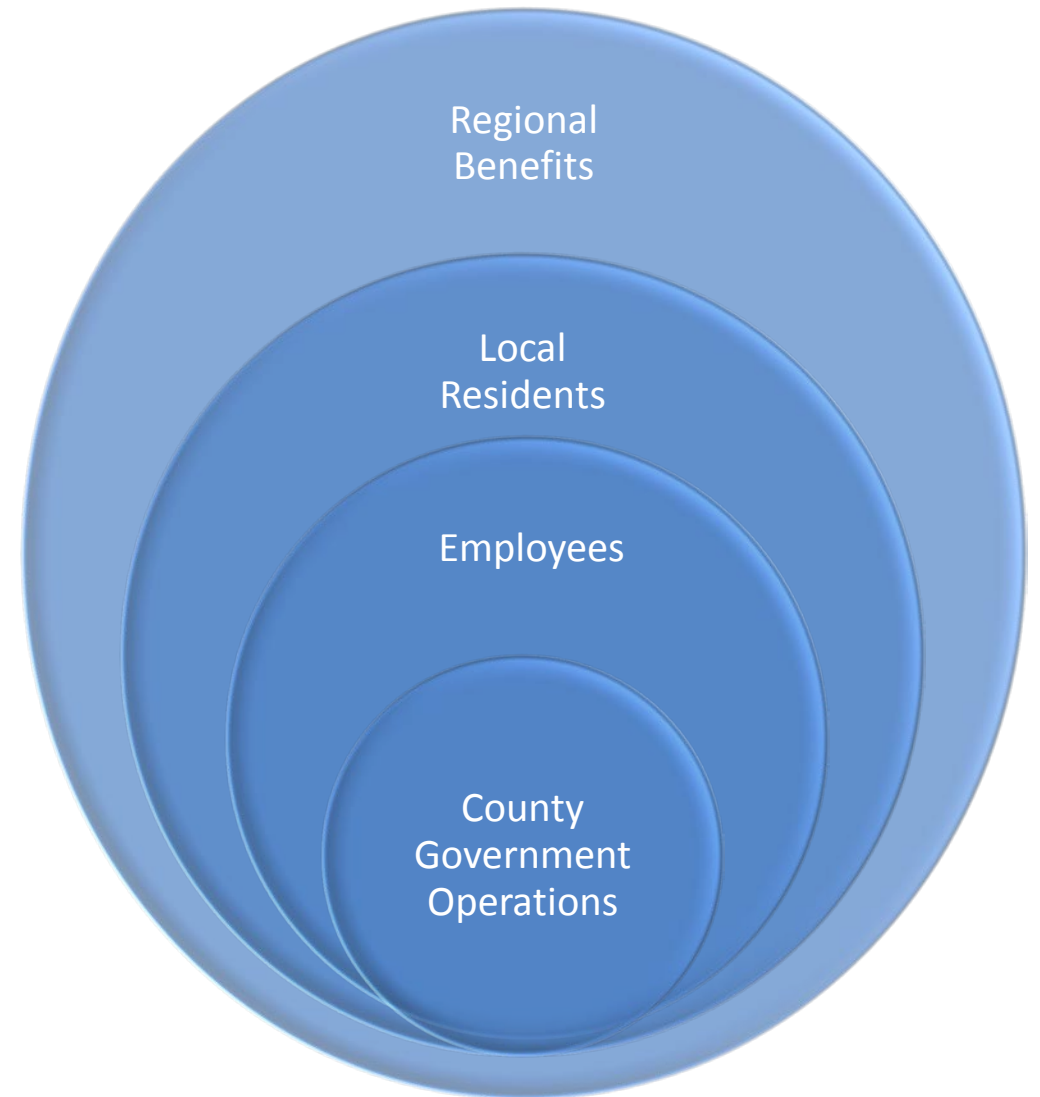


- Provides a starting point for UC action as well as a case study and examples for other municipalities
- UC Sustainability Guide, first produced in 2013.
- Compilation of Laws, Resolution, Executive Orders & Procedures
- Covers energy, green procurement, materials management
- Meant as a reference or handbook for other municipalities



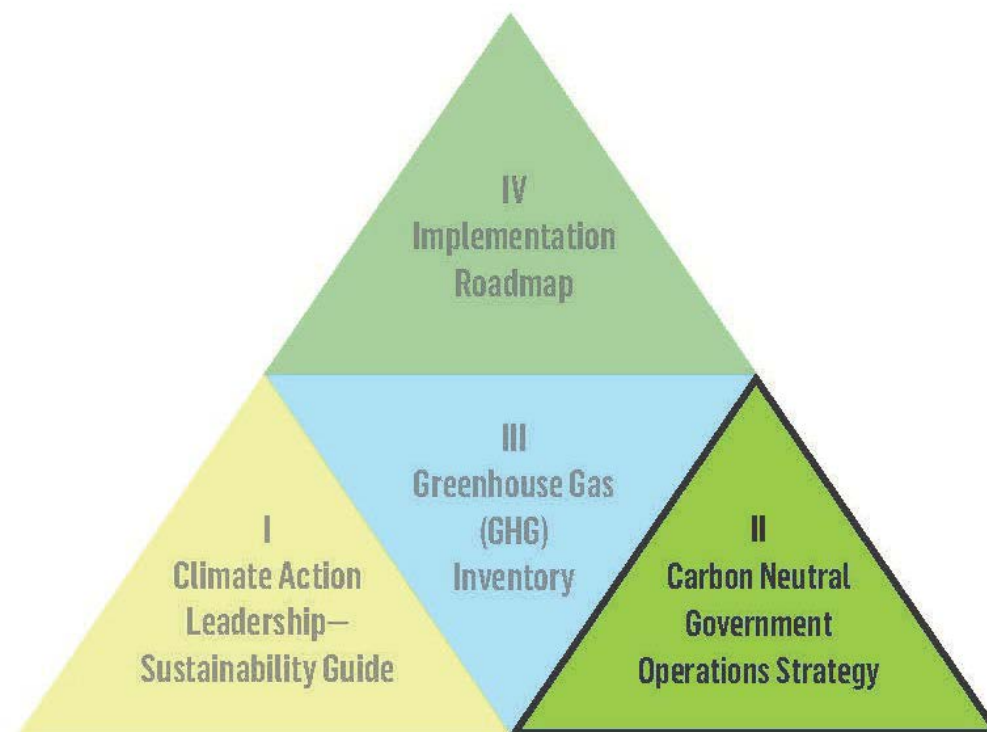
Ulster County: Climate Action Leadership

- We seek projects at County government that extend layers of benefit to broader community
- Provide environmental and economic benefit
- Demonstrate technology to the public.



Ulster County: Carbon Neutral Government Operations Strategy

- I – Climate Action Leadership
- II – Carbon Neutral Operations Strategy
- III- Greenhouse Gas Inventory
- IV – Implementation Roadmap



Ulster County: Carbon Neutral Government Operations Strategy

ASSESS

Monitor all energy use in order to identify energy savings opportunities, benchmark performance and monitor/verify any actions taken.

AVOID

Through operational and programatic management, avoid unnecessary use of vehicles, equipment, buildings and space. Improve facilities to limit amount of energy necessary (e.g. envelope improvements, daylight).

CONSERVE

Use technology (e.g. electric vehicles, LED lighting, HVAC) to make energy use more efficient.

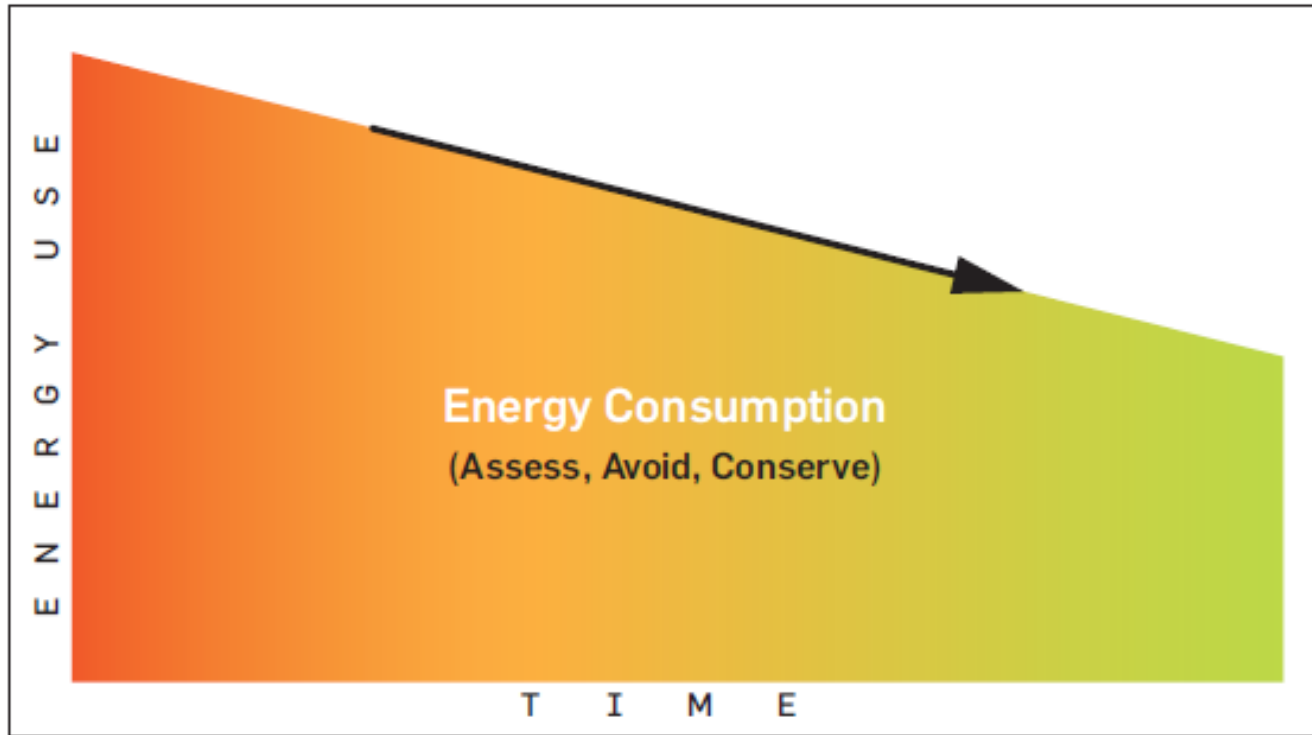
GENERATE

Utilize local, renewable energy sources (e.g. PV electricity generation, solar thermal, biofuels) to meet operational needs.

OFFSET

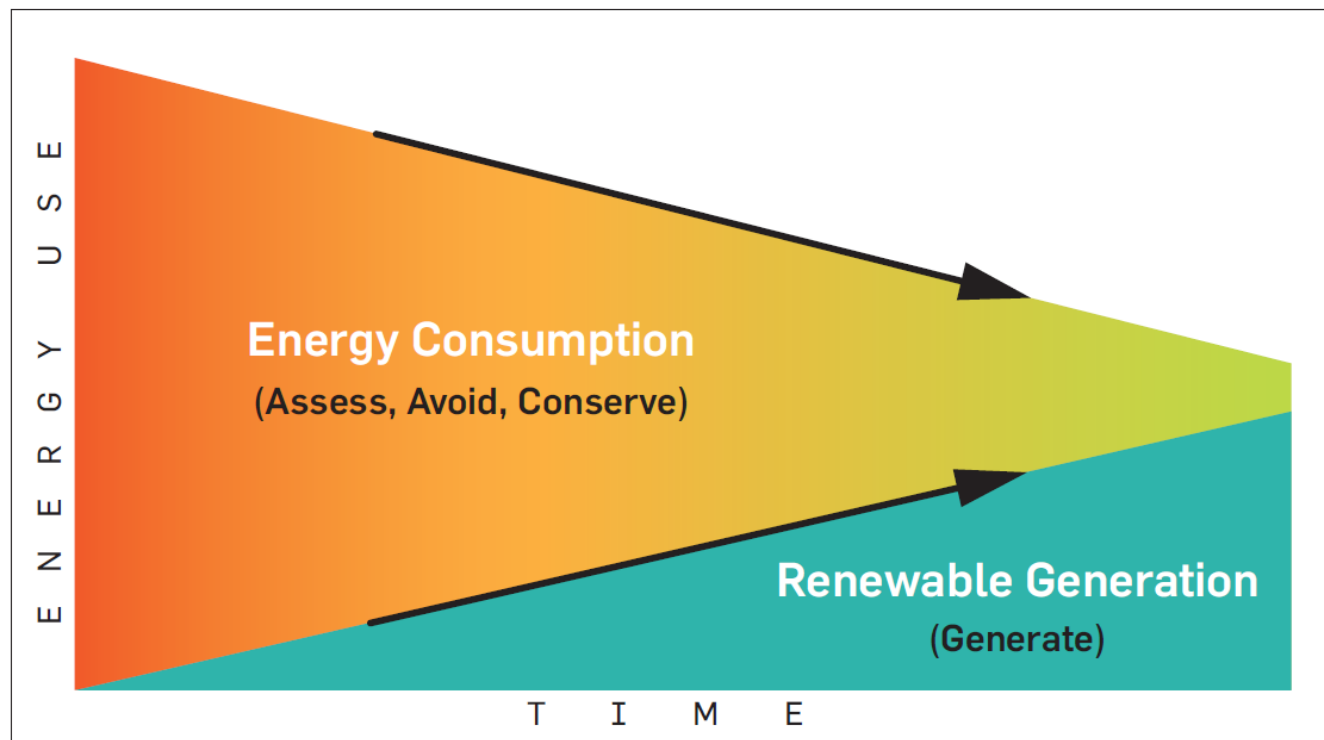
Measure emissions and offset remaining Scope 1 and 2 emissions with RECs and Carbon Credits.

Ulster County: Carbon Neutral Government Operations Strategy



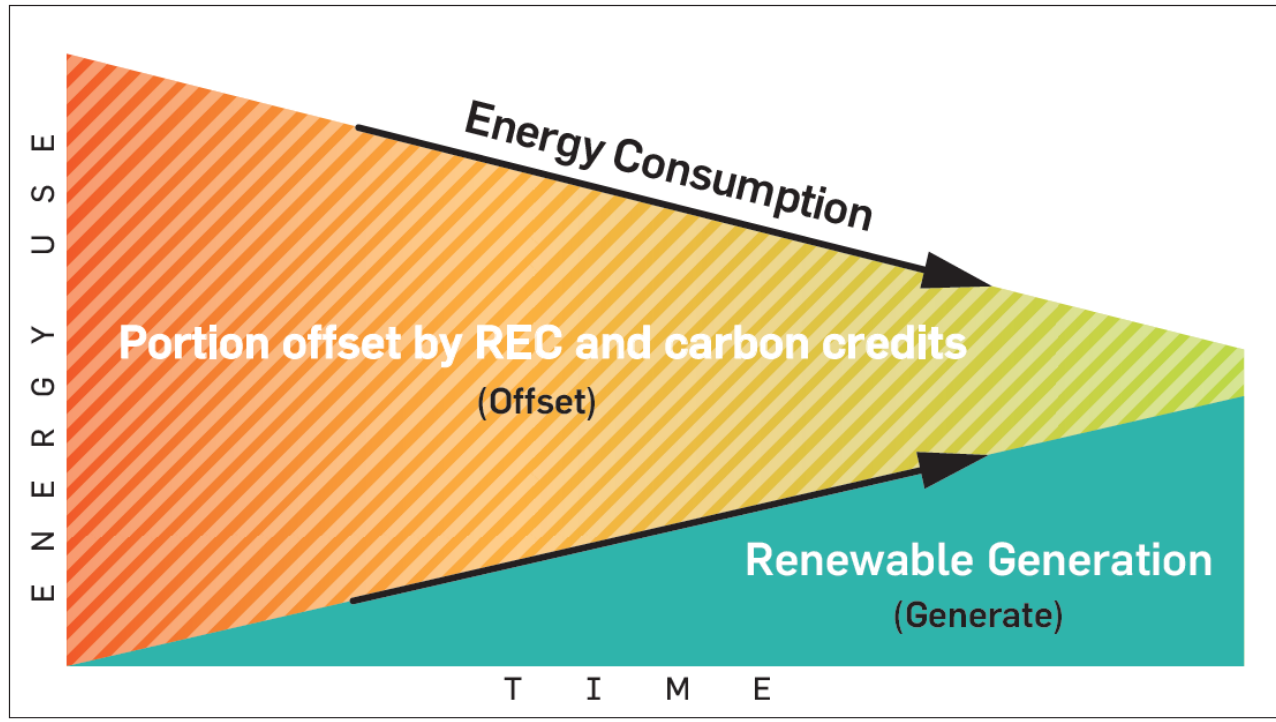
- Consolidating operations to reduce the number of square feet necessary to conduct county business;
- Improving building envelope to reduce the need for resulting heating and cooling;
- Employing lighting sensors to shut off lights when not in use; and,
- Employing route building software to help employees best consolidate and plan vehicle trips.
- Employing energy efficient technology (e.g. LEDs, Heat Pumps)

Ulster County: Carbon Neutral Government Operations Strategy



- On-site generation of electricity
- Purchasing electricity from local Community Distributed Generation (CDG) sites
- Purchasing electricity via a locally generated, third party (power purchase) ownership arrangement
- Remote net metering from a County owned or County controlled site
- On-site combustion of solid biomass, or biomass derived fuels
- Mobile combustion of biomass derived fuels

Ulster County: Carbon Neutral Government Operations Strategy

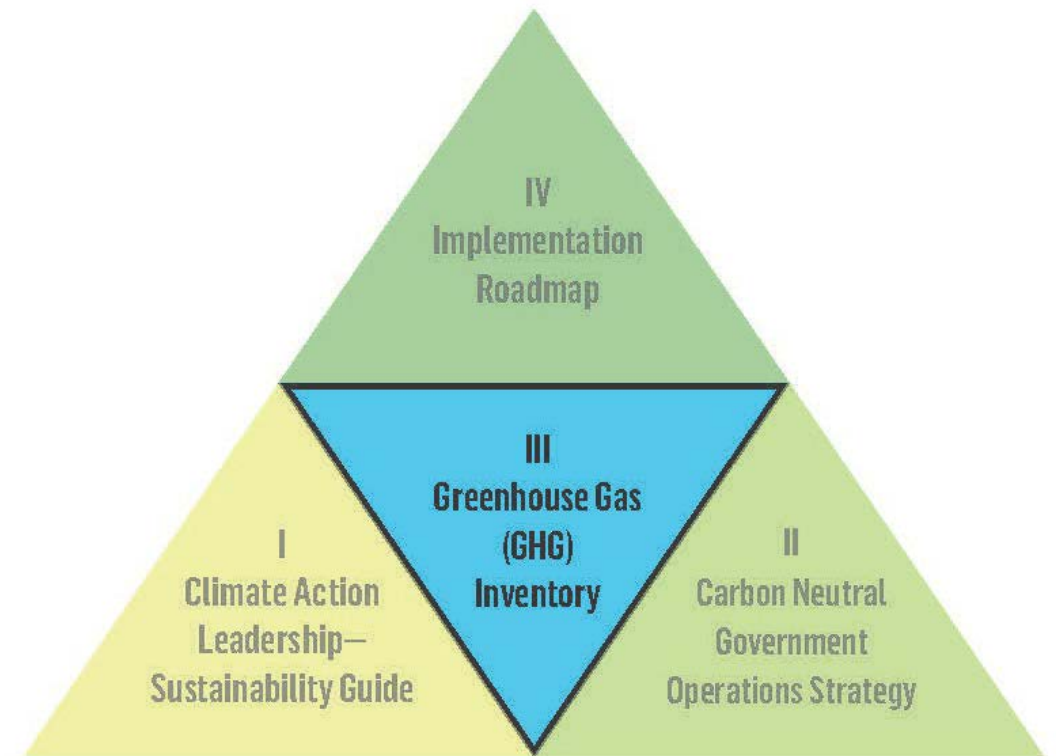


- **Renewable Energy Credits (RECs):** The County purchases certified renewable energy credits certified by the firm Green-e Energy to offset 100% of its grid supplied electricity use.
- **Carbon Credits:** A large portion of County emissions are generated through direct (Scope 1) energy sources—specifically mobile combustion for the operation of fleet vehicles and stationary combustion for building heating. For these Scope 1 sources, the County purchases carbon credits to offset emissions. These offsets are verified by a third-party certification firm, Climate Action Reserve (CAR), which reviews the projects to ensure they meet standards such as additionality.

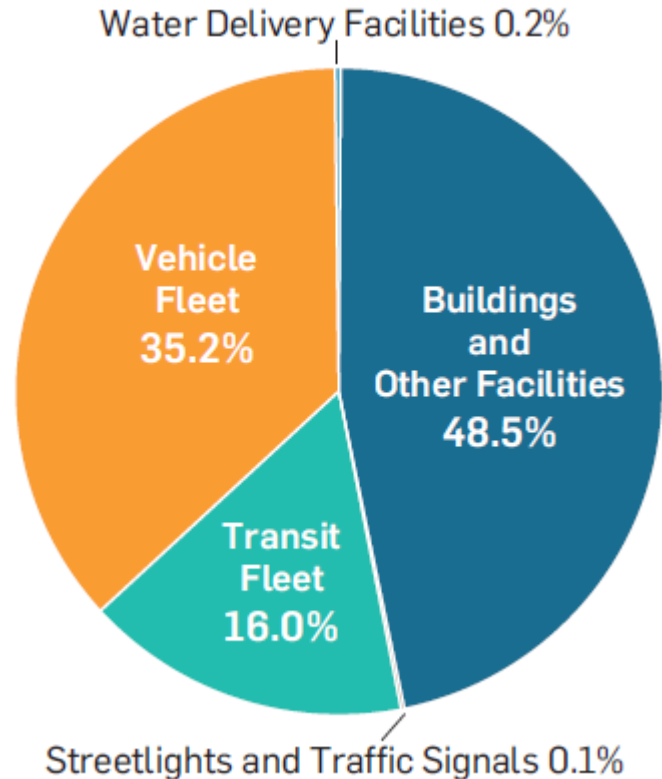
Over time, the intent is that the use of RECs and Carbon Credits to reach a Carbon Neutral government operations decreases

Ulster County Climate Action Plan Framework

- I – Climate Action Leadership
- II – Carbon Neutral Operations Strategy
- III- Greenhouse Gas Inventory
- IV – Implementation Roadmap



Ulster County Greenhouse Gas Inventory

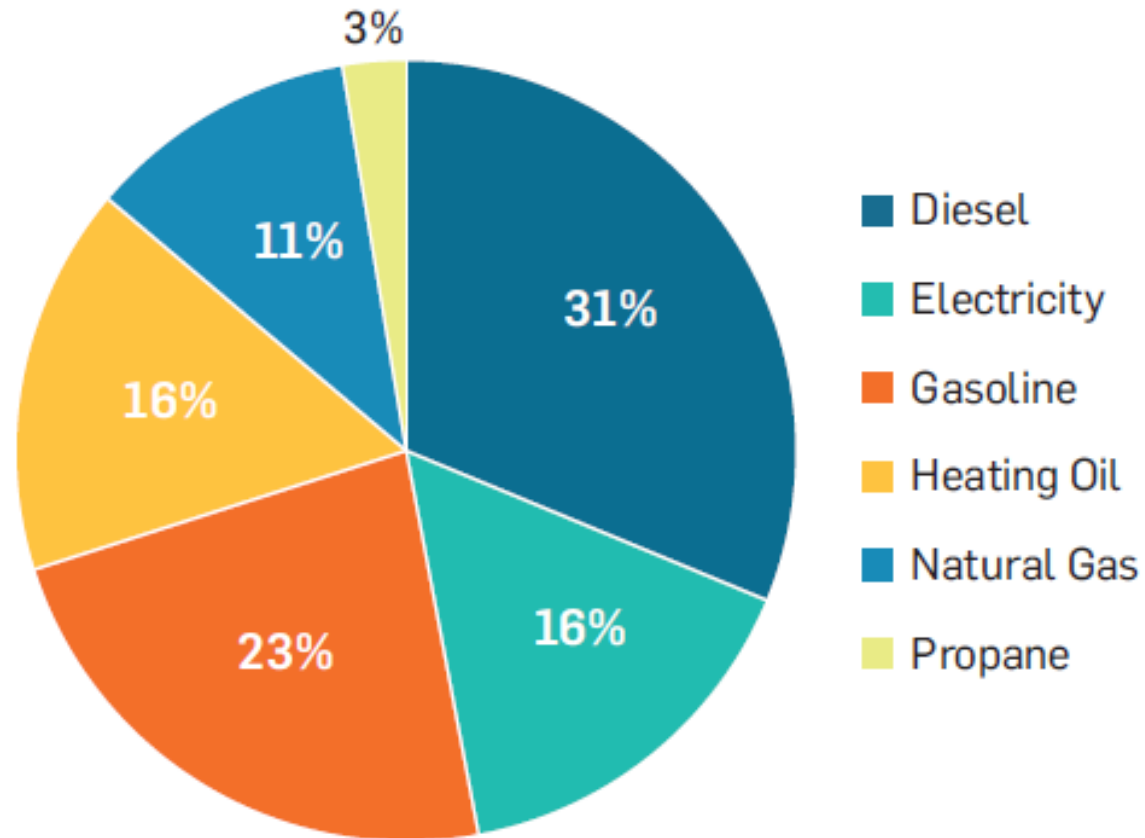


**2018 Ulster County
Government Operations
GHG Emissions by Sector**

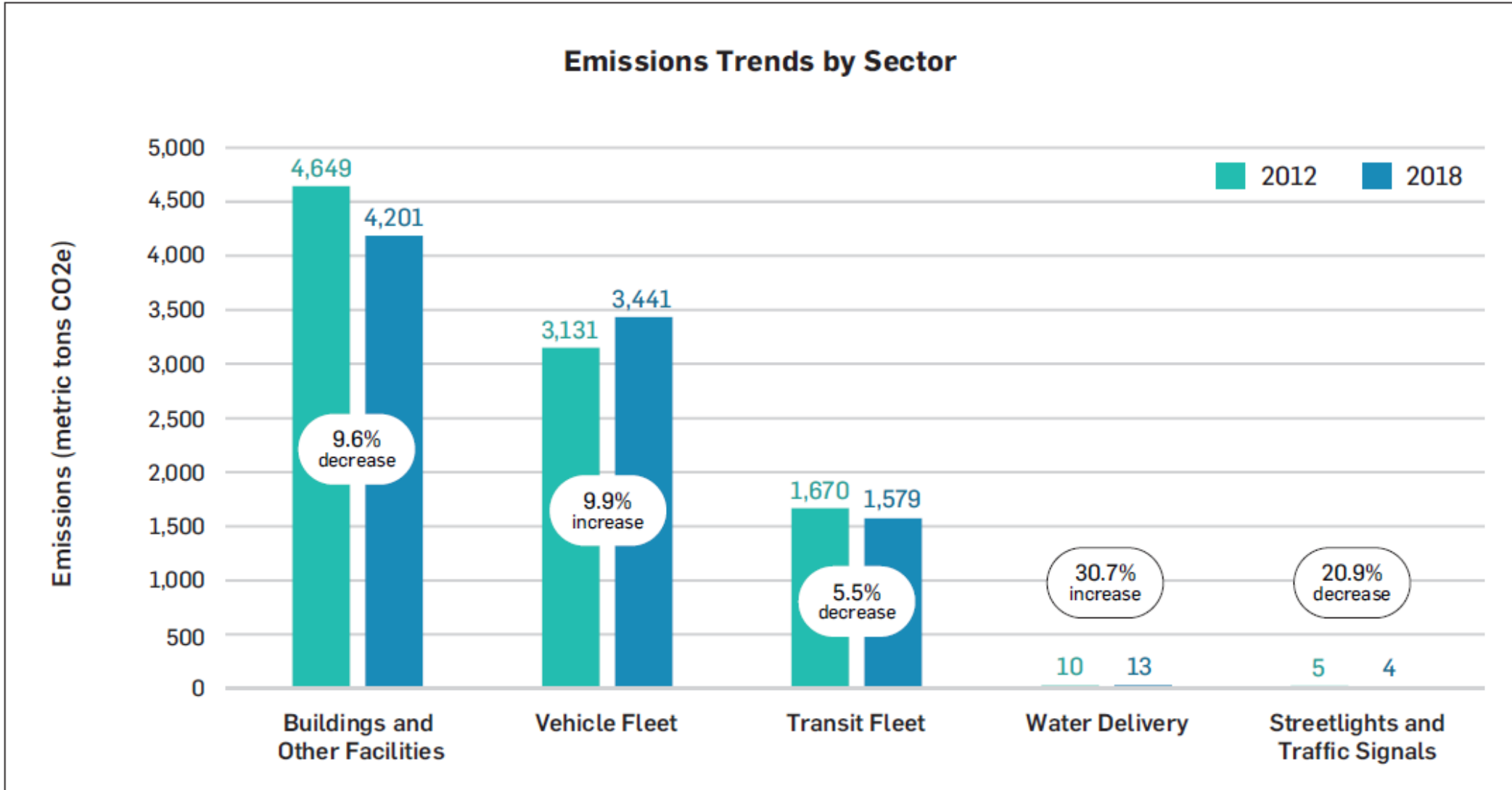
- First completed in 2012
- Covers all building and fleet energy use
- Ulster County Green Fleet Law requires annual reporting
- Ulster County Building Benchmarking resolution requires annual reporting on building
- In 2018, energy expenses cost Ulster County over \$3.1 Million, Emitting 9,360 MT CO₂E

Ulster County Greenhouse Gas Inventory

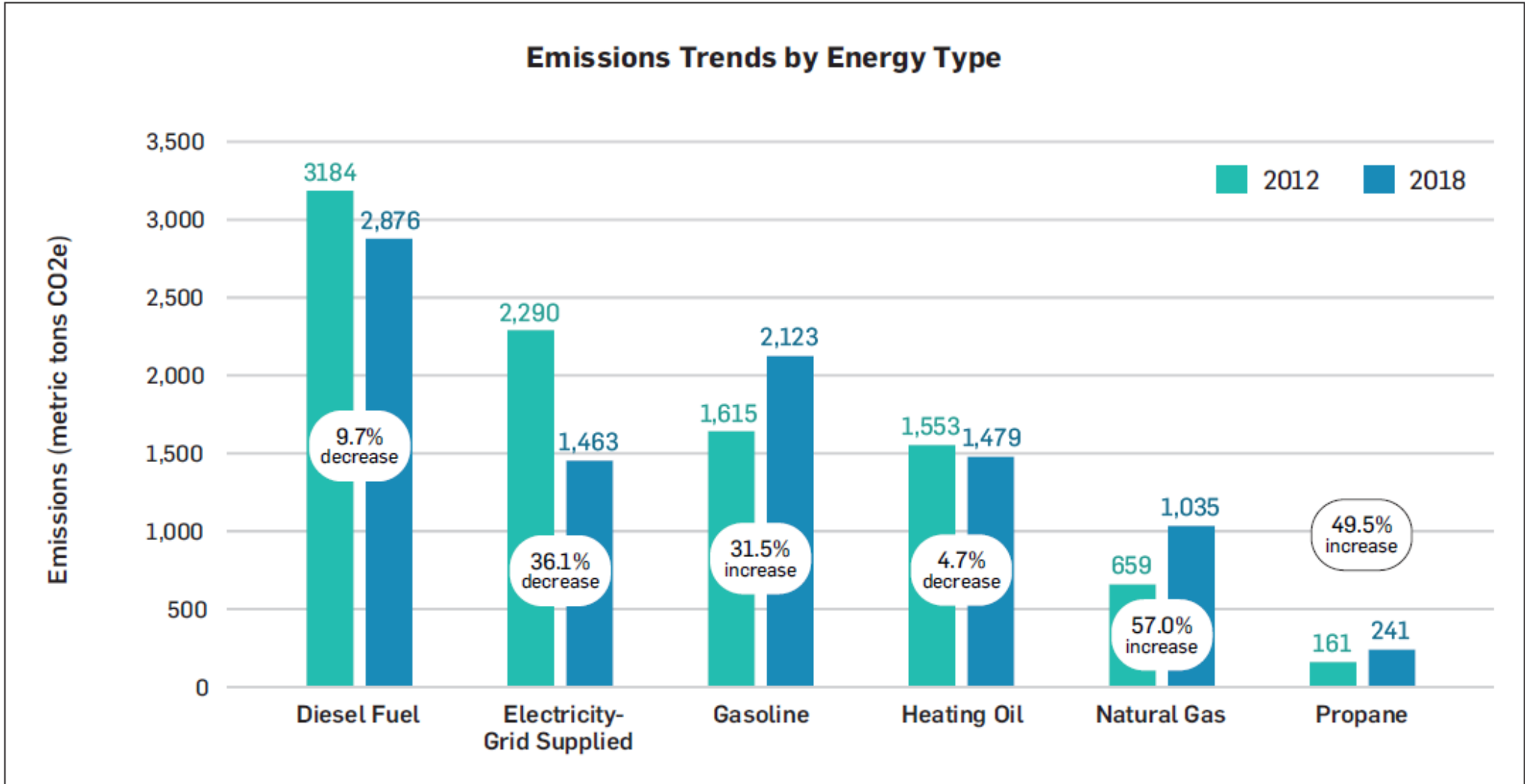
**2018 Ulster County
Government Operations
GHG Emissions by Energy Type**



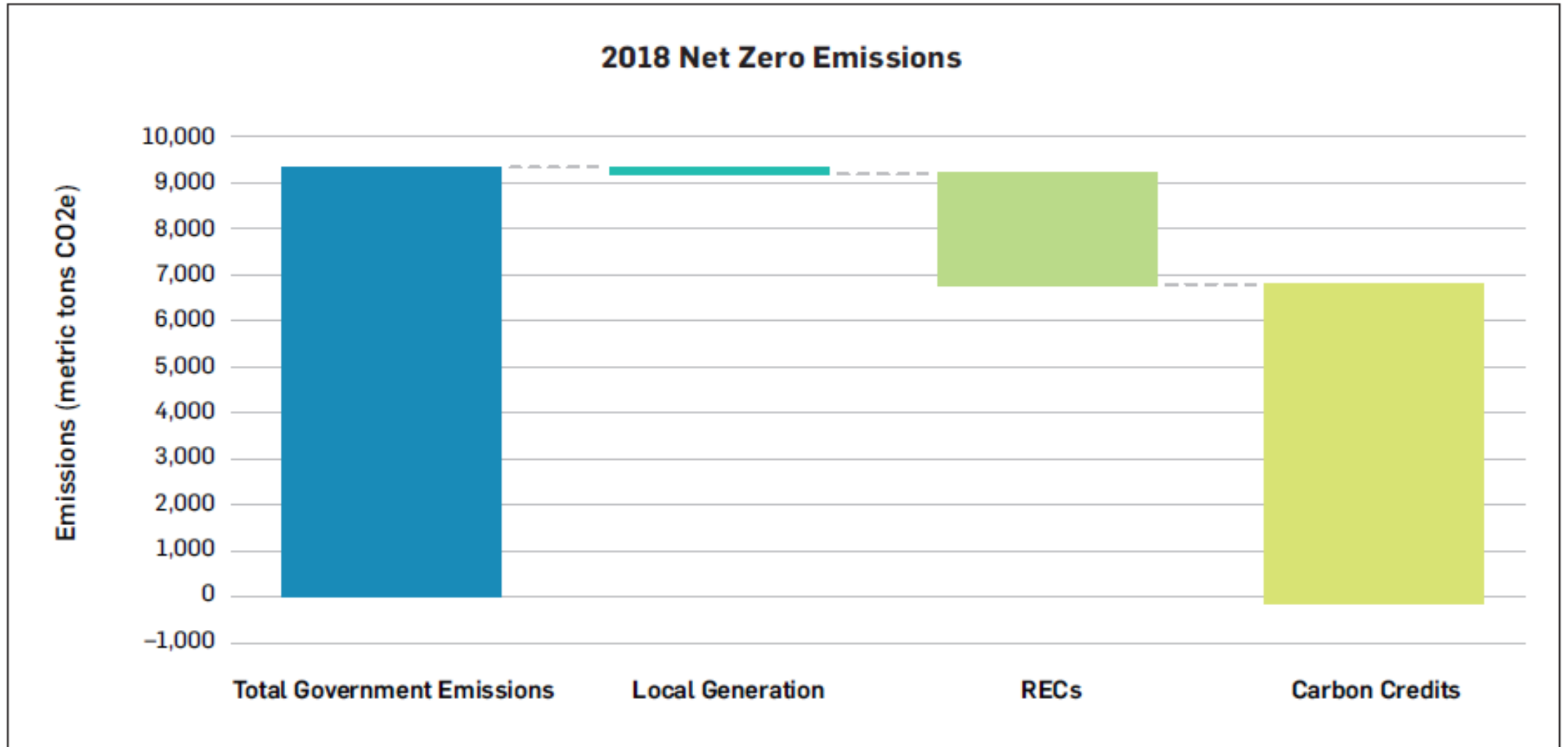
Ulster County Greenhouse Gas Inventory



Ulster County Greenhouse Gas Inventory

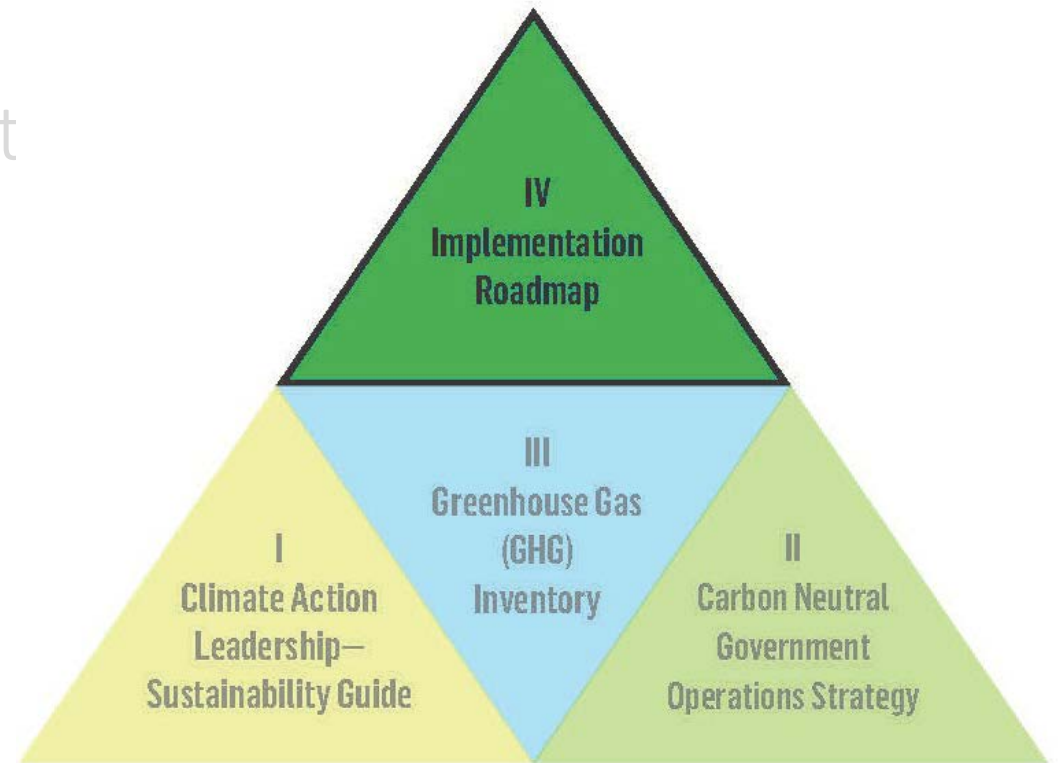


Ulster County Greenhouse Gas Inventory

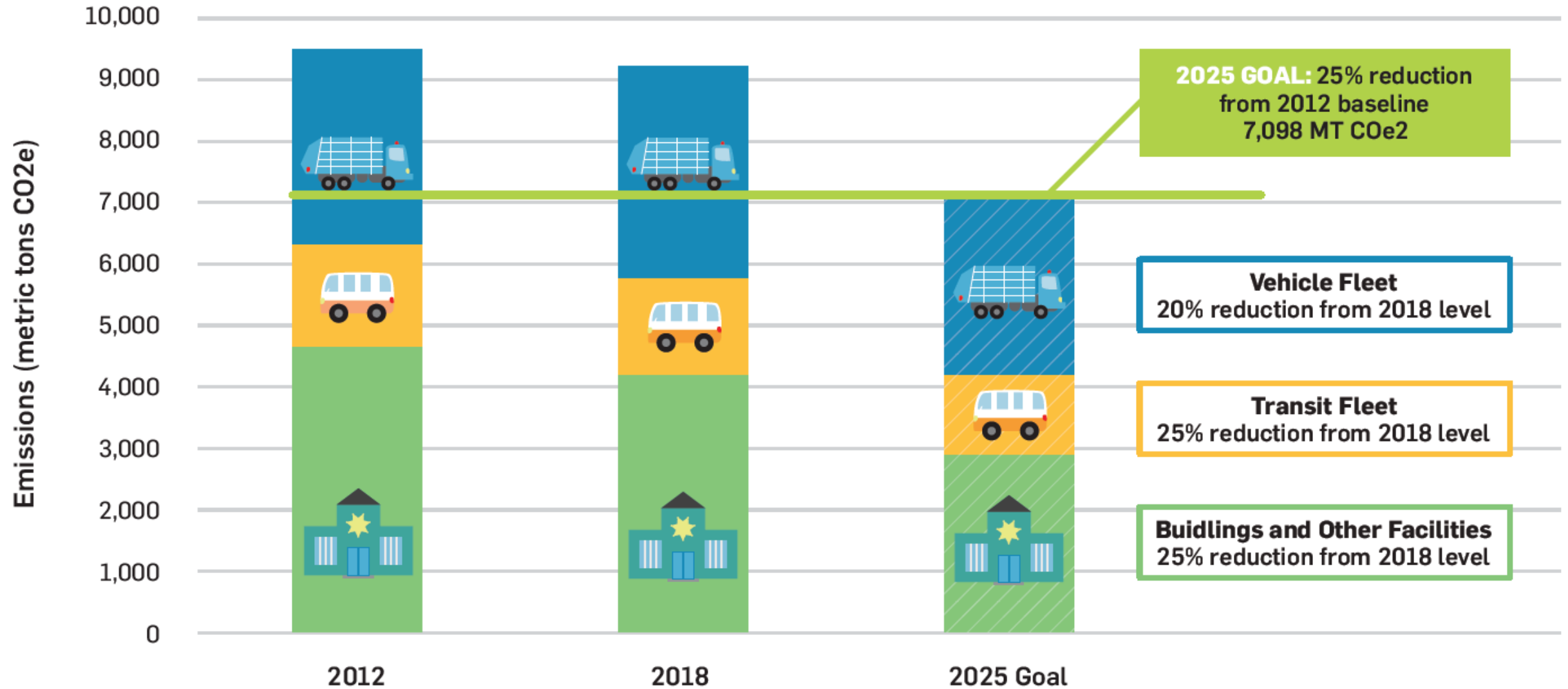


Ulster County Climate Action Plan Framework

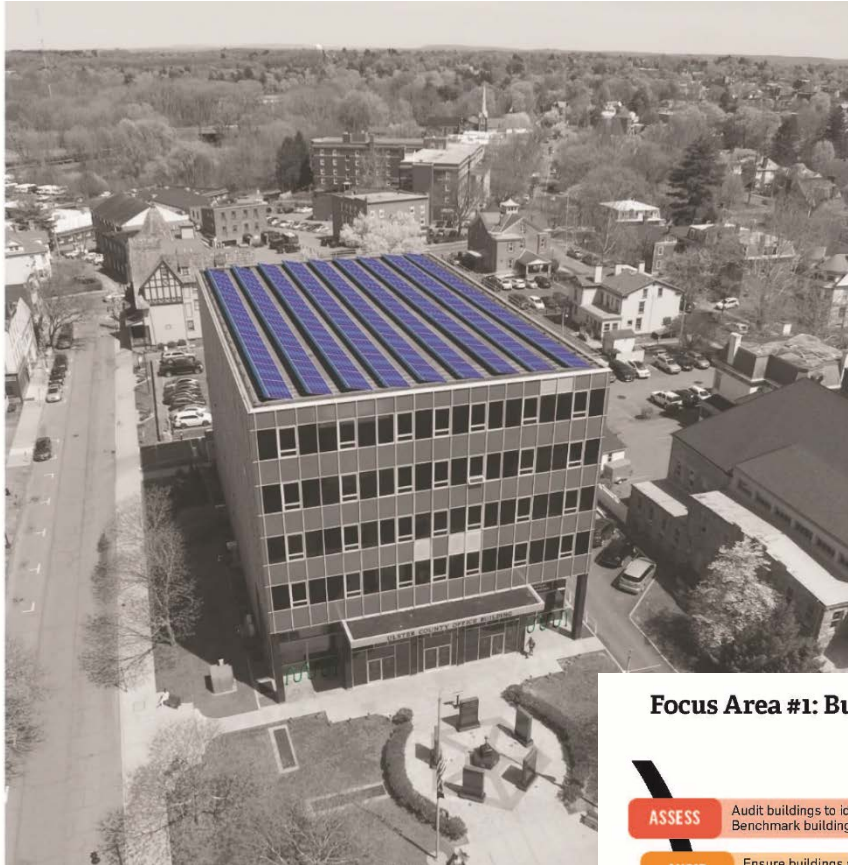
- I – Climate Action Leadership
- II – Carbon Neutral Operations Strategy
- III- Greenhouse Gas Inventory
- IV – Implementation Roadmap



Ulster County Climate Action Plan Goals



Focus Area #1: Buildings & Other Facilities



Focus Area #1: Buildings & Other Facilities

ASSESS Audit buildings to identify opportunities for GHG reductions. Benchmark building performance for continued monitoring and verification.

AVOID Ensure buildings are heated, cooled and lit only when needed. Improve building envelopes and right-size HVAC equipment.

CONSERVE Improve efficiency of HVAC and electrical systems.

GENERATE Utilize locally generated renewable electricity to meet energy needs.

OFFSET Measure emissions and offset remaining Scope 1 and 2 emissions with RECs and Carbon Credits.

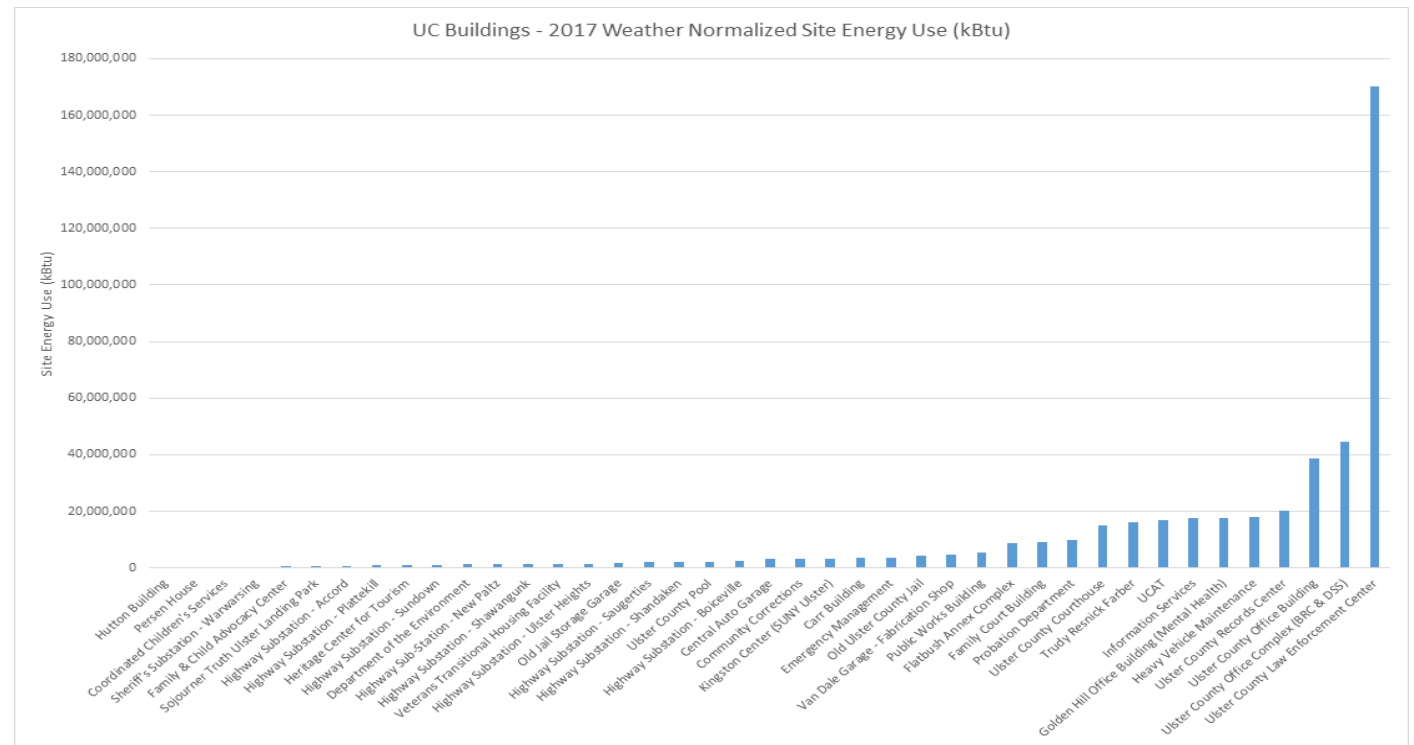
Table 6. Buildings and Other Facilities Action Items

Action Number	Action	Strategic Priority	Impact	Cost	Timeframe
BF-1	Conduct additional building energy audits	Assess	Low	Medium	Medium
BF-2	Implement lighting controls in County owned buildings	Avoid	Medium	Medium	Medium
BF-3	Reduce and upgrade outdoor lighting	Avoid	Low	Low	Medium
BF-4	Update building automation systems & HVAC scheduling procedures	Avoid	Medium	Low	Short
BF-5	Assess feasibility of district heating system using County owned properties	Conserve	Low	High	Long
BF-6	Complete interior lighting upgrades for 100% of building area	Conserve	High	Medium	Short
BF-7	Green the lifecycle of office equipment	Conserve	Medium	Low	Short
BF-8	Install biomass heating systems at Highway Department Substations	Conserve	Medium	Medium	Medium
BF-9	Install geothermal heating and cooling system(s)	Conserve	Medium	Medium	Short
BF-10	Retrocommission low performing buildings	Conserve	Medium	Medium	Medium
BF-11	Upgrade HVAC equipment	Conserve	Medium	High	Medium
BF-12	Assess small wind turbine system(s) for County-owned properties	Generate	Low	Medium	Long
BF-13	Complete renewable energy feasibility studies	Generate	Low	Medium	Medium
BF-14	Conduct a rooftop solar assessment	Generate	Low	Low	Medium
BF-15	Evaluate brownfields for solar PV development through coordination with the EPA	Generate	Medium	Low	Medium
BF-16	Evaluate in-stream energy recovery system(s) for the Golden Hill water system	Generate	Low	Medium	Long
BF-17	Install additional solar PV system(s) using a third-party ownership model	Generate	High	Low	Medium
BF-18	Install battery storage technology on County property	Generate	Medium	Medium	Short
BF-19	Offset Scope 1 and 2 emissions from buildings and facilities	Offset	High	Low	Short

Focus Area #1: Buildings & Other Facilities

Boilers failing at Ulster County Law Enforcement Center; 'should have lasted much longer,' deputy exec says

By Patricia R. Dooley pdooley@freemanonline.com @patrictfreeman on Twitter May 24, 2019 Comments



Focus Area #2: Vehicle Fleet



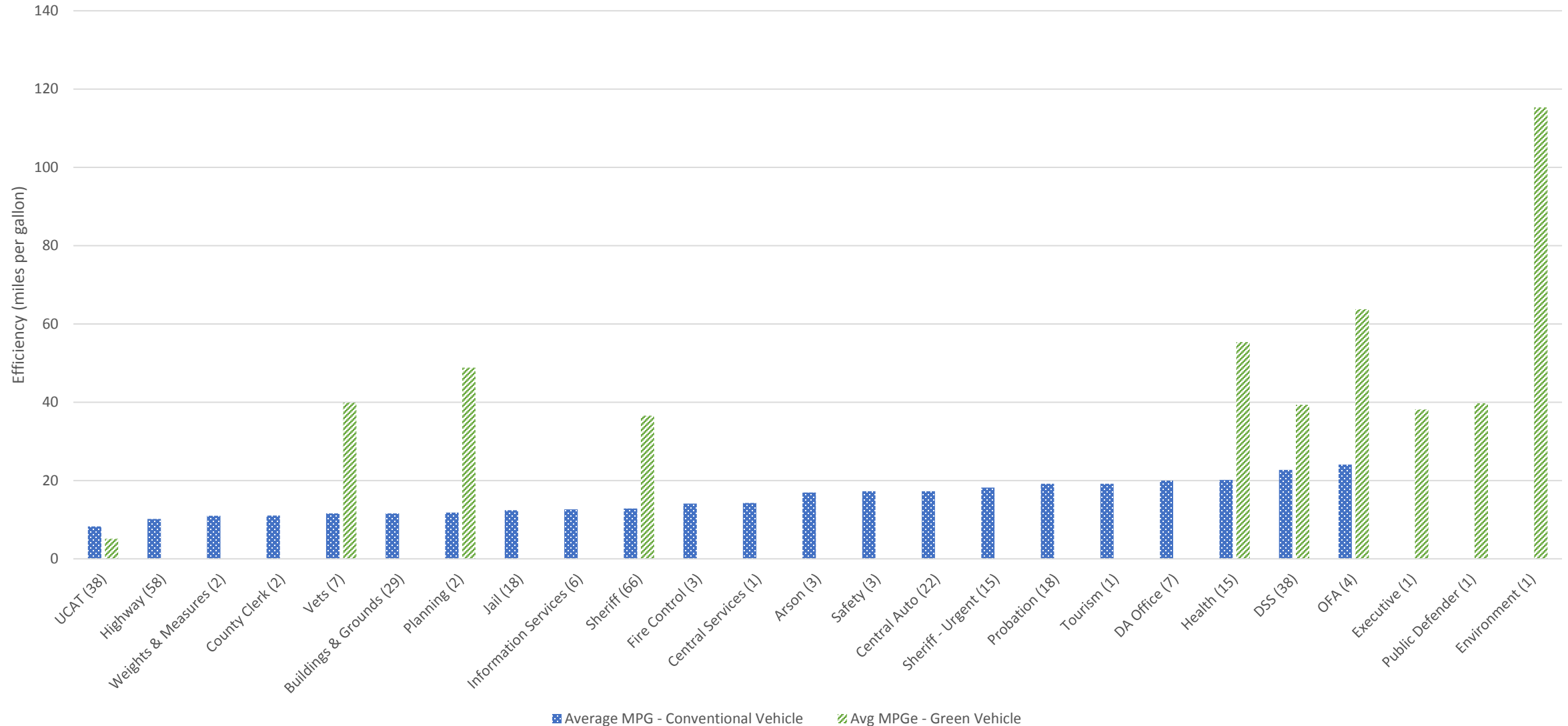
Table 7. Vehicle Fleet Action Items

Action Number	Action	Strategic Priority	Impact	Cost	Timeframe
VF-1	Quantify vehicle miles traveled (VMT) for Highway Division heavy duty vehicles	Assess	Low	Low	Short
VF-2	Implement a vehicle location tracking system	Avoid	Low	Medium	Medium
VF-3	Adopt biodiesel blend for Highway Department vehicles	Conserve	Medium	Medium	Medium
VF-4	Continue to execute UC Green Fleet Local law vehicle replacement schedule	Conserve	Medium	Medium	Short
VF-5	Install additional EV charging stations to support fleet operations	Conserve	Low	Medium	Short
VF-6	Purchase electric grounds maintenance equipment	Conserve	Low	Low	Medium
VF-7	Purchase electric passenger transit vans for Sheriff's department	Conserve	Medium	Medium	Medium
VF-8	Train UC fleet mechanics to maintain and repair electric vehicles	Conserve	Medium	Medium	Medium
VF-9	Deploy solar PV EVSE system(s)	Generate	Low	High	Long
VF-10	Offset Scope 1 and 2 emissions from vehicle fleet operations	Offset	High	Medium	Short

For fleet operations in 2018,
Ulster County consumed
545,619 gallons of fuel at a
cost of \$1,235,067

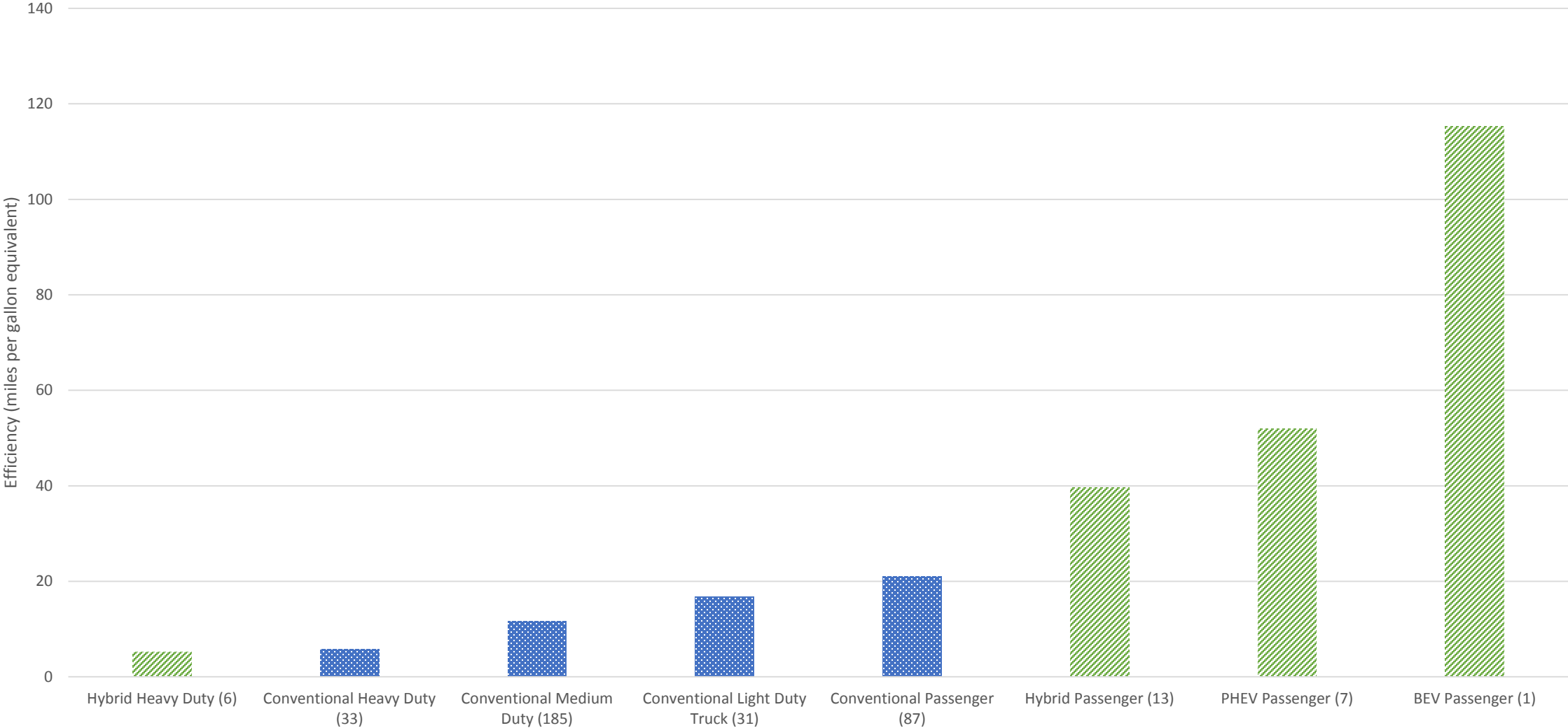
Focus Area #2: Vehicle Fleet

Average Efficiency By Department (2018)
(MPG and MPGe)



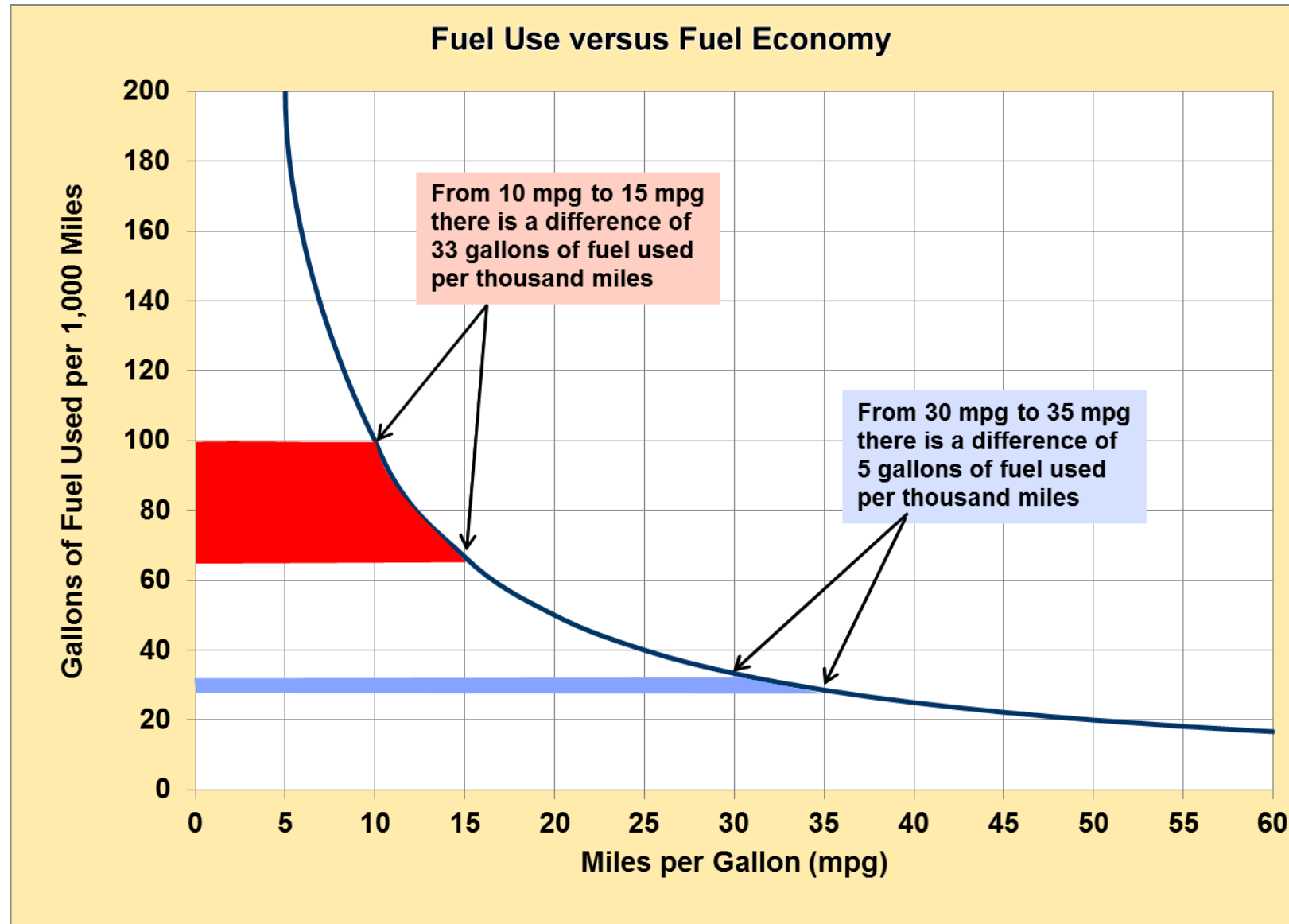
Focus Area #2: Vehicle Fleet

Average Efficiency by Vehicle Type (2018)
(MPG and MPGe)



March 4, 2019

Improvements in Fuel Economy for Low-MPG Vehicles Yield
the Greatest Savings



Focus Area #2: Vehicle Fleet

- Vehicles as Battery Storage (VTG, peak load/demand reduction)
- Stand alone charging systems (emergency operations)



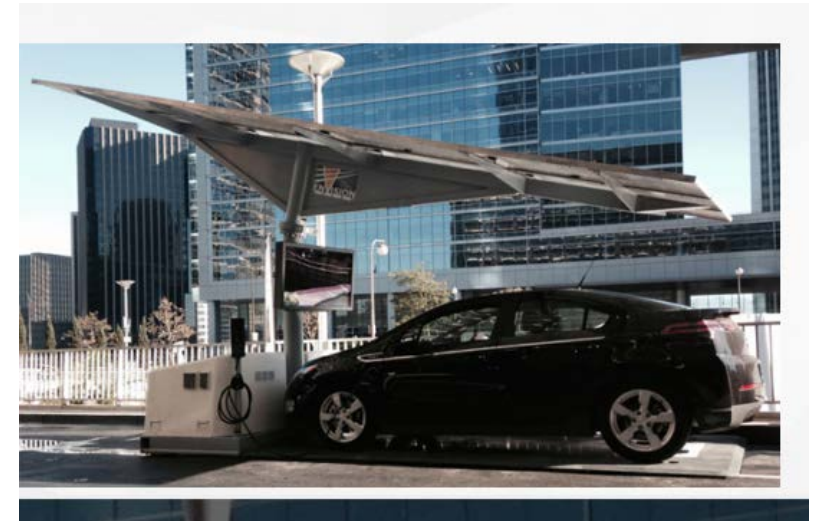
[HOME](#) [ABOUT US](#) [OUR TEAM](#) [EXPLORE](#) [CONTACT](#) [NEWS](#)

Vehicle + Grid

Fermata Energy is pioneering vehicle-to-grid systems.

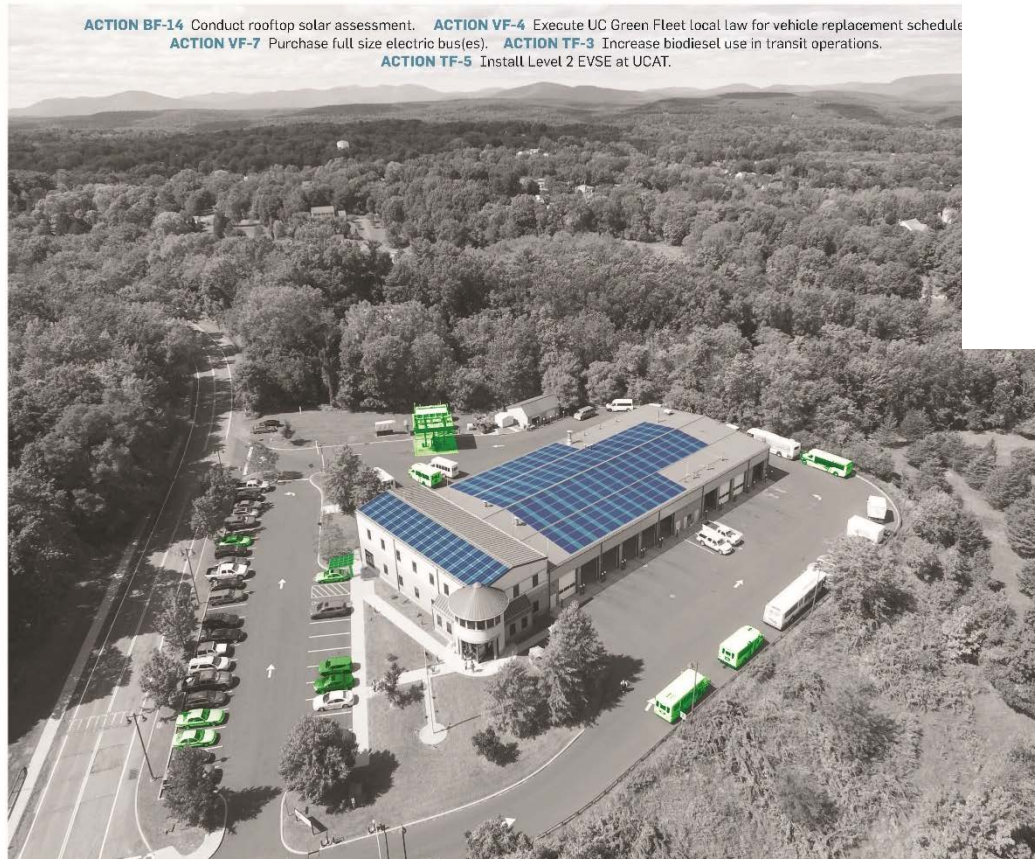


[ABOUT US](#)



Envision Solar's patented EV ARC™ is the world's only transportable, solar powered EV charging station. Delivered to your location complete and ready to charge cars, it does not require any permits, civil engineering or planning, foundations, trenching or electrical connections. Each EV ARC™ will deliver up to 225 e miles daily, while charging up to six EVs at a time. Equipped with on-board battery storage, it will charge EVs day or night and during a black out or other grid failure, you can use the energy produced by the EV ARC™ to keep your business up and running. If you want to change your charging location, the EV ARC™ is transportable and can be easily moved to a new location within minutes.

Focus Area #3: Transit Fleet



Focus Area #3: Transit Fleet

ASSESS

Determine the feasibility of fleet electrification.

AVOID

Use Route Planning to maximize ridership per VMT.

CONSERVE

Implement electrification of buses, paratransit vehicles and support vehicles.

GENERATE

Utilize locally-generated renewable electricity to meet electric vehicle charging needs. Increase usage of renewable biofuels.

OFFSET

Measure emissions and offset remaining Scope 1 and 2 emissions with RECs and Carbon Credits.

Table 8. Transit Fleet Action Items

Action Number	Action	Strategic Priority	Impact	Cost	Timeframe
TF-1	Complete a Transit Fleet Electrification Study	Assess	Low	Medium	Short
TF-2	Modify transit routes and schedules to maximize passenger miles per unit GHG emissions	Avoid	Medium	Medium	Medium
TF-3	Increase biodiesel use in transit operations	Conserve	Medium	Medium	Medium
TF-4	Install DC fast charging equipment at UCAT facilities for bus charging	Conserve	High	Medium	Short
TF-5	Install Level 2 EVSE at UCAT	Conserve	Low	Low	Short
TF-6	Purchase electric paratransit vehicle(s)	Conserve	Medium	High	Long
TF-7	Purchase full size electric bus(es)	Conserve	High	High	Medium
TF-8	Purchase green vehicle(s) for UCAT support/administrative fleet	Conserve	Low	Medium	Short
TF-9	Train UCAT mechanics to maintain and repair electric buses	Conserve	Medium	Medium	Short
TF-10	Offset Scope 1 and 2 emissions from transit operations	Offset	High	Medium	Short

Focus Area #4: Policy & Procedures



Focus Area #4: Policy & Procedure

ASSESS	Improve tracking and reporting activities.
AVOID	Analyze County operations to find areas for improvement.
CONSERVE	Implement policies and procedures to set policy and procedure to direct organizational practices and promote a culture of energy efficiency and waste reduction.
GENERATE	Not applicable.
OFFSET	Continue to purchase carbon credits to offset quantified Scope 3 emissions.

Figure 14. Policy & Procedure GHG Reduction Strategy

Table 9. Policy & Procedure Action Items

Action Number	Action	Strategic Priority	Impact	Cost	Timeframe
PP-1	Develop materials management annual plan and report	Assess	Low	Low	Short
PP-2	Develop methodology for reporting emissions from contracted services	Assess	Low	Low	Short
PP-3	Implement Social Cost of Carbon into capital planning and government operations decisions	Assess	Low	Low	Short
PP-4	Improve vehicle inventory	Assess	Low	Low	Short
PP-5	Seek grant funding for climate change mitigation projects	Assess	Low	Low	Short
PP-6	Track building energy efficiency upgrades	Assess	Low	Low	Short
PP-7	Track water usage for government buildings	Assess	Low	Low	Long
PP-8	Adopt a green building standard for existing buildings	Avoid	Medium	Low	Short
PP-9	Conduct life-cycle analysis for all new vehicle purchases	Avoid	Low	Medium	Medium
PP-10	Develop an organic waste program for government buildings	Avoid	Low	Low	Short
PP-11	Education and outreach for employee energy conservation	Avoid	Medium	Low	Short
PP-12	Encourage green business travel	Avoid	Low	Low	Medium
PP-13	Encourage UC Employee commuting on UCAT	Avoid	Low	Low	Medium
PP-14	Improve refrigerant management procedures	Avoid	High	Medium	Medium
PP-15	Integrate sustainability review procedures into the capital planning process	Avoid	Medium	Low	Short
PP-16	Right-size the local government fleet	Avoid	High	Low	Short
PP-17	Update the County's environmentally preferable purchasing policy	Avoid	Medium	Medium	Short
PP-18	Use vehicle tracking systems to monitor the anti-idling policy for County Highway vehicles	Avoid	Low	Low	Short
PP-19	Adopt a green financing mechanism	Conserve	Medium	Low	Short
PP-20	Develop a government ops waste reduction strategy	Conserve	Low	Low	Medium
PP-21	Incorporate waste & energy provisions in government contracts	Conserve	Low	Low	Medium
PP-22	Join EPA WasteWise program	Conserve	Low	Low	Long
PP-23	Adopt a PV-Ready construction standard	Generate	Medium	Low	Short
PP-24	Establish internal procedures to evaluate foreclosure eligible properties for clean energy siting potential	Generate	Medium	Low	Medium
PP-25	Conduct carbon sequestration planning for County Owned properties	Offset	Medium	High	Long

Focus Area #5: Scope 3 Emissions

ACTION BF-10 Retrocommission low performing buildings. **ACTION BF-18** Install battery storage technology on County property.
ACTION TF-5 Install Level 2 EVSE.



Focus Area #5: Scope 3 Emissions

ASSESS

Broaden scope of tracking activities to improve ability to quantify Scope 3 emissions.

AVOID

Implement policies and procedures to affect behavior and energy use needs.

CONSERVE

Implement policies and procedures to reduce waste, water-use and promote energy efficiency.

GENERATE

Not applicable.

OFFSET

Continue to purchase carbon credits to offset quantified Scope 3 emissions.

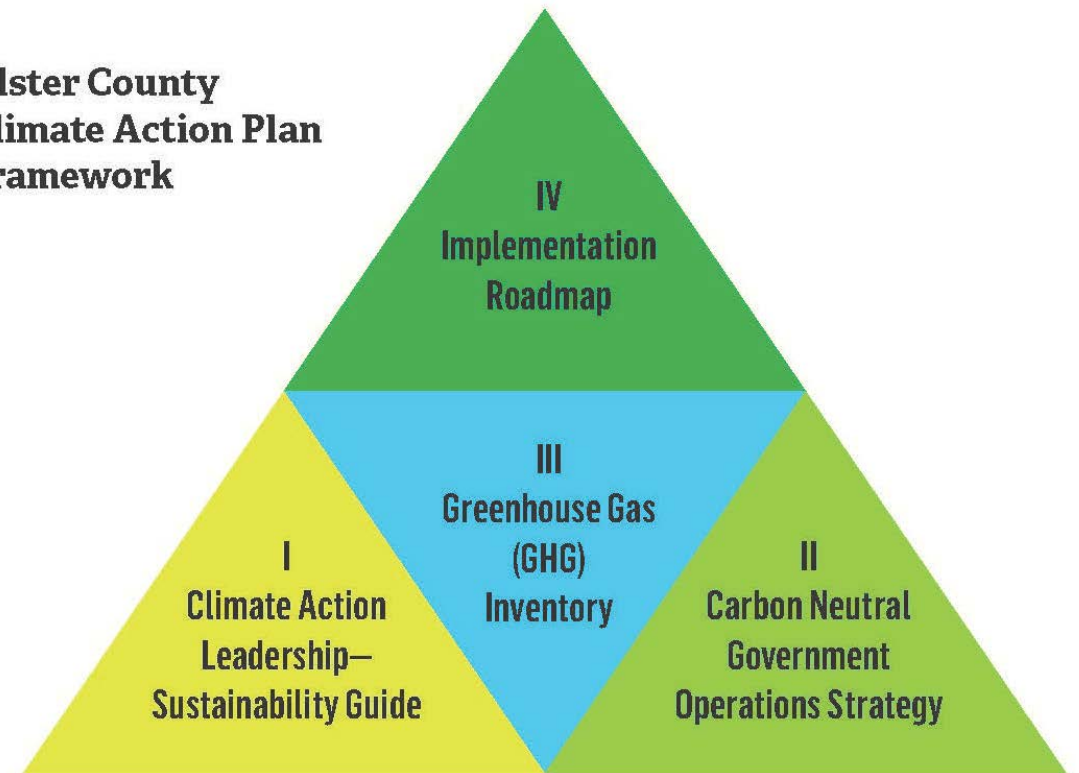
Table 10. Scope 3 Action Items

Action Number	Action	Strategic Priority	Impact	Cost	Timeframe
S3-1	Conduct a government solid waste audit	Assess	Low	Medium	Medium
S3-2	Conduct employee commuting survey	Assess	Low	Low	Short
S3-3	Quantify business travel emissions	Assess	Low	Medium	Medium
S3-4	Improve bicycle infrastructure at County properties	Avoid	Low	Low	Medium
S3-5	Provide incentives for employee carpooling & transit	Avoid	Low	Low	Long
S3-6	Host employee ride & drive event	Conserve	Low	Low	Short
S3-7	Install water efficient fixtures	Conserve	Low	Medium	Long
S3-8	Offset emissions from employee commutes	Offset	High	Medium	Short

Ulster County Climate Action Plan Framework

- I – Climate Action Leadership
- II – Carbon Neutral Operations Strategy
- III- Greenhouse Gas Inventory
- IV – Implementation Roadmap

**Ulster County
Climate Action Plan
Framework**



Ulster County Climate Action Plan: Next Steps

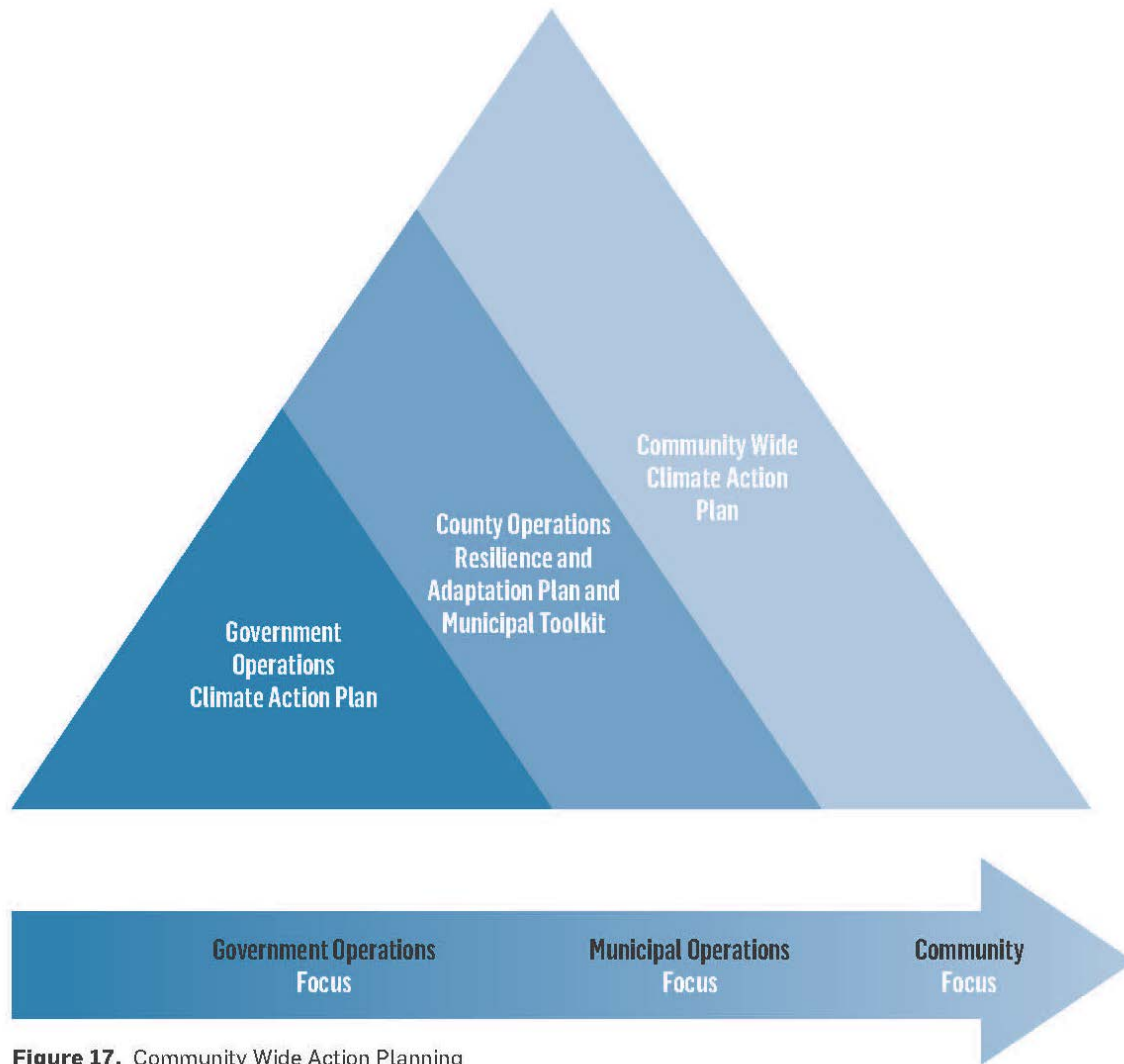


Figure 17. Community Wide Action Planning

- Encourage other municipalities and organization to go through a CAP process.
- Funded by NYS DEC to complete a Climate Change Vulnerability and Resiliency Planning Project
- Support Community-Wide Climate Planning and Emissions Reduction

Ulster County Climate Action- What's at Stake?



Thank You



Amanda LaValle, Coordinator
UC Department of the Environment
alav@co.ulster.ny.us
845-338-7455