Town of Amenia

Government Operations

Climate Action Plan

MAY 2024

Produced by the Town of Amenia Environmental Advisory Committee
with Assistance from the Hudson Valley Regional Council and
ICLEI – Local Governments for Sustainability USA.

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Executive Summary

Overwhelming evidence has led to the scientific consensus that climate change is the greatest environmental challenge of the 21st century. It poses a serious threat not just to New York's natural resources, but also to our jobs and our health. For this reason, The Town of Town of Amenia is joining an increasing number of local governments committed to addressing climate change at the local level by reducing emissions in their government operations and by supporting programs such as the Climate Action Planning Institute (CAPI). The Town of Amenia recognizes the risk that climate change poses to its constituents, and is acting now to reduce the GHG emissions, or "carbon footprint," of its government operations through the programs laid out in this Climate Action Plan. The Plan provides guiding objectives and strategies to realize and achieve Town of Amenia's government operations GHG reduction goals.

Through the completion of a local government operations GHG emissions inventory, the Town of Amenia has determined its emissions levels as a result of its government operations. Through this inventory, the Town determined its overall emissions in 2019 equated to 2,464 metric tons of carbon dioxide equivalent (MTCO2e). The Solid Waste sector is the largest source of emissions, followed by the Buildings & Facilities, then the Vehicle Fleet Sector. The Town of Amenia has also completed an emissions forecast based on projections of current data and expected future trends.

Based on these forecasts and other considerations, The Town of Amenia has set a target to reduce its local government operations emissions to 33% below 2019 levels by 2030. This Plan outlines the mitigation measures it recommends in the following sectors: Solid Waste, Buildings & Facilities, and Vehicle Fleet. Such measures include energy efficiency upgrades, expansion of renewable energy sources, and vehicle electrification.

Introduction

Climate Change poses a serious threat not just to New York's natural resources, but also to our jobs and our health. Simultaneously, climate change presents unprecedented opportunities for creating a healthier, safer, and more equitable zero-carbon world. The Town of Amenia has an unparalleled opportunity to make changes to its facilities and general operations in ways that benefit the local government and act as a model for the community and other public agencies. Scientists expect that with the current trends in greenhouse gas (GHG) emissions, Americans will experience more intense heat waves, droughts, rainstorms, floods, wildfires, and landslides in the future. These impacts will have significant repercussions on our economy, stress our natural resources, and worsen inequities facing many Americans and millions of people across the globe.

These impacts are caused by the accumulation of GHGs such as carbon dioxide (CO2) and methane (CH4) in the atmosphere, primarily resulting from burning fossil fuels and land use changes. Although the natural greenhouse effect is needed to keep the earth warm, human activities have created an enhanced greenhouse effect due to the rapid accumulation of GHGs in the atmosphere. Unprecedented concentrations of these gases in the atmosphere have led to too much heat being trapped in Earth's atmosphere, which causes an increase in global temperature. Carbon emissions from human activities have soared in recent decades and are currently at the highest rates in human history. About half of all carbon dioxide emitted between 1750 and 2010 occurred in the last 40 years. The energy, industry, and transportation sectors have dominated these emissions increases. With the current trajectory of population growth, urbanization, and reliance on personal vehicles, global transportation emissions are expected to double by 2050. Given the serious impacts of climate change on humanity, the time to act to reduce GHG and our carbon footprint is now. While there is a great need for community-wide climate action plans, addressing emissions from local government operations and leading by example is critical.

Background

The 2014 Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5), written by a panel of hundreds of climate experts and scientists and approved by a team of external reviewers, states unambiguously that anthropogenic or "man-made" GHG emissions are causing global climate change. For this reason, the Town of Amenia is joining an increasing number of local governments committed to addressing climate change at the local level through reducing emissions in their government operations and by supporting programs such as the Climate Action Planning Institute (CAPI). The Town of Amenia recognizes the risk that climate change poses to its constituents, and is acting now to reduce the GHG emissions, or "carbon footprint," of its government operations through the innovative programs laid out in this Climate Action Plan. Ultimately, action is needed to reduce the Town of Amenia's contribution toward the problem of climate change and adapt to its current and future effects. This Climate Action Plan takes advantage of common-sense approaches and cutting-edge policies that our local government is uniquely positioned to implement – actions that can reduce energy use, waste, and fuel use for the Town of Amenia's vehicle fleet and employee commutes.

Purpose

This Climate Action Plan is a framework for the development and implementation of actions that reduce the Town of Amenia's government operations GHG emissions. The Plan provides guiding objectives and strategies to realize Town of Amenia's government operations GHG reduction goals.

Scope

This Plan covers objectives and strategies for reducing GHG emissions resulting from local government operations within Town of Amenia. It addresses the major sources of emissions in Town of Amenia's infrastructure and operations and sets forth objectives and strategies in three focus areas that Town of Amenia can implement to achieve greenhouse gas reductions: Energy, Transportation, & Solid Waste

The Plan creates a framework to document, coordinate, measure, and adapt efforts moving forward. In addition to listing actions, the Plan discusses how each action will be implemented via timelines, financing, and assignment of responsibilities to departments, staff, or other partner agencies where known.

Process

The Town of Amenia initiated its work with the CAPI planning team which includes a municipal official, volunteers, and an intern. Throughout 2023, the Team gathered, researched, and analyzed emissions data drafted documents, and met with the Dutchess CAPI Cohort once a month for guidance and to compare learnings. Findings were presented to stakeholders, including the Climate Smart Communities Task Force. See below for more information on dates and timeline.

- Launched CAPI process and determined inventory scope – January 2023
- Gathered and input municipal data – January-April 2023
- Completed Inventory, forecast, and drafted high-level recommendations – August 2023

- Posted Government Operations GHG Inventory to municipal web site – September 2023
- Chose emissions targets and recommended goals, objectives & strategies – October 2023
- Presented findings and sought feedback through stakeholder engagement meetings – October 2023 – February 2024
- Finalized draft plan for public feedback – February 2024
- Revised details of plans based on feedback – February-April 2024
- Post plan to municipal web site.

Vision Statements and Objectives

The vision for the Town of Amenia's is to lead by example through reducing energy and waste and by practicing sustainable behavior throughout all operations, as well as to become a leader in sustainable, smart vehicle fleets through innovative policies, programs, and technology.

New York State's Climate Leadership Community Protection Act (CLCPA) goals call for a 40% reduction in greenhouse gas emissions (from 1990 levels) by 2030, and an 85% reduction by 2050. According to the 2022 Statewide GHG Emissions Report, NY has already reduced emissions by 7% from 1990 levels. Therefore, this Climate Action Plan offers a robust set of objectives and strategies that aim for a 33% reduction in local government GHG emissions by 2030, and a 78% reduction by 2050, in line with New York CLCPA goals. Each strategy and objective was created and reviewed through an engagement process.

The following targets are aspirational and were set to maintain and support safe, efficient and sustainable facilities and operations for the Town of Amenia:

By 2030

- The Town of Amenia will reduce energy use in its buildings by 20%.
- 30% of heating fuel derived from fossil-fuels (natural gas and propane) will be switched to a low-carbon fuel source and/or electric heat.
- The Town of Amenia will require and enforce net-zero building codes for new government buildings.

By 2050

- 90% of the Town of Amenia's existing facilities will complete energy-efficiency improvements.
- 100% of Town of Amenia's municipal electricity use will come from renewable energy.
- Appropriate Town of Amenia fleet vehicles will be all-electric and powered by 100% renewable energy.

Climate Equity Within Town of Amenia

Equity is when all individuals have access to the opportunities necessary to satisfy their essential needs, advance their well-being, and achieve their full potential. Low-income populations, communities of color, people with disabilities, elders, refugees and immigrants, and other frontline communities often

bear the brunt of climate impacts without the necessary infrastructure and support systems, and without gaining any of the benefits of a clean and sustainable future. Inequity correlates with greater vulnerability to physical challenges, making some in Town of Amenia disproportionately at risk from natural disasters and the impacts of climate change. Creating a resilient community means addressing the social inequities that cause disparities in health outcomes, income, educational attainment, and more.

Climate equity ensures the just distribution of the benefits of climate protection efforts and alleviates unequal burdens created by climate change. This requires intentional policies and projects that simultaneously address the effects of and the systems that perpetuate both climate change and inequity.

Climate change is likely to amplify the impacts of these existing inequities and frontline communities such as lower income, communities of color, unhoused, outdoor workers, and the very young, and older residents will disproportionately bear the burdens of climate change impacts. In addition, the many economic and health benefits of carbon reduction investments are not shared equitably across the city, especially among people of color and low-income communities.

Town of Amenia's Local Government Operations Emissions

Inventory Basics

Since the early 1990s, U.S. cities have developed community-wide and local government operations greenhouse gas inventories based on accounting protocols created by ICLEI. Known as the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions and the Local Government Operations Protocol, these standards created a credible and defensible methodology that accelerated the number of inventories created and provided consistency within and across U.S. communities. In 2014, ICLEI partnered with the World Resources Institute and C40 Climate Leadership Group to create the Global Protocol for Community-Scale GHG Emissions, which allows communities around the world to compare their emissions footprint. The town of Amenia used the Local Government Operations Protocol for the inventory described in this report. (See Appendix for details on full inventory.)

Summary of Inventory Results

Through the completion of a local government operations GHG emissions inventory, the Town of Amenia has determined emissions levels for the Town of Amenia's government operations. Emissions from local government operations represent the total emissions produced by government facilities, vehicle fleets, and other government-owned or operated activities. This means the local government operations figures represent emissions for which the local government is responsible. Government operations are therefore a subset of total community emissions.

For this Climate Action Plan, the Town of Amenia completed a Local Government Operations inventory that analyzes the 2019 year. This inventory was conducted using the Local Government Operations Inventory and ICLEI's ClearPath tool. Through this inventory, the Town of Amenia determined its overall emissions in 2019 equated to 2,464 metric tons of carbon dioxide equivalent (MTCO2e). The Solid Waste sector was the largest source of emissions, with 2,242 MTCO2e which is 91% of the total emissions. This is followed by the Buildings & Facilities then the Vehicle Fleet Sectors with 95 MTCO2e (3.8%) and 89 MTCO2e (3.6%) respectively.

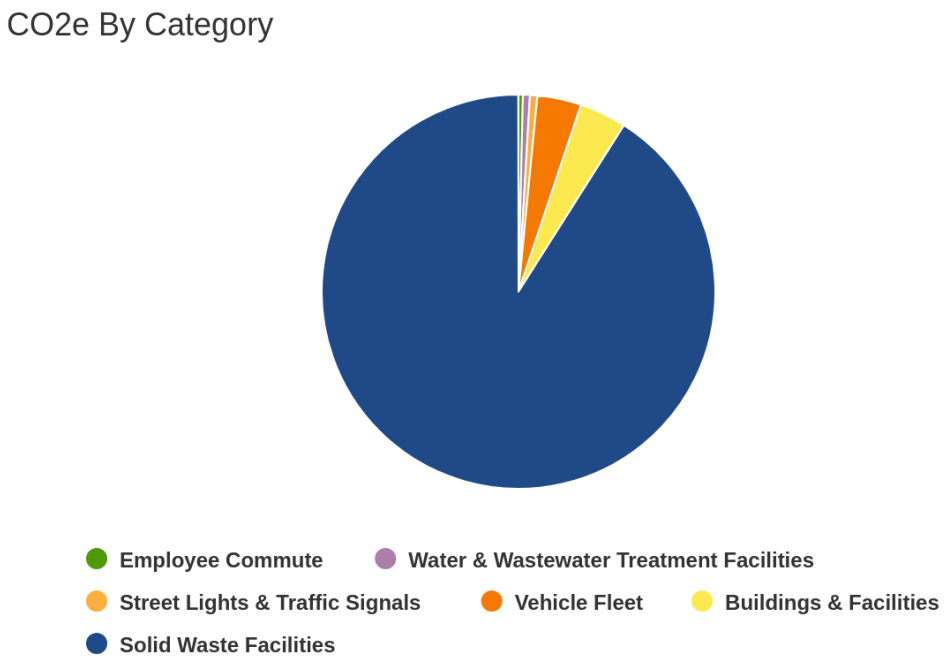


Figure 1: Town of Amenia's 2019 Local Government GHG Emissions Inventory with Solid Waste Included

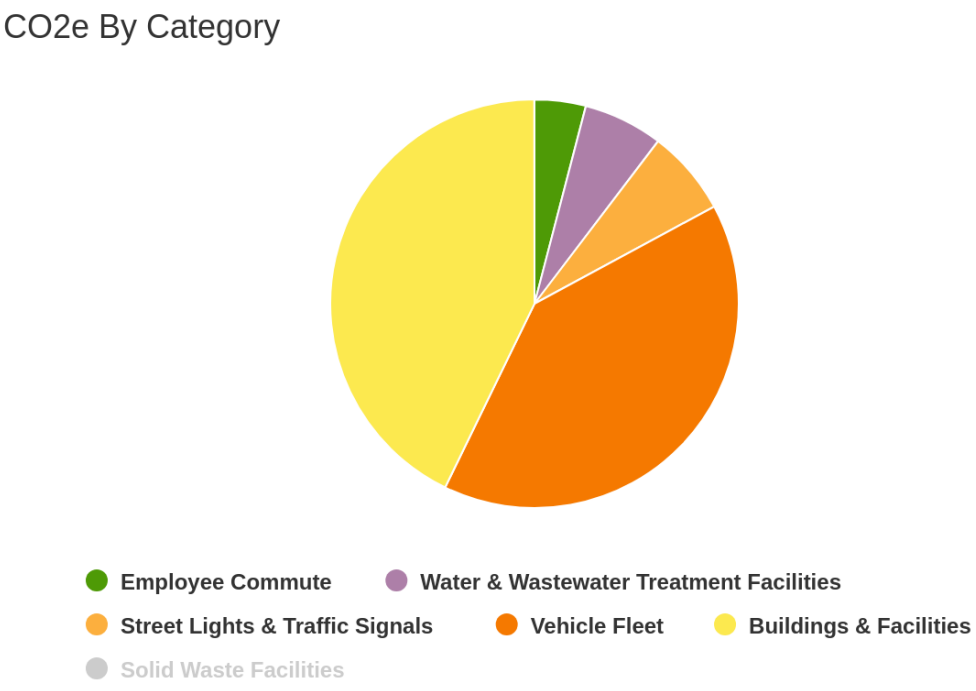


Figure 2: Town of Amenia's 2019 Local Government GHG Emissions Inventory with Solid Waste Excluded (for comparison)

Town of Amenia's Projected Local Government Operations GHG Emissions

The Town of Amenia has also completed an emissions forecast based on projections of current data and expected future trends. The emissions forecast is a "Business-As-Usual" (BAU) forecast, a scenario estimating future emissions levels if no further local action (i.e. projects within this Climate Action Plan) were to take place. The BAU forecast indicates that, if the Town of Amenia does not take action, GHG emissions will slightly decrease.

Projected Business-as-Usual Growth in GHG Emissions

The emissions shown in the projected forecast below are based on population growth, employee count projections, electricity grid decarbonization projections, and changes in automotive fuel efficiency standards. Including Solid Waste, Town of Amenia's Local Government Operations business as usual forecast shows that emissions will decrease to 2,426 MTCO2e by 2030 if no action is taken to reduce the emissions trajectory (Figure 3). This is a 2% reduction in emissions. Excluding Solid Waste, Town of Amenia's Local Government Operations business as usual forecast shows that emissions will decrease from 223 MTCO2e to 185 MTCO2e by 2030 (Figure 4). This is an 18% reduction in emissions.

Town of Amenia has set targets to reduce its local government operations emissions to 33% below 2019 levels by 2030. Figures 3 and 4 also compare the reduction target with the business-as-usual forecast.

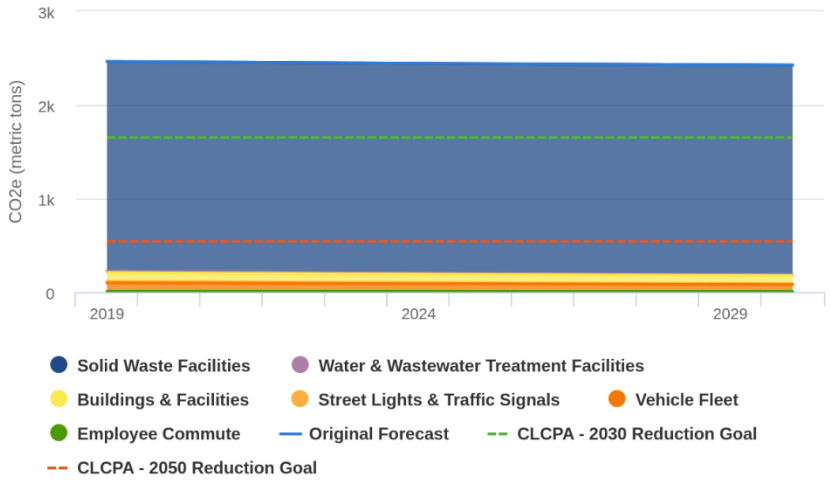


Figure 3: Projected Business as Usual Growth in GHG Emissions from 2019 to 2030 including Solid Waste.

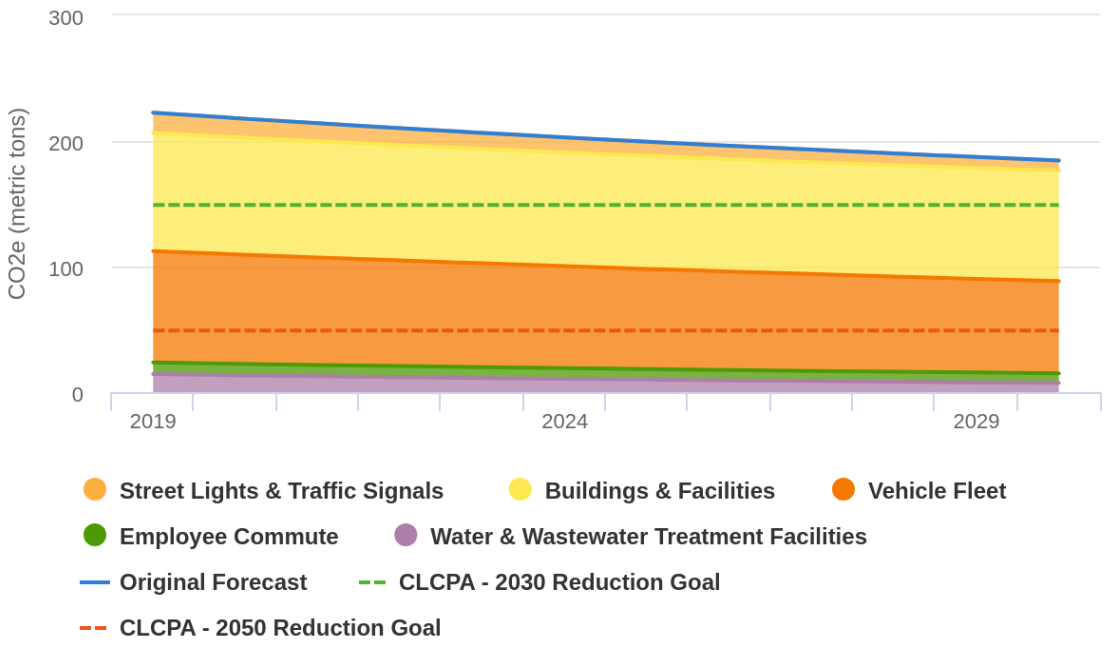


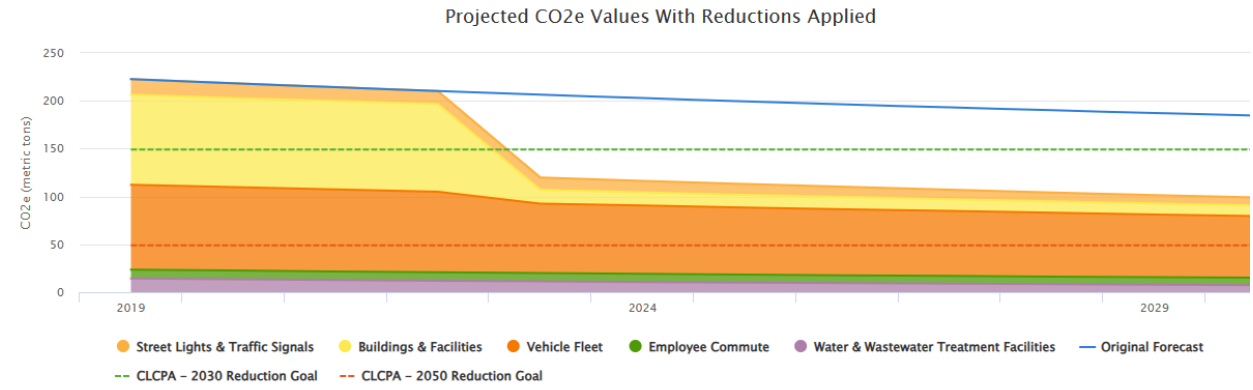
Figure 4: Projected Growth in GHG Emissions from 2019 to 2030 **excluding Solid Waste**.

Since emissions from solid waste are such a large percentage of the total emissions, The Town of Amenia's 2030 reduction goal (the green dotted line) and 2050 reduction goal (the red dotted line) are easier to see in Figure 4 than in Figure 3.

Reduction Measure Modeling

Figure 5 projects emissions to 2030 if Amenia completed the following recommended actions:

- Buildings and Facilities - Town Hall transition: complete conversion from fuel oil to heat pumps in Town Hall
- Vehicle Fleet - Gasoline Pickup Truck Electrification: Replacement of 3 current gas pickup trucks with all electric Ford F-150 Lightnings.



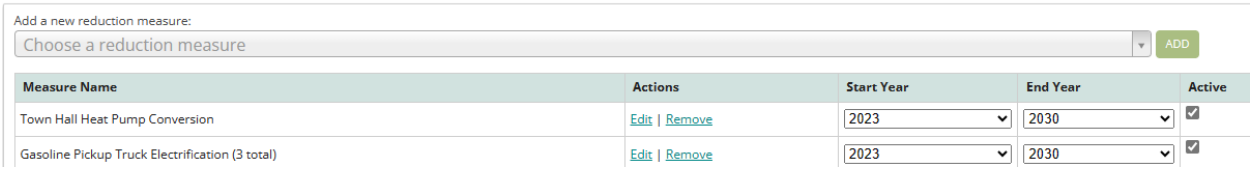


Figure 5: Emissions with reductio measures modeled.

With the implantation of these 2 recommended strategies (heat pumps in town hall and vehicle electrification of 3 gasoline pickup trucks), total emissions would go from 223 MTCO2e to 99 MTCO2e, and the Town would be able to meet its target emissions goals.

Government Operations Climate Mitigation

Emissions Reduction Focus Areas

Each of the focus areas within the Town of Amenia's Local Government Operations Climate Action Plan is explored in the following pages. In this Climate Action Plan, Town of Amenia has decided to focus their Climate Mitigation measures on the following focus areas:

Solid Waste	Buildings & Facilities	Vehicle Fleet

In each focus area, a series of objectives with supporting and prioritized strategies is outlined. An "Objective" is a goal, end result, or target that mitigates emissions in a focus area, and a "Strategy" is an action designed to help realize the objective.

The summary table below (Table 2) identifies the focus areas within Town of Amenia's Local Government Operations Climate Action Plan, the number of strategies within each focus area, and the contribution of each focus area toward the GHG reduction goal. Each focus area has a dedicated section within this document where specific actions (both new and those already employed) are described.

While the Town of Amenia local government cannot address climate change by itself, government policies and practices can dramatically reduce GHG emissions from a range of sources and help prepare Town of Amenia for the anticipated impacts of climate change. Through this plan, Town of Amenia can not only do its part toward achieving a stable climate - it can also reap the benefits of healthier air, savings on energy costs, improved government services, and many other positive side effects of reducing its carbon footprint.

Table 2: Town of Amenia Climate Action Plan Summary Table

Focus Area	Description	# of Distinct Strategies
Solid Waste	Policies and programs to reduce waste generation and landfill emissions, while promoting reuse, recycling, and green procurement	5
Buildings & Facilities	Policies and programs to reduce municipal energy usage, interfacing with local utility efforts	4
Vehicle Fleet	Policies and programs to reduce municipal vehicle fleet fuel usage, including transition to electric vehicles and other low-carbon fuel sources	5

Emissions Reduction Potential

Calculating expected emissions reductions for each objective requires making assumptions about the degree of implementation, technology, and individual behavioral changes several years into the future. The uncertainty associated with these assumptions makes it difficult to assign exact reduction totals to each objective or strategy. To address this uncertainty and provide a simple but useful reference for reduction potential, each strategy has an associated high, medium or low emission reductions potential associated with it.

Co-Benefits of Climate Protection Measures

In addition to measuring the GHG reduction potential, each strategy is also evaluated for other benefits such as public health, equity and justice, jobs and prosperity, and environmental conversation. The symbols below will indicate which co-benefits a measure will generate.

Table 3: Co-Benefit Symbols

Symbol	Co-Benefit
	High potential to save money
	High potential to enhance resource security
	High potential to create jobs
	High potential to improve public health
	High potential to deliver benefits to frontline communities

1. Saving Money

In addition to addressing climate change, measures taken to reduce GHG emissions have other important benefits, such as the potential for significant cost savings. Many of the measures in this plan pay for themselves quickly by reducing direct costs, such as fuel or energy used, as well as indirect costs such as maintenance. For instance, a "right-sized" vehicle fleet is less expensive to purchase and fuel, while also being less costly to maintain.

Improving energy efficiency, encouraging public transit use, installing on-site renewables, and other measures will also result in lower energy and water bills for the Town of Amenia. Acting now will also save on runaway costs of climate change, especially in the longer term, such as from infrastructure damage from more frequent and intense extreme storms.

2. Enhancing Resource Security

A key strategic side benefit of climate change mitigation activities is enhanced energy security through a reduction in total demand. This will put less strain on the energy system as a whole as we transition to clean renewable energy. Many of the actions identified here to mitigate GHG emissions will also help the Town of Amenia's government adapt to a changing climate. For example, extreme and prolonged heat

waves can put considerable strain on the reliability of energy delivery in peak periods, possibly leading to service disruption during times when cooling is most needed. By increasing efficiency across the Town of Amenia's facilities, such service disruptions are less likely, and the Town of Amenia will be able to better cope with those situations.

3. Creating Jobs

The renewable energy industry has become a leading sector in job growth. In 2018, clean energy employment rose 3.6%, and the U.S. Bureau of Labor Statistics expects solar installers and wind technicians to be the two fastest-growing jobs through 2026. Energy efficiency jobs are also growing rapidly. These climate protection measures in this plan can spur business and job growth during the design, manufacture, and installation of energy-efficient technologies and other green sectors. This presents a particular opportunity to reinvest in the local economy and generate green jobs within the Town of Amenia.

4. Improving Public Health

Climate change mitigation activities, particularly those related to transportation, help to clean the air by reducing vehicle emissions and therefore improve public health throughout the community. Transportation mitigation strategies often focus on encouraging the use of active transportation, such as biking and walking, to get to work. Town of Amenia employees who increase their use of active transportation will benefit from a healthier lifestyle.

5.Delivering Benefits to Frontline Communities

Social equity is a major concern for addressing climate change. Research shows that vulnerable populations such as the elderly or chronically ill, low-income families, and people of color are more at risk when it comes to experiencing the impacts of climate change. These communities already experience institutional and systematic oppression that results in less access to resources, capital, and services. Climate change exacerbates these gaps. By targeting programs and making changes to services or infrastructure before extreme events happen, we can mitigate the most devastating impacts on already vulnerable populations.

Climate Action Objectives

Buildings and Facilities

Town of Amenia's few buildings are powered by electricity and fuel oil. The consumption of fossil fuels for heat and energy on-site contributes directly to the government's emissions, and the electricity used for lighting, heat and other operations is generated from burning fossil fuels as well.

Improving the efficiency of Town of Amenia's buildings and infrastructure will contribute significantly to achieving the town GHG reduction targets while saving the government money on utility bills and reducing the need for new infrastructure. The objectives in the table below focus on opportunities to retrofit existing facilities and road safety infrastructure and aim to ensure that future management and planning of these operations is compatible with the local government and community climate protection goals. See Appendix IV for additional details and supporting strategies.

Table 4: An overview of Buildings & Facilities strategies, co-benefits, and reduction potential.

Objective	Supporting Strategies	Co-Benefits	Reduction Potential
[1] Improve energy efficiency of government buildings	[1.1] Conduct energy audit of Town Hall		Medium
[1] Improve energy efficiency of government buildings	[1.2] Assess current heat management system.		Medium
[1] Improve energy efficiency of government buildings	[1.3] Install heat pumps in Town Hall		High
[1] Improve energy efficiency of government buildings	[1.4] Install light occupancy sensors in Town Hall		Low

Objective: Improve energy efficiency of government buildings.
Lead Actors: Building Department / Town Supervisor's Office

1.1 Conduct building energy audit. (Complete)

An energy audit is beneficial for understanding which energy efficiency measures would have the greatest impact towards GHG emissions and cost reduction goals. Since initiating this Plan, 100% of Town Hall has been audited. This level 1+ audit was completed in November, 2023

- KPI: % of Town Hall audited.
- Co-Benefits:

- The audit itself will not save money, but it will allow Amenia to make informed decisions about measures that will save energy and money moving forward.
- Reduction potential: The audit itself will not reduce emissions, but the recommendations from it will.

1.2 Assess current heat management system.

The current building heating management system in Town Hall manages the temperature in rooms to be consistent with their needs and purpose. It is currently not functioning correctly. For example, it wastes energy heating rooms that do not need it, such as basements. It is recommended to bring the original installers back to address the functional issues. It is not recommended to install a more sophisticated Building Energy Management System at this time due to cost issues.

- KPI: adjustment to current heat management system
- Co-Benefits: Adjusting issues will lower energy bills.
- Reduction potential: Improving the efficiency of the system should reduce emissions.

1.3 Transition to heat pumps in Amenia Town Hall

Amenia's Town Hall currently uses fuel oil for some if its heating. However, some heat pumps have been and continue to be installed. At present there are 9 heat pumps installed. Of the total square footage of the building (25,000) 4,156 square feet are conditioned by heat pumps. Continuing the transition to heat pumps will further decrease overall emissions from the Buildings & Facilities sector.

The Town Hall is also classified as a Red Cross emergency cooling center. Funds from NYSERDA's Clean Energy Communities (CEC) program and a Local Champion grant have been received for potential use towards additional heat pumps, and The Town is applying for additional federal CPRG grant funding through HVRC's cohort application.

Next steps include assessing the electrical capacity required and what electrical upgrades may be needed to support the additional electrical load from the heat pumps.

- **KPI**: # of heat pumps installed.
- **Co-Benefits:**
  - Reduce dependence on outside fuel sources, such as fuel oil, increases resource security.
  - Heat pumps are initially costly, but they will reduce heating costs over time. The initial cost may also be mitigated by grants.
  - Heat pumps not only provide heating for the town hall, but also cooling. As the Town currently doesn't have any cooling this would be an important resiliency measure. Town Hall is currently designated emergency center, and it houses many programs for seniors, so providing a cool place to gather during a heat wave is important for human health as temperatures and extreme heat rise due to climate change.

- Reduction potential: The majority of emissions from the buildings and facilities sector comes from heating Town Hall. ClearPath shows dramatic emission reductions after switching to heat pumps.

1.4 Install light occupancy sensors in Town Hall.

This action is recommended to reduce unnecessary electricity usage towards lighting.

- **KPIs:** # of sensors installed, # of buildings under management
- **Co-Benefits:** The completion of a new project employs local businesses and reduces unnecessary lighting expenses, lowering the electricity bill.
- **Reduction potential:** Lighting is ultimately a low contributor to overall carbon emissions, so its reduction potential is low.

Vehicle Fleet

Town of Amenia owns and operates a suite of government vehicles, ranging from passenger cars to large construction equipment. Besides emitting GHGs, transportation fuels such as gasoline and diesel also produce a host of criteria air pollutants when combusted, reducing local air quality and affecting residents' health.

The majority of emissions from the Vehicle Fleet category come from the use of diesel as shown in figure 6. Transitioning the municipal vehicle fleet to electric vehicles (EVs) and other low-carbon fuel sources will contribute significantly to achieving Town of Amenia's GHG reduction targets while saving the government money on fuel costs and improving local air quality. Since diesel has even higher GHG emissions factor than gas, transitioning its diesel fleet to electric can provide the town with significant GHG reductions over time.

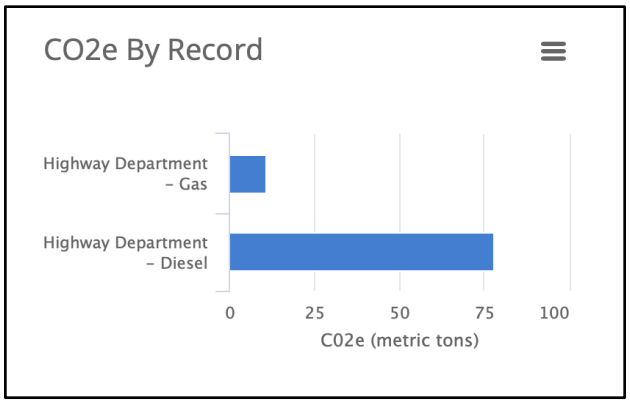


Figure 6: GHG emissions from the Vehicle Fleet broken out by gas vs diesel.

The objectives in the table below focus on opportunities to use more efficient vehicles and to electrify the vehicle fleet and aim to ensure that future activities in the sector are compatible with the local government and community climate protection goals. See Appendix IV for supporting strategies.

Table 5: An overview of Vehicle Fleet strategies, co-benefits, and reduction potential.

Objective	Supporting Strategies	Co-Benefits	Reduction Potential
[2] Increase fleet efficiency	[2.1] Adopt fleet efficiency policy		Medium
[2] Increase fleet efficiency	[2.2] Conduct fleet inventory		Low
[2] Increase fleet efficiency	[2.3] Install EV infrastructure		Low
[2] Increase fleet efficiency	[2.4] Replace traditional vehicles with advanced vehicles		High

Objective: Increase fleet efficiency
Lead Actors: Town Supervisor's Office / Town Board of Trustees / Department Heads

2.1 Adopt fleet efficiency policy.

The fleet efficiency policy should prioritize EV or PHEV purchases. This is recommended within limits given the Highway Department's control over town vehicles. Amenia can recommend switching to EVs and update the Comprehensive Plan with the recommendation and conservation goals.

- **KPIs**: adoption of policy, # of gallons saved, # of vehicles converted to electric
- **Co-Benefits**: Make Amenia less dependent on gasoline and diesel, saving energy and money.
- **Reduction potential:** Most of Amenia's vehicle fleet sector emissions come from its gasoline and diesel trucks. Putting in place a policy that incentivizes EVs would significantly reduce emissions over time.

2.2 Conduct a fleet inventory.

Maintaining an updated fleet inventory allows Amenia to make educated decisions about its fleet and provides necessary information for Climate Smart Communities opportunities. It is recommended the inventory be updated annually.

- **KPI**: adoption of a fleet inventory policy (updated annually).
- **Co-Benefits**: This action provides information necessary to qualify for Climate Smart Communities opportunities, which offer grants for energy-saving measures.
- **Reduction potential:** Maintaining a fleet inventory alone will not reduce emissions. It is the backbone to electrifying vehicles and qualifying for grants to reduce emissions.

2.3 Install EV infrastructure.

Amenia received an $82,000 grant eight months ago from the ZEV Infrastructure Grant. The project includes a public charging station at the rail trail a block from downtown. Installation is currently at a standstill and requires additional attention to be completed.

- **KPI**: station installed; # stations installed
- **Co-Benefits**: Installing charging stations employs new businesses and increases the likelihood of EVs being purchased by the Town and by community members. More EVs leads to Amenia being less dependent on gasoline and diesel, which saves energy and money.

2.4 Replace traditional vehicles with advanced vehicles.

Diesel trucks represent most of vehicle fleet emissions. While replacing them with electric options is expensive and out of the question now, there is potential to use them in the future. Grants are available to assist with their purchase, and this strategy aligns with a charging station planned for downtown.

- **KPI**: # vehicles bought.
- **Co-Benefits:** Amenia is less dependent on gasoline and diesel, saving energy and money.
- **Reduction potential**: As diesel trucks represent the majority of vehicle emissions, efforts to electrify would have the greatest reduction.

Natural Resources

Table 6: An overview of Natural Resources strategies, co-benefits, and reduction potential.

Objective	Supporting Strategies	Co-Benefits	Reduction Potential
[3] Implement climate-smart land use	[3.1] Conduct open space inventory		Low
[3] Implement climate-smart land use	[3.2] Restore, preserve, and acquire natural areas		Medium
[3] Implement climate-smart land use	[3.3] Convert to low mow/low maintenance policies		Low

Objective: Implement climate-smart land use

Lead Actors: Office of the Supervisor / Parks & Recreation / Conservation Advisory Council

3.1 Conduct open space inventory.

An Open Space Plan allows policy makers to make informed land-use and conservation decisions. Amenia completed a Natural Resource Inventory in 2013. An Open Space Plan can complement that Inventory.

- **KPI:** completion of Open Space Plan
- **Co-Benefits**: Conducting an open space inventory facilitates the protection and management of open spaces, which is beneficial to public health and well-being.
- **Reduction potential:** Using the inventory to preserve natural spaces would be beneficial for absorbing carbon and lowering emissions.

3.2 Protect natural areas and farmland.

The Town of Amenia is already writing letters of support for family farms to purchase the development rights on their property so they can reinvest in new types of business. Switching the use of the land on Family farms, for example from dairy to yogurt production, could help keep farmers in business and preserve their farms and natural areas. This project is underway but requires additional support and must be directly included in the Comprehensive plan.

- **KPIs**: # farms able to transition business models, acres of land stabilized.
- **Co-Benefits**:
- This strategy directly aims to improve the success of local businesses by reinvesting and expanding into new markets.
- Family farms are at risk of losing their businesses and profitability in face of land development and climate change related weather shifts. Enabling them to expand their businesses is a direct benefit.
- **Reduction potential**: Preventing additional development on farmers' property allows carbon to be absorbed through existing vegetation. This strategy will not significantly reduce emissions but will act as a counterbalance to potential additional carbon emissions.

3.3 Convert to low mow / low maintenance

While this strategy may not be feasible now, it is recommended to convert to a low-mow schedule. Land used infrequently, such as soccer fields, could be mowed fewer times a year. Other spaces could be landscaped differently to reduce the amount of land that needs to be mowed. Other spaces could be mowed every other week or every month, for example, depending on their use.

- **KPI**: # of times a year land is mowed.
- **Co-Benefits:** Reducing the amount of space and the frequency with which land is mowed reduces landscaping expenses, fuel and electricity.
- **Reduction potential**: As the Town of Amenia does not track fuel usage from landscaping equipment the total reduction potential is unknown.

Solid Waste

Government-produced waste generates GHGs in a number of ways. Over time, landfilled waste breaks down through anaerobic decomposition, releasing large amounts of methane into the atmosphere. Waste management contributes to emissions in the transportation sector as well, from the hauling of waste to and from facilities. Additionally, embodied energy within the items that we throw away might be harnessed through reuse and recycling of materials.

It is in Town of Amenia's long-term interest to implement waste reduction programs, expand recycling facilities and enable re-use of construction materials and other goods. The objectives in the table below focus on opportunities to reduce waste, reuse materials, and recycle what cannot be reused, and it

aims to ensure that future activities in the sector are compatible with the local government and community climate protection goals. See appendix IV for supporting strategies.

Table 7: An overview of Landfill & Solid Waste strategies, co-benefits, and reduction potential.

Objective	Supporting Strategies	Benefits	Reduction Potential
[4] Increase recycling	[4.1] Implement metal recycling program		Low
[4] Reduce Waste	[4.2] Implement waste reduction campaign		Low
[4] Encourage eco-friendly purchases	[4.3] Implement environmentally friendly purchasing policy		Medium
[4] Manage land to reduce emissions	[4.4] Install solar on landfill		High
[4] Manage land to reduce emissions	[4.5] Install pollinator garden on landfills		Low

Objective: Increase recycling
Lead Actors: Office of the Supervisor / Town Board of Trustees

4.1 Implement metal recycling program

- Implementing a metal recycling plan involves a town resident bringing the waste to South East recycling center and being compensated for their labor. The town waste disposal will also be involved, as they are providing the waste receptacle. Amenia can provide a free extra dumpster where people can bring metal waste. A volunteer can take the dumpster to the South East recycling center annually and receive the accompanying credit. Efforts to collect and dispose of food waste could result in a higher carbon footprint than current methods of disposal. However, promoting proper recycling practices is recommended for all government buildings.
- **KPI**: amount of metal recycled
- **Co-Benefits:**
    - A metal recycling program would reduce waste and be cost effective, and benefit public health.
    - Removing metal waste is likely to have a positive impact on public health as well, by properly recycling potentially harmful metals

    - Removing metal waste also may remove a potential threat to frontline communities.
- **Reduction potential**: Properly reducing metal waste is a low-impact item. It will assist with proper recycling practices but will not dramatically reduce emissions.

Objective: Reduce Waste
Lead Actor: Office of the Supervisor

4.2 Implement waste reduction campaign in government buildings
This strategy is recommended for government employees and in government owned buildings. It is a low-cost, low-effort way to increase consciousness about the negative effects of various materials such as metal, plastic, paper, food, etc.
- **KPI**: change in waste over time (start and end estimate)
- **Co-Benefits:**
    - Waste reduction saves money.
    - Reducing waste reduces the likelihood of adverse health effects from improperly disposed or handled waste. Reducing waste can also lead to smarter purchasing practices.
    - Reduction potential: Since this action involves relatively few people, the overall emissions reduction potential is low.

Objective: Encourage eco-friendly purchases
Lead Actor: Office of the Supervisor

4.3 Environmentally friendly purchasing policy, such as GreenNY.
It is recommended to use the GreenNY database when looking to buy new items. The GreenNY database analyzes emissions associated with the manufacturing, transportation, installation, and maintenance and products, materials and technologies and recommends more eco-friendly purchases.
Amenia is not required to exclusively buy from the database as the use of it as a searching mechanism satisfies the strategy.
- **KPI:** adoption of policy
- **Co-Benefits:** Purchases made using GreenNY are designed to be energy efficient, ultimately saving money and time.
- **Reduction potential:** Implementing the policy by itself does not have an impact, but purchasing materials and technology through GreenNY reduces emissions.

Objective: Manage land to reduce emissions
Lead Actors: Office of the Supervisor / Town Board of Trustees / Conservation Advisory Council / Parks & Recreation

4.4 Solar and biofilters on landfill caps

Installing solar panels and biofilters on Amenia's closed landfill would provide renewable energy for the grid and can help reduce landfill methane emissions. The cost of installation and connecting to power lines for solar are important considerations, but the overall benefits of solar are substantial. If Amenia partnered with a community solar provider and leased out the land, the cost decreases dramatically, and the solar project would generate continued revenue for the Town. Biofilters are a low-cost method of dramatically reducing landfill emissions. The Town is applying for grant funding for landfill biofilters.

KPIs: # panels installed; amount of energy generated

Co-Benefits:

- Installing solar panels reduces the strain on the grid and potentially creates new jobs. After the initial cost and upkeep, solar panels provide electricity for Amenia and excess can be sold for profit. Generating its own electricity reduces Amenia's dependence on fossil fuels. A community solar project could also provide electricity cost savings for local residents.
- Using renewable energy sources improves public health.
- Using solar may lower energy bills for frontline communities.

4.5 Install pollinators on landfill

Creating pollinator gardens on top of the landfill and among the solar panels is beneficial for ecosystem stability and land management.

KPIs: square feet covered, % of area covered, estimated number of pollinators and plant species present.

Co-Benefits:

- The installation and maintenance of a pollinator garden may involve local businesses.
- The creation of a pollinator garden strengthens surrounding ecosystems. It is also a low-effort form of landscaping that would not require regular mowing or maintenance, reducing potential carbon emissions.
- Protecting natural spaces has a positive impact on public health.

- **Reduction potential:** This action does not directly reduce emissions. The creation of more green space does have a positive effect on absorbing carbon and can indirectly counterbalance emissions.

Implementation and Monitoring Plan

The following implementation plan prioritizes actions by year.

Timeline for Action - Completion Year	2025	2026	2027	2028	2029	2030
BUILDINGS AND FACILITIES						
Conduct Energy Audit of town Hall	X					
Assess current heat management system	X					
Install heat pumps in Town Hall	X	X	X	X		
Install light occupancy sensors in Town Hall		X	X			
TRANSPORTATION						
Adopt a fleet efficiency policy	X	X				
Conduct a fleet inventory	X					
Install EV chargers for municipal fleet	X	X		X	X	
Replace traditional vehicles with advanced vehicles.	X	X	X	X	X	X
NATURAL RESOURCES (INCLUDES WATER / WASTEWATER)						
Conduct an open space inventory		X	X			
Restore, preserve, and acquire natural areas		X	X	X	X	X
Convert to low mow/low maintenance policies	X	X				
SOLID WASTE						
Implement metal recycling program	X	X				
Implement waste reduction campaign		X	X			
Implement environmentally friendly purchasing policy	X					
Install solar on landfill	X	X				
Install pollinators on landfill		X	X	X	X	X

While some of the actions within the Town of Amenia's Local Government Operations Climate Action Plan are underway, the Town of Amenia will continue to engage with stakeholders in further refining and implementing the actions that have not been completed. Once the Plan is adopted by the Trustees, next steps include to:

- Disseminate the GOCAP to the relevant Town departments and review each of the strategies, assign organizational responsibility to relevant department owners and initiate a process for implementation with key stakeholders.
- Identify staff and key sources of funding, where not already mentioned.
- Gather bids for contracted services and equipment where necessary.
- Ongoing outreach efforts to key stakeholders and community members.

Establishing an implementation and monitoring process enables Town of Amenia to track the impacts of the actions included in the plan and compare estimated impacts to what is achieved in terms of energy savings, renewable energy production, and GHG emissions reduction. Assessing the implementation status of the actions will allow for the determination of whether the action is performing well or to identify corrective measures. This process is also an opportunity to understand the barriers to implementation and identify best practices or new opportunities for moving forward.

The table below describes the components of monitoring. Action reports are to be developed every two years and will only include status updates on the overall strategy and the mitigation action plan. A full monitoring report will be developed every four years, and in addition to the components in the action report, it will include an updated local government operations GHG inventory. This table will help the Town of Amenia track its GHG emissions reduction progress. With the approval of this Local Government Operations Climate Action Plan in 2024, the first monitoring action report will be due in 2026, and the first full monitoring report with the updated GHG inventory will be due in 2028. Ideally, the most recent GHG inventory should be no more than four years old.

Table 8: Monitoring Status

Monitoring Report Component	Action Reporting	Full Reporting
Overall Strategy: Reporting any changes to initial strategy as well as updated information on human and financial resources	Yes	Yes
GHG Emissions Inventories: Provide updated energy consumption and GHG emissions data for the reporting year	No	Yes
Mitigation and Adaptation Action Plans: Report the implementation status (completed, in progress, on hold) of key actions and update their impacts	Yes	Yes

Appendix I: Town of Amenia LGO GHG 2019 Inventory

The Town of Amenia completed a Government Operations GHG Inventory report in 2023 through its participation in the Dutchess Climate Action Planning Institute cohort. The Town's inventory showed that its buildings and facilities, municipal fleet, and especially its municipal landfill were the largest source of emissions. For more information, see the Town of Amenia's 2019 GHG Emissions Inventory Report, found on the Town of Amenia's municipal website.

Appendix II: Climate Change Science

To plan for climate change, the Town of Amenia must first understand the changes it is likely to experience. Town of Amenia worked with leading climate scientists to identify likely changes from today through the next century. The following climate projections were identified:

- Rising temperatures & heat waves
- Sea level rise
- Extreme weather, with increased rainfall and severe storms

The Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report affirms that "warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level."[1] Researchers have made progress in their understanding of how the Earth's climate is changing in space and time through improvements and extensions of numerous datasets and data analyses, broader geographical coverage, better understanding of uncertainties and a wider variety of measurements.[2] These refinements expand upon the findings of previous IPCC Assessments – today, observational evidence from all continents and most oceans shows that "regional changes in temperature have had discernible impacts on physical and biological systems."

[1]. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K Pachauri, and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp

[2]. IPCC, 2014: Summary for Policymakers. In: Climate Change 2014: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

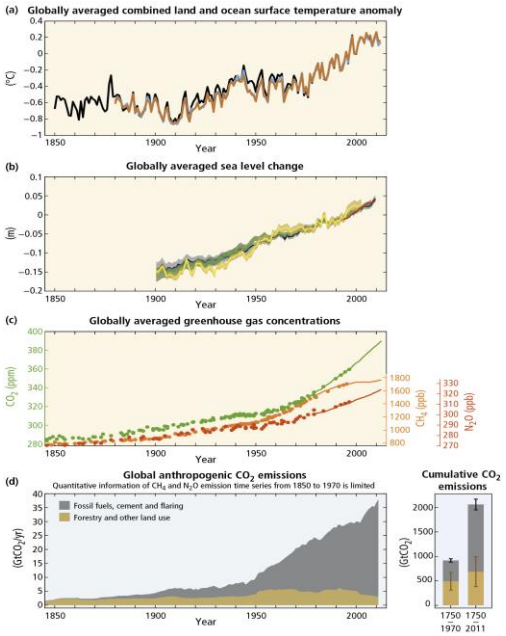


Figure B1: Observations and other indicators of a changing global climate system[3]

The Fifth Assessment asserts that "it is *extremely likely* that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forces. Globally, economic and population growth continue to be the most important drivers of increases in CO_2 emissions from fossil fuel combustion. Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions".

In short, the Earth is already responding to climate change drivers introduced by mankind.

[3]. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K Pachauri, and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp

Temperatures and Extreme Events are Increasing Globally

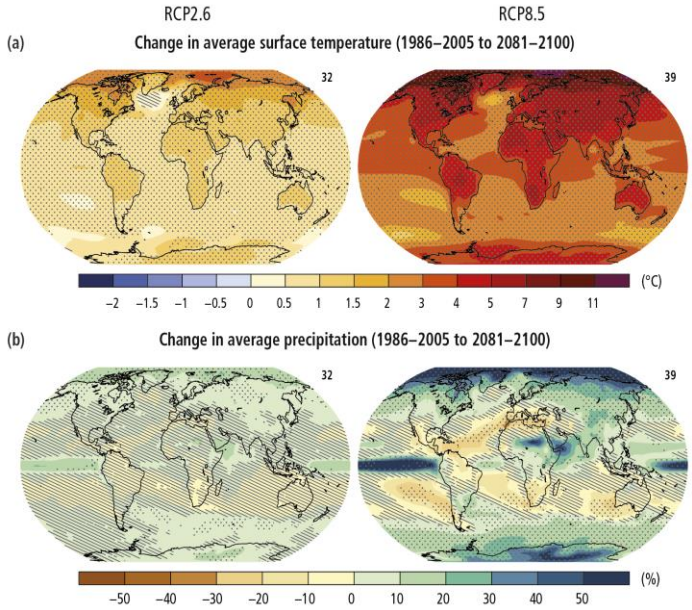


Figure B2: Change in average surface temperature (a) and in avg precipitation (b) based on multi-model mean projections for 2081–2100 relative to 1986–2005 under the RCP2.6 (left) and RCP8.5 (right) scenarios.

Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise. Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels, and an increase in the number of heavy precipitation events in a number of regions.[4]

Climate Risks

Climate change is expected to cause significant negative effects on food security. Due to projected climate change by the mid-21st century and beyond, global marine species redistribution and marine biodiversity reduction in sensitive regions will challenge the sustained provision of fisheries productivity and other ecosystem services. For wheat, rice and maize in tropical and temperate regions, climate change is projected to negatively impact production under local temperature increases of 2°C or more above late 20th century levels, although in some cases individual locations may benefit. Global temperature increases of ~4°C or more above late 20th century levels, combined with increasing food demand, would pose drastic risks to food security globally. Climate change is projected to reduce

[4]. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K Pachauri, and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp

renewable surface water and groundwater resources in most dry subtropical regions, intensifying competition for water among sectors.

Until mid-century, projected climate change will impact human health mainly by exacerbating health problems that already exist. Throughout the 21st century, climate change is expected to lead to increases in ill-health in many regions, particularly in developing countries. Health impacts include greater likelihood of injury and death due to more intense heat waves and fires, increased risks from foodborne and waterborne diseases and loss of work capacity and reduced labor productivity in vulnerable populations. Risks of undernutrition in poor regions will increase. Risks from vector-borne diseases are projected to generally increase with warming, due to the extension of the infection area and season, despite reductions in some areas that become too hot for disease vectors.

In urban areas, climate change is projected to increase risks for people, assets, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges. These risks are amplified for those lacking essential infrastructure and services or living in exposed areas. Rural areas are expected to experience major impacts on water availability and supply, food security, infrastructure and agricultural incomes, including shifts in the production areas of food and non-food crops around the world.

Climate change is projected to increase displacement of people. Populations that lack the resources for planned migration experience higher exposure to extreme weather events, particularly in developing countries with low income. Climate change can indirectly increase risks of violent conflicts by amplifying well-documented drivers of these conflicts such as poverty and economic shocks.[5]

Regional and Local Impacts

Because the impacts of climate change vary geographically, it is important to know what effects are specifically expected for your corner of the globe.

Insert specific local impacts here; use regional or local climate vulnerability assessments.

[5]. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K Pachauri, and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp

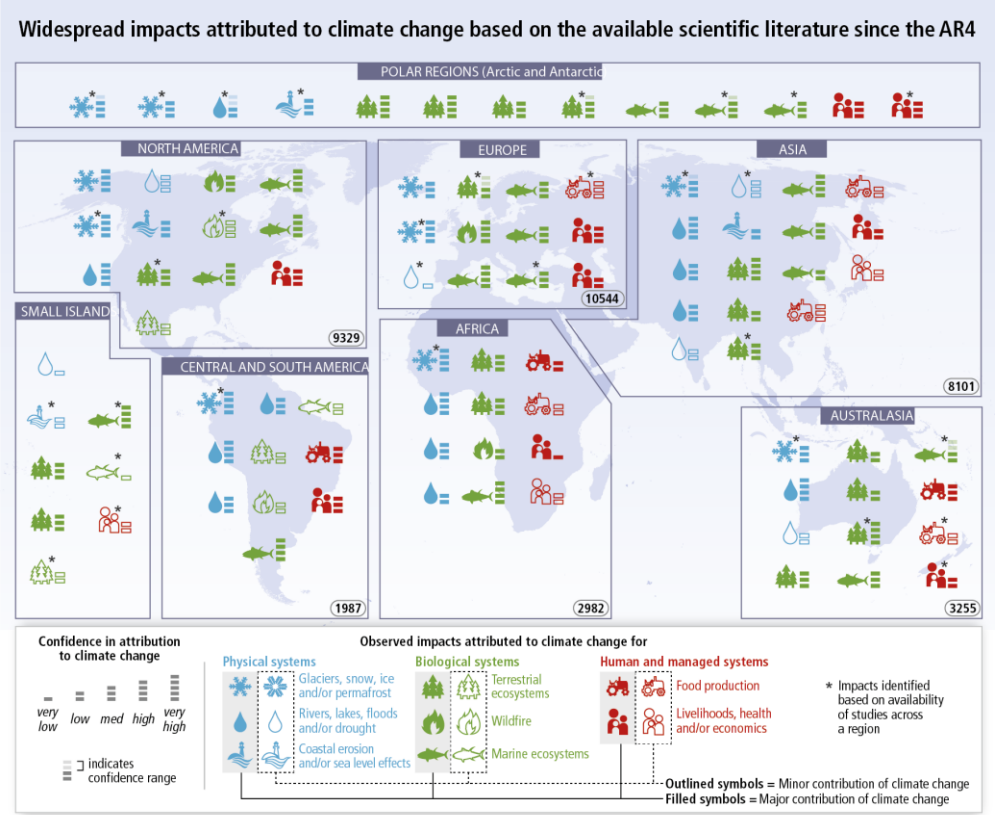


Figure B3: Climate impacts around the world. Symbols indicate categories of attributed impacts, the relative contribution of climate change (major or minor) to the observed impact and confidence in attribution.

Numbers in ovals indicate regional totals of climate change publications from 2001 to 2010, based on the Scopus bibliographic database for publications in English with individual countries mentioned in title, abstract or keywords (as of July 2011). These numbers provide an overall measure of the available scientific literature on climate change across regions; they do not indicate the number of publications supporting attribution of climate change impacts in each region. Studies for polar regions and small islands are grouped with neighboring continental regions.[6]

[6]. IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K Pachauri, and L.A. Meyer (eds.)]. Geneva, Switzerland, 151 pp