

Buffalo Heritage Carousel, Inc. purchased the DeAngelis Carousel in 2016 with the premise of bringing it back to Buffalo as a catalyst and model for STEM programming. When it was manufactured in North Tonawanda in 1924, it was in some ways the height of technology for amusement park rides. The DeAngelis Carousel still is today, as the roundhouse and surrounding boardwalk are completely powered by solar panels, producing more electricity than it uses.

"We're honoring the past while showing our future by tying this piece of history to solar energy," says Executive Director Carima El-Behairy. "Our goal was to have a hands-on learning environment. You don't know you're learning when you're in here, and that's the best way to teach."





Why Erie County Needs to Take Climate Action

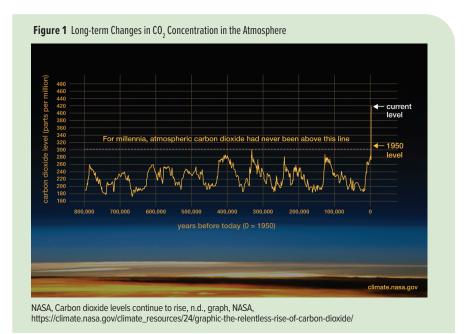
he consequences of climate change are all around us. Warmer lake temperatures are causing more intense storms while high wind speeds, Lake Erie seiche events, and extreme temperature events are becoming more common. In 2022, the United States experienced \$165 billion in weather and climate disasters, the third highest amount ever.1 Erie County, like the rest of the world, is faced with the threat of a climate emergency, which is compounding the long-standing challenges of economic inequality and racial injustice. The most recent Intergovernmental Panel on Climate Change (IPCC) report, an international scientific assessment of the threats presented by climate change, was released in 2022 and indicates that the window in which to act and reduce the intensity of climate change impacts is rapidly shrinking.2

Earth's average temperature is warming due to increases in greenhouse gas (GHG) emissions being released into the atmosphere from human activities, which will continue increasing the temperatures on our planet for thousands of years. This warming of the Earth's atmosphere is driving rapid changes in our climate. Although cycles of warming and cooling throughout Earth's history are natural, the National Aeronautics

and Space Administration (NASA) (Figure 1) and the U.S. Global Change Research Program (Figure 2) show a notable, recent increase in the amount of carbon dioxide and other GHGs being released into the atmosphere.

GHG emissions are predominantly associated with the burning of fossil fuels for generating electricity, fueling transportation, space heating, and industrial processes. The increased concentration of GHGs in our atmosphere indicates that humans are severely altering the Earth's climate system.

Human activities that produce GHG emissions are changing our climate in a way that dramatically alters trends in weather, which affects all aspects of our lives, such as how we build houses and how we grow food. Erie County has already seen the impacts of climate change as Lake Erie warms and more frequent and intense storms impact our local environment, health, safety, infrastructure, and economy. It is important to note that these changes also have devastating impacts on our natural environment, resulting in altered



ecosystems, mass migrations, and mass extinctions of both plant and animal species. For every degree of average global temperature warming, the rate of species extinction increases further.

But there is hope and opportunity. Erie County alone cannot prevent the climate from changing, but action and support from the state, federal, and local governments, together with community residents and local businesses both here in Erie County and around the globe, can make a significant contribution towards limiting worldwide GHG emissions. Because the effects of climate change are already being experienced, we must also prepare ourselves to be more resilient to current and future impacts.

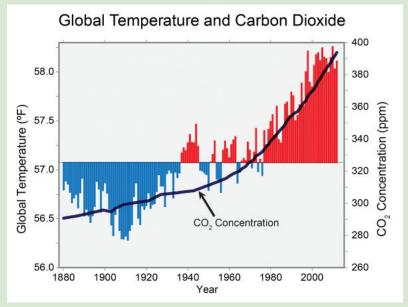
This Erie County Community Climate Action Plan (CCAP or "the Plan") is focused on creating opportunities to address climate change while also protecting our residents, creating jobs, protecting productive farmland, and addressing issues of inequity. The Plan outlines goals, strategies, and actions that the County can take, whether directly or indirectly, to address this important issue. Additionally, the Plan was developed with assistance from stakeholders with significant community input. In order to be inclusive of the Community's ideas of how to address climate change, the Plan is comprehensive and aspirational.

Background

Erie County has a long history of working to protect the environment, especially around issues of water quality protection. The County's work addressing climate change began in earnest in 2015 with the hiring of a Sustainability Coordinator and the creation of a Green Team, which includes representatives from all County departments, to reduce the climate impact of the County's internal operations.

In 2017, the County Executive issued an order directing all County departments to aggressively reduce GHG emissions. Erie County's Climate Action & Sustainability Plan (CASP), adopted in

Figure 2 Changes in CO₂ and Temperature Since 1880



Karl et al., Global Temperature and Carbon Dioxide, 2009, graph, US Global Change Research Program, https://www.globalchange.gov/browse/multimedia/global-temperature-and-carbon-dioxide

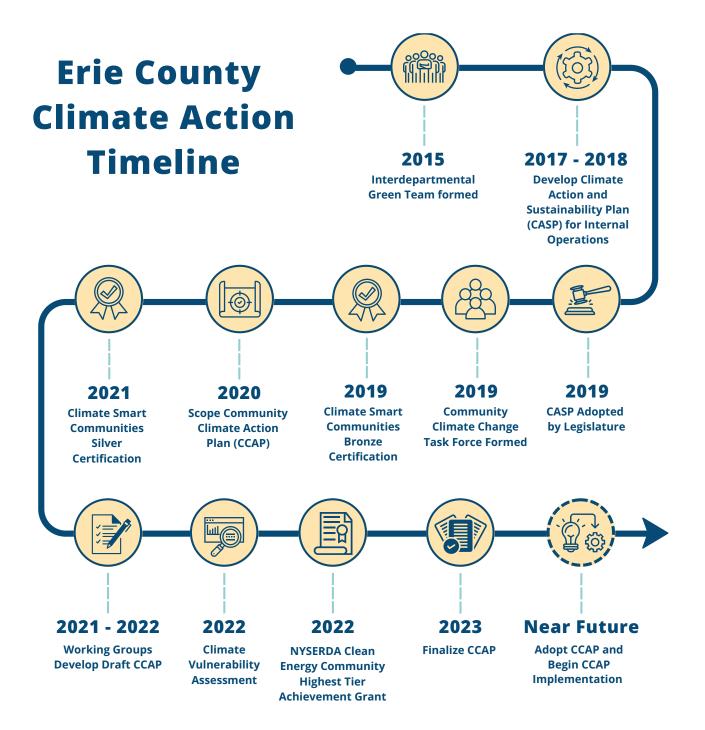


Damage from seiche event at Times Beach Photo credit: Jay Burney

January 2019, was written primarily to reduce the carbon footprint of the County's internal operations.³ Erie County has since been implementing the CASP and was recognized both nationally and state-wide as a leader on climate action, receiving designation as a Certified Silver Climate Smart Community and a Clean Energy Community.⁴

To better address climate change and reduce GHG emissions in the community, Erie County formed the Community Climate Change Task Force ("Task Force") as the official advisory board on

the issue and established Erie County Climate Action as the County's planning process to create this equity-focused CCAP. The Task Force is a committee of the Erie County Environmental Management Council (ECEMC), which advises the County on environmental issues, and includes representatives from community-based organizations, nonprofit organizations, youth groups, colleges, municipalities, business representatives, transportation organizations, a utility company, libraries, and museums.



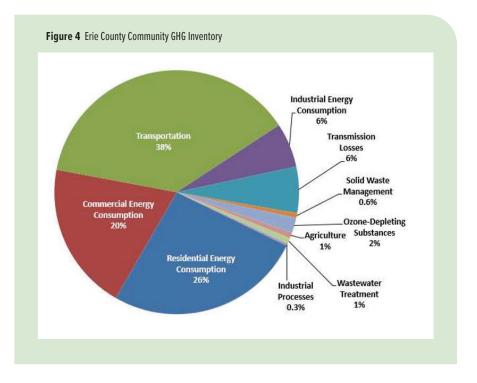
The County developed a community GHG inventory, which helped identify key focus areas for this Plan (Figure 4). The inventory found that transportation, commercial energy consumption, and residential energy consumption are the top three GHG emission sources in Erie County. The County plans to update this inventory in the near future with forthcoming federal grant resources.

The Task Force advised the County regarding the development of an outline for the CCAP, identified ten (10) topic areas, and formed Working Groups to develop plan chapters for these topics, which are discussed below. Between March 2021 and February 2023, Erie County coordinated the development of the CCAP with over 100 volunteers from the Task Force and the community. The chapters were written to include goals, strategies, and tangible action items that Erie County can take to reduce GHG emissions. A robust website, www.erie.gov/climateaction, was created to house documents for public comment as well as communicate ways that community members could get involved in the development of the CCAP.

Regional and State Plans

The Plan rests on the foundations of earlier regional plans, such as the Western New York (WNY) Regional Sustainability Plan (2013) and One Region Forward. This planning process considered those plans and built on their recommendations.

Not long after the Task Force started meeting in 2019, the New York Climate Leadership and Community Protection Act (CLCPA) was passed. "New York State's Climate Act requires that 70% of New York State's electricity to come from renewable energy sources by 2030, and to achieve 100% zero-emission electricity supply by 2040." This state legislation and the resulting New York State (NYS) Climate Scoping Plan, which was released in December 2022, is one of the most aggressive state plans in the country. The Task Force



agreed that a community climate action plan for Erie County should strive toward the goals of the CLCPA, especially prioritizing investments in historically disadvantaged communities. While Erie County's plan is separate and distinct from the state plan, the state plan will likely result in funding opportunities, and thus it was considered while crafting this Community Climate Action Plan.

Commitment to Equity

The legacy of inequity that has been inherited from previous generations is still present today in Erie County, as well as the rest of the country. The compounding issues of past economic policies, such as racially influenced zoning regulations and lending policies, termed "redlining," have resulted in a segregated County that has areas with deep challenges, including lack of food access, lack of trees, old housing stock, and mobility issues. While many of these problems are most apparent in the urban areas of the County, rural communities also feel the impacts of inequity, poverty, and feeling forgotten.

Erie County has approached this Plan with a commitment to using an equity

lens while developing the Plan's strategies and action items. The Working Group members used the "Racial Equity Impact Analysis Tool," as described in Chapter 2, which is a series of questions to help ensure that a process does not forget to consider the impact of recommended strategies or actions on minority and disadvantaged communities. More information about this topic can be found in the Climate Justice chapter.

Erie County Government Levers

While Erie County has more residents than some countries and manages more roads than some states. Erie County's role is more limited than a federal or state government. Erie County's many responsibilities include administering social services and public health programs, as well as maintaining important infrastructure, such as County roads and wastewater treatment plants. It is important to note that because New York is a "home rule" state, Erie County does not have the lead role in many key aspects of reducing climate impacts, such as land use regulation and energy code enforcement, which

Why Electrify

Electrification holds great potential to reduce energy use because the efficiency of electric technologies is generally much higher than fossil fuel-based alternatives. For example, a heat pump is three times more efficient than a natural gas furnace or boiler.1 The emission reduction benefits of electrification also go hand in hand with increases in renewable energy. Furthermore, because our region's electric grid is already low emission partially due to our large hydropower plant at Niagara Falls, electrification has a larger positive impact in WNY than most places.² As we electrify climate pollution sources (e.g., building and home heating, domestic water heating, light duty transportation, and some

industrial heating) and develop more renewable energy sources, our community's climate pollution will drop dramatically.

The benefits of electrification go beyond reducing climate pollution.

- Electrification will create many jobs in WNY and build our local economy. Much of the money we spend on gasoline, diesel, and natural gas leaves our community, therefore, transitioning to electricity and local renewable energy keeps our energy dollars in WNY. Electrification of buildings and installation of solar alone can create 25 million jobs in the United States (US) in the near term, and an estimated 5 million jobs sustained over time, which is roughly double
- the number of jobs supported by today's energy industry.3
- · As the cost of maintaining the aging US gas infrastructure increases, the cost of electric appliances, such as heat pumps, are projected to continue decreasing.
- · Electrification dramatically improves air quality and improves our community's health. Children living in homes with gas appliances are 42% more likely to suffer asthma symptoms.4
- These benefits are especially helpful to disadvantaged communities because they often live close to and are disproportionately impacted by fossil fuel pollution.5

- 1 IEA, "The Future of Heat Pumps How a Heat Pump Works," IEA, 2022, https://www.iea.org/reports/the-future-of-heat-pumps/how-a-heat-pump-works; Sealed, "Heat Pump vs. Furnace — Which One Is Best for Home Heating?," Sealed, September 9, 2022, https://sealed.com/resources/heat-pump-vs-furnace.
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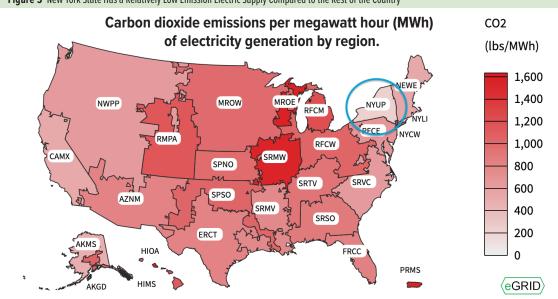


Figure 5 New York State Has a Relatively Low Emission Electric Supply Compared to the Rest of the Country

USEPA, eGRID subregion average emission rates, 2023, map, United States Environmental Protection Agency, https://www.epa.gov/egrid/power-profiler#/

are the responsibility of the cities, towns, and villages. In instances where the County has authority to take climate action through policy, laws could be passed. However, the focus of this Plan is incentivizing GHG reduction practices rather than mandating them.

Protecting the life and property of our community through services provided by the Departments of Health, Social Services, Environment & Planning, Senior Services, Veterans Services, and Emergency Services makes addressing impacts from climate change a natural role for the County. Erie County can also expand these programs to help support municipalities and households in their efforts to reduce GHG emissions and adapt to a changing climate.

In cases where Erie County does not have the jurisdiction to control or implement an action directly, it may have the ability to influence it. For example, the County is a board member of the Erie County Industrial Development Agency (ECIDA), and in that role, it can help prioritize climate action within economic development.

Benefits to Physical and Mental Health

Public health and climate change are deeply connected. Health issues resulting from poor air quality, poor water quality, and extreme weather events are putting pressure on those who already struggle with cardiovascular disease, respiratory issues, and other medical conditions. Ongoing health issues coupled with Erie County's older building stock and lack of air conditioning magnify the public health threat of extreme heat and cold (i.e., abnormally hot and cold temperatures), especially to our most vulnerable populations, children, and seniors, in communities that experience the most health disparities and inequities.

Addressing climate change can help improve the health of our community. For example, the transition to electric vehicles will reduce air pollution in neighborhoods. Erie County needs to anticipate and prepare for the issues that will arise from climate change to protect public health. The first step in this preparation was the creation

of a Climate Vulnerability Assessment (CVA), which is discussed in more detail in the Climate Resiliency chapter. The Erie County Department of Health and Department of Environment & Planning now work together regularly to address this issue. The CVA identified extreme heat as a key vulnerability in our community, and this year the County started work on a Heat Emergency Plan.

It is also vital that we consider the impacts of a changing climate on our community's mental wellness. Anxiety and depression about climate change and the impacts of extreme weather events is adding to the existing mental health crisis. While this Plan is focused on taking positive action to address climate change, we also need to make connections to existing mental wellness and support programs that make space to discuss these concerns. The County should strive to encourage their partners in the service sector community to address this growing problem of climate change-related anxiety and depression.

Mental Health and Climate Change Connections

Climate change and disruptions to all aspects of the ecological systems that support life on our planet already have caused significant adversity for many humans facing threats to their accustomed ways of living. Delays in halting additional contributors to increased global temperatures (in the form of material and energy consumption and carbon emissions) have worsened pre-existing stresses and socioeconomic injustices suffered by large segments of the global human population. As new ecosystemic challenges emerge, complex dynamics will continue to drive

human dislocation and migration, amplifying interpersonal friction, and mental strain and unwellness.

Yet even, and at times especially, under conditions of adversity, our ancestors developed previously unknown strengths and revealed remarkable capacities to thrive. In our destabilizing climate, to achieve the best outcomes for ourselves and our communities, it is essential for all of us everywhere to proactively assess both internal and community-based strengths and assets. We must strive to understand and seek out generative pathways and practices that lead

to mental wellness and creative adaptations to new realities. In the midst of far-ranging ecological and social change, it serves us well collectively to remember that both protective and transformative potentials exist already in nature, in ourselves, and in our families, diverse cultures, and spiritual traditions. These require only our attention, nurturing and support to flourish.

Jennifer Fendya, PhD,
Psychologist & Forest Therapy Guide
Climate Psychology Alliance
Climate Reality Project, WNY Chapter Co-Chair

Implementation

Successful implementation of this Plan will require a multifaceted approach, including engaging with our community, securing state and federal funding sources, and leveraging partnerships. Implementation will begin after finalization of the CCAP. Annually, the County will issue a report regarding the implementation of the near-term action items outlined in this CCAP.

Creating programs that communicate the actions that we can take as a community to reduce the impacts of climate change, while at the same time preparing for the impacts of a changing climate, is vital to all the chapters within this Plan. The development of education and outreach

materials should also ensure that we are trying to reach all residents by considering access, distribution, translation, accessibility, and more. It will be essential for the County to help our community become aware of opportunities to reduce GHG emissions and adapt to climate change to fulfill many of the goals, strategies, and actions outlined in this Plan.

Erie County will need to find ways to braid financial resources and leverage state and federal funding programs to address climate change. Recently passed state and federal legislation, like the New York Environmental Bond Act and federal Inflation Reduction Act (IRA), will be critical sources of funding. Also, this effort's

careful consideration of NYS's climate action planning process has resulted in the inclusion of actions that are likely to align with future state funding opportunities. The timing of this CCAP will be beneficial as we compete with other communities to access these resources.

Just as this Plan involved the work of partners across the community, Erie County will not be able to achieve the objectives of this Plan alone. Erie County will need to work with municipalities, school districts, businesses, colleges and universities, nonprofit organizations, community groups, and residents to actualize its full potential.

Overarching/Cross-cutting Actions

In addition to the sector-based strategies and actions identified later in this Plan, the Erie County Community Climate Change Task Force has identified two overarching actions: (1) create a Chief Climate Officer role in the County Executive's Office to help lead the County's climate action program, and (2) create a Benefits of Climate Action Policy to guide decision makers as they make program and infrastructure decisions. Each of these positions are described below.

1.1.1: Chief Climate Officer

The climate crisis is one of Erie County's greatest challenges, and there is enormous opportunity in our response. It is essential that we coordinate our response across all County departments so that we can make the progress we so urgently need and drive our clean energy economy. Every department in the County has a role to play in mitigating GHG emissions and protecting our community from the impacts of climate change, which requires coordination across departments. Because so many County actions have some relationship to climate change, it is important that there is visibility and leadership at the highest level so that the County can implement a whole-government

approach and prioritize the most impactful actions and the most coordinated response possible. To this end, the County will evaluate creating an executive-level role of Chief Climate Officer in the Office of the County Executive, charged with overseeing this response. The role could be assigned to an existing executive-level staff member or a new position could be created. The Chief Climate Officer would help lead and coordinate the County's climate efforts and would integrate a climate focus throughout all the County's lines of operation.

1.1.2: Benefits of Climate Action Policy

To be effective at addressing climate change, the County needs

to carefully account for the climate impacts, both positive and negative, of its actions. As the County transitions to clean energy, many of these benefits are societal, benefiting our community's health and environment. As the County develops new programs, updates existing programs, and makes decisions about infrastructure investments, it is important that the societal value of GHG mitigation and climate resiliency be considered.

To create this policy, the County could reference New York State guidance titled "Establishing a Value of Carbon: Guidelines for State Agencies," which provides a relatively simple "damage-based approach" that is used by state agencies to account for GHG emissions and climate impacts

in their decision-making. This guidance provides a quantified dollar-per-ton societal cost for emissions of carbon dioxide, methane, and other GHGs.

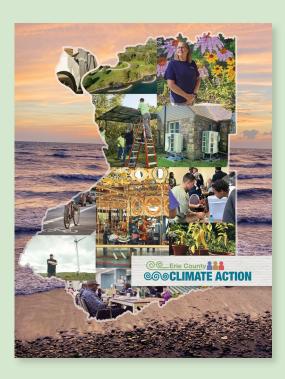
The County will review the creation of a policy to incorporate an assessment of the benefits of climate action into its programmatic and infrastructure decision-making. This policy will not be binding on departments regarding final decision-making, but instead will create a framework so that decision-makers have transparency regarding the relative societal carbon costs and benefits of policy and infrastructure options. As the County develops this policy, it will consider thresholds and categories for applicability so that the policy can be applied in ways that are efficient, cost effective, and will have the greatest impact on addressing the County's climate goals.

Funding for Climate Action

Both the state and federal governments have approved historic funding initiatives to address climate change through both mitigation and adaptation. For years now, New York State has had opportunities for counties and other local governments to support climate action through both the NYS Department of Environmental Conservation's (NYSDEC) Climate Smart Communities program and New York State Energy Research and Development Authority's (NYSERDA) Clean Energy Communities program.⁷ Erie County has received grants through both programs. More recently, New York State voters approved a \$4.2 billion Environmental Bond Act. The Environmental Bond Act 8 will enable communities to imagine, redesign, and rebuild to strengthen their ability to withstand future high-water and storm events, extreme heat risks, and other longterm environmental changes. It will

also advance climate action priorities to reduce GHG emissions, includes significant labor provisions, and will promote job creation by establishing an estimated 84,000 green jobs.⁹

The federal government passed two significant pieces of legislation that are funding climate change mitigation and adaptation: the 2021 Infrastructure Bill and the 2022 Inflation Reduction Act (IRA).10 The \$1 trillion Infrastructure Bill includes \$47 billion to fund infrastructure that will strengthen our nation's resilience to extreme weather and climate change while reducing GHG emissions, expanding access to clean drinking water, and building up a clean power grid. Even more dramatically, the IRA will invest \$369 billion in climate solutions and environmental justice. Several IRA-funded federal grant opportunities have already been released and Erie County is pursuing them with community partners.



Purpose and Structure of the Plan

This document is intended to serve as a high-level roadmap to help guide and prioritize the County's climate actions. The CCAP will remain as a living document that will guide Erie County as we work to create a sustainable community.

This Plan consists of this introduction, three chapters that address overarching topics, and seven sector chapters (see Figure 6). The overarching chapters describe topics that cut across all of the sector technical areas, for example Climate Justice is interwoven throughout all of the chapters. The seven sector chapters address specific technical topic areas, such as transportation and agriculture, and each has one overall Goal with multiple Strategies and Action Items.



Community Climate Action Plan CHAPTER WORKING GROUPS

Overarching Topics



Climate Justice

Reviewed all outputs with a justice lens to ensure that equity was the focus.



Climate Resiliency

Reviewed all outputs to assure a coordinated and comprehensive treatment of resilience topics within the Plan.



Communicating Progress

Prioritized community input and government transparency while developing the draft Plan.



Consumption and Waste Reduction

Goal: Responsible production and consumption of resources and sustainable management of waste.



Transportation

Goal: Create a safe, equitable, and affordable multi-modal transportation system that enhances mobility and access, phases out fossil fuel dependency, connects communities, supports a resilient supply chain, and decreases GHG emissions.



Housing and Neighborhood Resiliency

Goal: Foster zero-emission homes and neighborhoods that promote health and protect residents from extreme weather.



Economic and Workforce Development

Goal: Foster an equitable and robust green economy.



Commercial Energy Conservation and Renewable Energy

Goal: Move toward net zero carbon emission buildings and supporting the transition to a decarbonized electrical grid.



Nature-based Solutions

Goal: Protect intact landscapes, restore degraded ecosystems, and improve equitable access to green infrastructure, tree canopy, and open space.



Agriculture and Food Systems

Goal: Promote agriculture and food system solutions.

How to Read This Plan

The identified Goals, Strategies, and Action Items included in this Plan will significantly reduce or sequester GHG emissions in Erie County and make the community more resilient to severe weather and other threats from climate change. Each of the seven sector chapters has a single Goal, several Strategies, and for each Strategy the Working Groups identified key discrete Actions (Figure 7).

Each Action Item consists of:

Action Statement: Describes the policy, program, or tool that the County will deploy to support the goals and strategies.

Horizon: Identifies likely implementation time-frame. In some cases, implementation may span multiple time periods.

- Short-term: by or before year 2030;
- Medium-term: by 2040; and
- Long-term: by 2050.

Sphere of Influence: The two spheres are Direct and Indirect. Some actions may touch both spheres.

- Direct: The County can directly control the action; relating to County operations and infrastructure.
- Indirect: Regional agencies and municipalities have control, or the County can give support and influence to the action.

Lead County Entity:

Departments or other County entities overseeing implementation of the action.

Partners: Implementation partner or partners who have an interest in the action.



Community Climate Action Plan Organization

7 Goals

Broad, aspirational statements

30 Strategies

Approaches to achieving the Goal

168 Action Items

Tangible next steps for implementation, such as specific policies, programs, or tools to support a strategy

FOOTNOTES: Introduction

- 1 NOAA, "Billion-Dollar Weather and Climate Disasters" (NOAA National Centers for Environmental Information, 2023), https://doi.org/10.25921/STKW-7W73.
- 2 IPCC, "Climate Change 2022: Impacts, Adaptation and Vulnerability," IPCC, 2022, https://www.ipcc.ch/report/ar6/wg2/.
- 3 Erie County Climate Action and Sustainability Webpage: https://www3.erie.gov/environment/climate-action-and-sustainability and Erie County Climate Action and Sustainability Plan Document: https://www3.erie.gov/environment/sites/www3.erie.gov/environment/files/2022-05/final_casp_2019.pdf
- 4 NYS Climate Smart Communities, "Participating Communities," New York State, 2023, https://climatesmart.ny.gov/actions-certification/participating-communities/.
- 5 Regional Planning Consortium, "Western New York Regional Sustainability Plan," 2013, https://regional-institute.buffalo.edu/wp-content/uploads/sites/155/2020/10/Western-New-York-Regional-Sustainability-Plan.pdf; UBRI, "One Region Forward: A Way to Plan for Buffalo Niagara," February 2015, http://bap-home.net/solarize/wp-content/uploads/sites/28/2017/05/1RF_A-New-Way-To-Plan-For-Buffalo-Niagara_FinalPlan_reduced.pdf.
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- 7 NYS Climate Smart Communities, "Climate Smart Communities," New York State, 2023, https://climatesmart.ny.gov/; NYSERDA, "Clean Energy Communities," NYSERDA, 2023, https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Communities.
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- 9 NYSDEC.
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