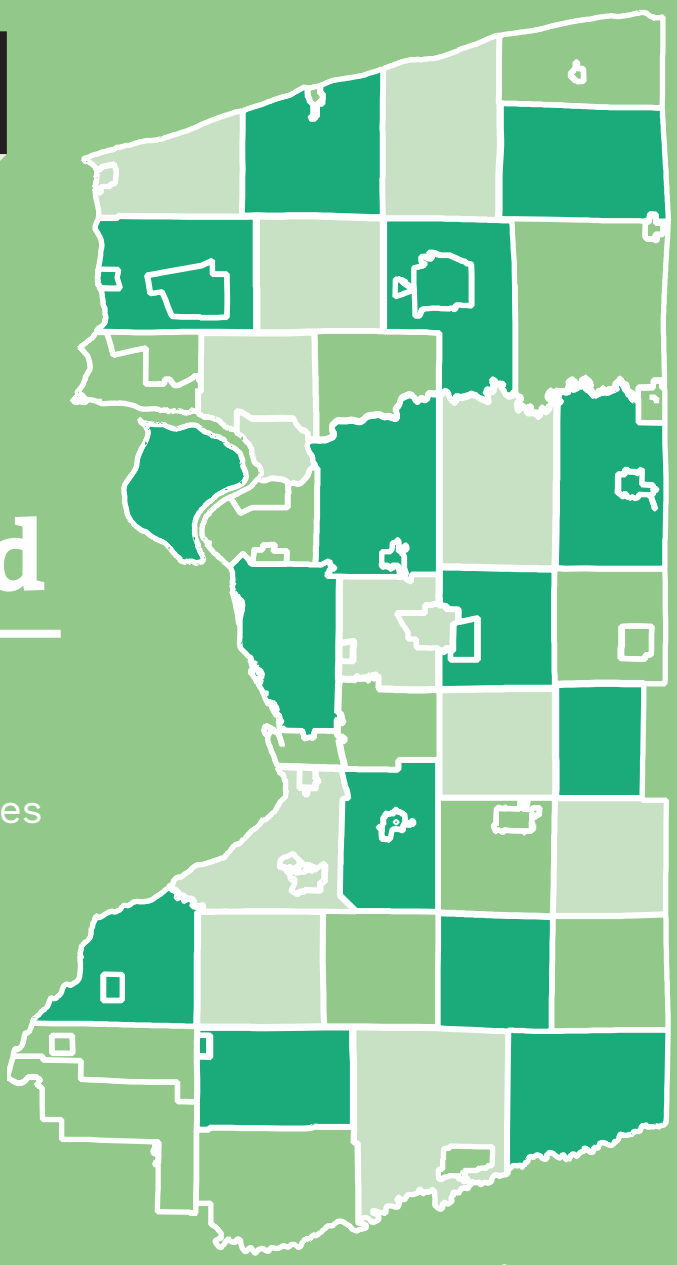
Moving Clean Energy Forward

Case Studies of Buffalo Niagara Designated Clean Energy Communities

2017-2019



Spring 2020

One Region Forward and The Clean Energy Communities in Buffalo Niagara

In 2015, partners from across Buffalo Niagara released **A New Way to Plan for Buffalo Niagara**, a regional plan to guide Erie and Niagara counties toward a more sustainable and resilient future. Building on three years of research, community engagement, and partnership building, the plan offers dozens of strategies and actions that local actors (governments, organizations, businesses, etc.) can take to advance regional sustainability.

Throughout the One Region Forward planning process, the need for hands-on technical assistance was continually expressed by communities from across the region. As the plan gets implemented, the cross-sectional partnership of public, private, and nonprofit organizations guiding One Region Forward have sought out opportunities to secure funding and develop programming that can assist local communities as they take on local sustainability actions.

In 2016, the University at Buffalo School of Architecture and Planning and its Regional Institute (UBRI), one of the key partners behind One Region Forward, received a grant from the New York State Energy Research and Development Authority (NYSERDA) to assist local communities with a new program aimed at local governmental policies, programs, and projects that advance clean energy. Called the **Clean Energy Communities program (CEC)**, it is organized around ten "High Impact Actions" that align with One Region Forward's Climate Action platform to conserve energy, promote renewables, and prepare for the impacts of climate change.

This report celebrates the work that local Erie and Niagara County governments have taken in the first three years of the Clean Energy Communities program. It describes what actions have been completed and some of the impacts they are generating. It also features in-depth case studies of twelve municipalities that have completed at least four of the program's "High Impact Actions" required to achieve designation as a Clean Energy Community. Both the individual and collective work achieved by the municipalities featured in this report demonstrate that communities of all sizes can implement actions that save energy costs, promote the region's clean energy economy, and make Buffalo Niagara a more sustainable and environmentally healthy community for all.

Moving One Region Forward through the Clean Energy Communities Program

A community driven Regioal Pan for a more sustainable Buffalo Niagara

Clean Energy Communities Program offers tools for communities to become more **resilient and sustainable**

UBRI is supporting communities through **hands-on technical assistance**

University at Buffalo
Regional Institute
School of Architecture and Planning

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What is a Clean Energy Community?

The Clean Energy Communities (CEC) program promotes ten “High Impact Actions” to help local communities reduce energy costs, create jobs, and improve the environment. When a community completes at least four actions, it becomes designated by NYSERDA as a “Clean Energy Community.”

What are the High Impact Actions?

The ten High Impact Actions serve as a menu of clean energy practices that local municipalities can pursue. Some actions address municipal infrastructure, like upgrading street lights to LED technology, providing electric vehicle charging stations, or making clean energy upgrades to municipal buildings. Others are policies or regulations designed to promote the development of private sector clean energy projects, such as the NYS Unified Solar Permit, Solarize Campaigns, or Energize NY financing. While each action is different and involve various levels of effort to accomplish, all of the actions are geared toward making local communities stronger environments for clean energy to flourish.

What is the incentive for pursuing the High Impact Actions?

Though each action offers its own unique benefits, NYSERDA built a series of first-come, first-serve grants into the program to incentivize early adoption. Eighteen awards were made available for communities in the Western New York Regional Economic Development Council (WNY REDC) region: Erie, Niagara, Allegany, Chautauqua and Cattaraugus counties. Of those grants, five totaling $750,000 went to municipalities in the Buffalo Niagara region for clean energy projects.

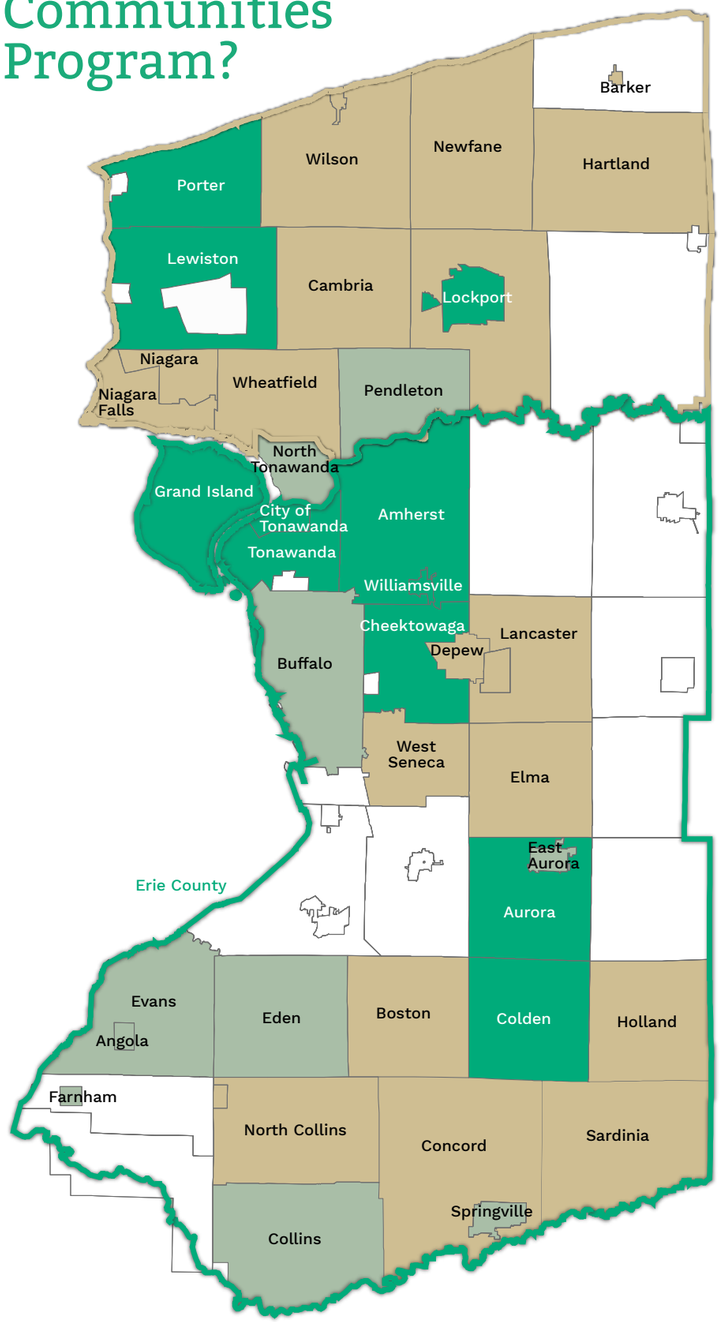
How do the High Impact Actions support One Region Forward?

One Region Forward’s climate action platform is based on the need to “conserve energy, promote renewables, and prepare for the impacts of climate change.” Each of the High Impact Actions are geared toward this focus, and in fact all are either explicitly or implicitly called for in the recommended strategies and actions outlined in the One Region Forward Plan.

Become a CEC by completing 4 of these 10 High Impact Actions

	Required Action	Benefits to Community
Benchmarking	Pass a resolution and collect building energy data to track energy usage over time.	Allows municipalities to identify energy and cost savings associated with municipal buildings.
Clean Energy Upgrades	Document municipal facility upgrades that have resulted in greenhouse gas reduction of at least 10%.	Reduces energy usage and costs while making facilities more sustainable.
Clean Fleets	Purchase or lease an electric vehicle or plug-in hybrid for use in a municipal fleet, or install an electric vehicle charging station on municipal property.	Lowers transportation related cost and emissions while providing infrastructure for employees, residents, and visitors to charge electric vehicles.
Climate Smart Communities	Take the Climate Smart Communities Pledge and achieve “bronze” designation or higher.	Provides communities with a robust framework to guide local climate action planning and an opportunity to receive grants associated with taking actions.
Community Choice Aggregation (CCA)	Adopt a policy authorizing all residential and small business electric energy to come from clean energy sources (with an opt out option).	A CCA can allow whole communities to participate in the clean energy economy by ensuring that a greater percentage of electricity is coming from renewable sources.
Energize NY Finance	Pass a local law allowing commercial property owners to access Property Assessed Clean Energy (PACE) financing.	This economic development tool offers unique financing options that support energy upgrades and renewable energy projects for owners of commercial and mixed-use buildings.
Energy Code Enforcement Training	Have at least one code enforcement official (CEO) complete the NYSERDA-approved Energy Code Enforcement Training series for both residential and commercial applications.	Code enforcement officials get free hands-on training on the application of the New York State Energy Code for reviewing local permit requests.
LED Street Lights	Convert a minimum of 50% of municipally-owned street lights to LED technology.	Replacing outdated street lights with LED technology can reduce street light energy consumption by up to 65%.
Solarize	Create a community focused campaign (Solarize, Clean Heating and Cooling or Solar-for-All) to bring down the cost of clean energy technology for commercial and residential property owners.	Community campaigns help to promote renewable energy locally, bring cost savings to residents and businesses, and demonstrate a community’s commitment to clean energy.
Unified Solar Permit	Adopt a resolution to utilize the New York State Unified Solar Permit, and update local solar permitting processes.	Adopting this permit reduces costs by creating a predictable and streamlined approach to permitting solar electric system installations in a community.

Who is participating in the Clean Energy Communities Program?



43 communities paticipating in NYSERDA's CEC Progam

12 Clean Energy Communities
(Completed at least 4 High Impact Action)

\+

9 Other Participating Communities
(Completed at least one High Impact Action)

\+

22 Communities in Discussion
(Engaged in CEC Technical Assistance but have yet to complete a High Impact Action)

What High Impact Actions are municipalities taking to shape the region's clean energy future?

● Completed ○ Pursuing

	Unified Solar Permit	Energy Code Enforcement Training	Clean Fleets	Benchmarking	Solarize	Clean Energy Upgrades	Energize NY Finance	LED Street Lights	Climate Smart Communities	Community Choice Aggregation
City of Lockport	●	●	●	●	●	○	●	◔	◔	○
Town of Aurora	●	●	●	●	○	●	○	◔	○	○
Town of Lewiston	●	●	●	●	○	●	○	◔	◔	○
Town of Amherst	●	●	●	◔	●	○	○	◔	◔	○
Town of Cheektowaga	●	●	●	○	○	●	○	◔	○	○
Town of Tonawanda	●	●	●	○	●	○	○	◔	○	○
Village of Williamsville	●	●	●	●	○	○	○	◔	◔	○
City of Tonawanda	●	●	●	●	○	○	○	◔	○	○
Town of Porter	●	●	●	◔	○	●	○	◔	◔	○
Town of Grand Island	●	●	◔	●	●	○	○	◔	○	○
Town of Colden	●	●	○	●	◔	◔	○	●	○	○
Erie County	○	○	●	●	●	○	◔	◔	●	○
Town of Evans	●	●	◔	●	◔	◔	○	◔	○	○
Village of Springville	○	●	●	◔	○	○	○	◔	○	○
City of Buffalo	○	◔	●	◔	○	○	◔	◔	●	○
Village of Farnham	●	◔	○	○	○	○	○	○	○	○
Town of Eden	●	◔	○	○	◔	○	○	◔	○	○
Village of East Aurora	○	○	◔	●	○	○	○	○	◔	○
City of North Tonawanda	○	◔	○	◔	○	○	●	◔	○	○
Town of Collins	●	○	○	○	○	○	○	○	○	○
Town of Pendleton	○	●	○	○	○	○	○	○	○	○

Village of Williamsville

Buffalo Niagara's First Clean Energy Community

4 High Impact Actions Completed

- Benchmarking
- Energy Code Enforcement Training
- Clean Fleets
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights
- Climate Smart Communities Certification

Highlighted Project

Solar array at the Department of Public Works and LED conversion in three village parks

POPULATION	5,300
AREA	1.236 square miles
DENSITY	4,288 people per sq. mile

Incorporated in 1850, Williamsville is a historic village located in the Town of Amherst. With a long commitment to promoting sustainability practices, Williamsville was the **first municipality in Buffalo Niagara to become a designated Clean Energy Community.**

Fueled by a commitment to be the first designated Clean Energy Community in the region, Williamsville's efforts were steered by its former mayor and implemented through several departments within the village. Williamsville focused on projects on or near its heralded Main Street, a walkable thoroughfare home to a mix of businesses, restaurants, shops, civic buildings, and parks. This Main Street focus resulted in projects that improve public safety at village parks as well as improved amenities such as the **installation of an electric vehicle charging station** in the heart of the village.

Williamsville's **Environmental Committee** continues to pursue clean energy actions and are using the **Climate Smart Communities** framework to guide that effort moving forward.

> "Embracing sustainability projects, whether it's green infrastructure or upgrades for our facilities to decrease utility costs, provides an opportunity to beautify the village and add value from an economic development perspective to attract further investment."
>
> **Maggie Hamilton Winship**
> Director of Strategic Planning

Electric vehicles reduce spending and emissions

Williamsville collaborated with the Town of Amherst to install an electric vehicle charging station at their shared municipal campus.

The village also purchased a **2013 Nissan Leaf** for its code enforcement officer. This electric vehicle saves Williamsville money and helps reduce greenhouse gas emissions.

Electric vehicle charging station

Electric vehicle eliminates 0.442 metric tons of CO_2 emissions a year

Measuring energy usage in municipal buildings

Energy usage at these facilities has been measured and tracked annually since 2016 to gauge progress on energy reduction efforts.

Department of Public Works

Village Hall

The Meeting House

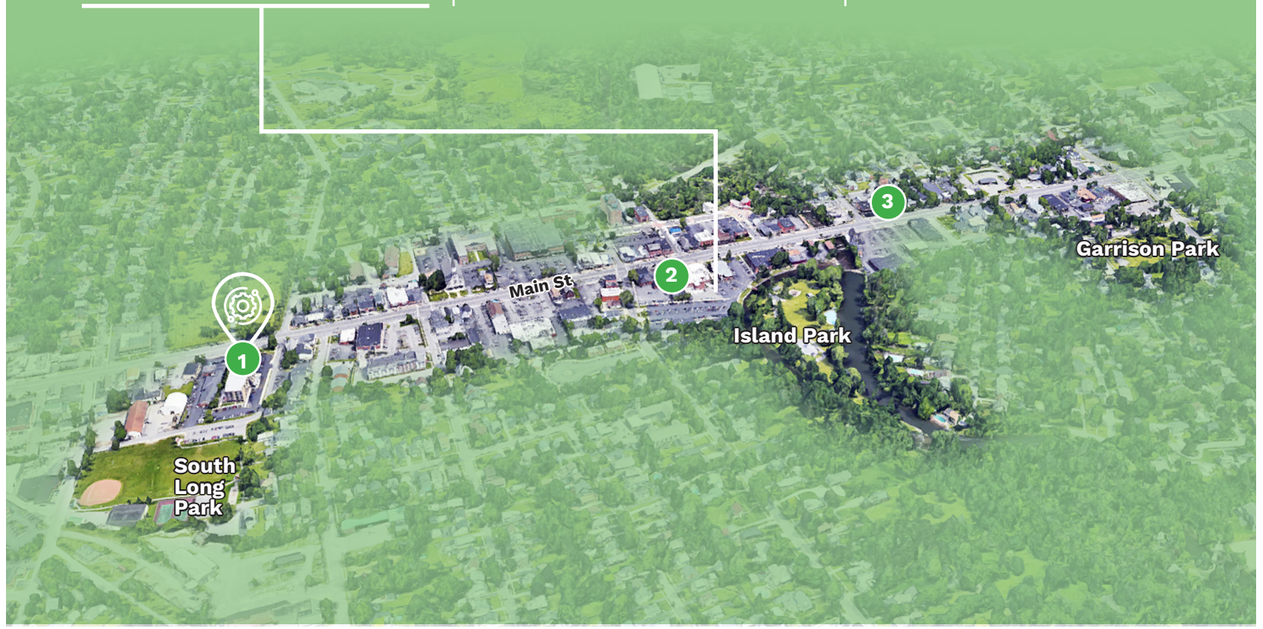
Lighting village parks with LED

As Buffalo Niagara's first Clean Energy Community, **the Village of Williamsville received $50,000** that will allow them to convert lighting fixtures in village parks to LED and install a solar array at the Department of Public Works building.

Island Park

Garrison Park

South Long Park



Town of Amherst

Solar Powering Sustainability in a Growing Community

4 High Impact Actions Completed

- Energy Code Enforcement Training
- Clean Fleets
- Solarize Campaign
- Unified Solar Permit

High Impact Actions Underway

- Benchmarking
- LED Street Lights
- Climate Smart Communities Certification

Highlighted Project

Solar Array and Electric Vehicle Charging Stations at Community Centers

POPULATION	122,366
AREA	53.6 square miles
DENSITY	2,284 people per sq. mile

As the second most populous municipality in Western New York and the fourth largest in Upstate New York, the Town of Amherst strives to be a regional leader in innovation. Upon learning of the Clean Energy Communities program, local leaders quickly saw it as an opportunity to pursue innovative practices related to clean energy, and began to pursue the designation.

In early 2017, a group of town residents and municipal leaders came together to form the Amherst Clean Energy Communities Committee. The committee is made up of five residents, including several from the local Sierra Club chapter, and representatives from numerous town departments. The committee focused on actions offer efficiencies for town operations and provide benefits to residents. This led to the development of the **region's first Solarize campaign**.

Building off the Clean Energy Communities designation, Amherst continues its commitment to being a regional leader in clean energy and climate action. In 2019, Amherst passed a **resolution to transition the town to 100% clean energy by 2035**. Several ongoing projects will help Amherst realize this ambitious goal.

> "We're here to save energy where we can, when it's reasonable, but we can't save the world alone."
>
> **Mike Delamere**
> Town Energy Manager

Western New York's first Solarize campaign

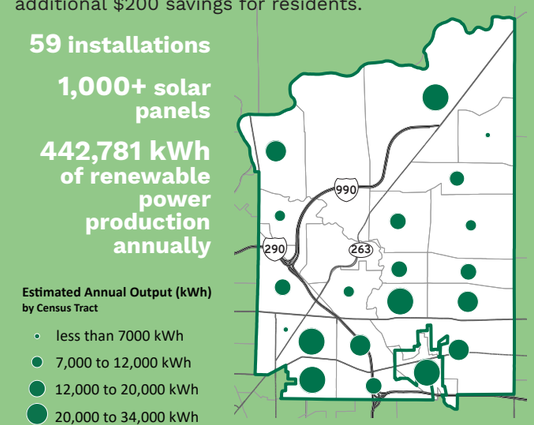
The Solarize Amherst campaign secured 59 contracts during the campaign, with over 1,000 panels installed. These systems generate an estimated 442,781 kWh annually. That equates to a reduction of 330 Metric tons of greenhouse gas emissions or equal to what 5,475 tree seedlings grown for ten years would eliminate from the atmosphere.

As an added bonus for residents that participated in Solarize Amherst, the town waived permitting fees associated with Solarize projects resulting in an additional $200 savings for residents.

59 installations

1,000+ solar panels

442,781 kWh of renewable power production annually



Moving forward with solar

Amherst was awarded $250,000 from NYSERDA for becoming the first large community in Buffalo Niagara to achieve Clean Energy Communities designation. The project award will be used to expand solar power generation and install electric vehicle charging stations at the Clearfield Community Center.

Amherst hopes to replicate this model by installing a solar array and electric vehicle charging stations at other community centers including the Northtown Community Center, home to one of the region's largest ice rink complexes.

Northtown Center

Clearfield Community Center

Purchased a Toyota Prius Prime Plus

Town of Cheektowaga

Moving Municipal Buildings and Vehicles Toward Clean Energy

4 High Impact Actions Completed

- Clean Energy Upgrades
- Clean Fleets
- Energy Code Enforcement Training
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights

Highlighted Project

Adding new electric vehicles and solar-powered charging stations

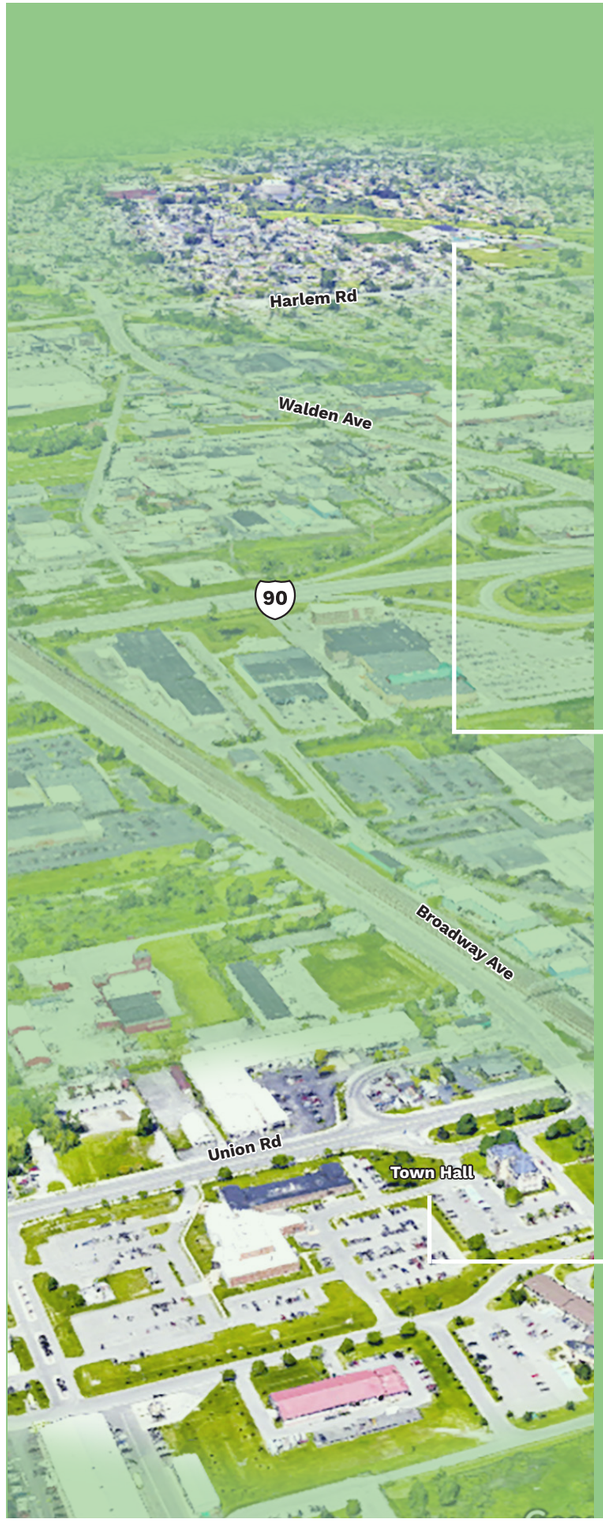
POPULATION	88,226
AREA	29.6 square miles
DENSITY	2,992 people per sq. mile

The Town of Cheektowaga is a large first ring suburb of the City of Buffalo in Erie County. It is home to the Buffalo Niagara International Airport, the Village of Depew, and is **Buffalo Niagara's third designated Clean Energy Community**.

With the support of the town supervisor and several council members, an inter-departmental committee was formed to explore benefits of the program. The group quickly realized that a number of High Impact Actions associated with the program were already underway, most notably the **Clean Energy Upgrades** action. Reducing energy consumption in town facilities had been a priority for Cheektowaga prior to their program participation and were able to leverage that work to **show an 11% reduction in building related greenhouse gases**.

The town is now looking to **upgrade its street lighting** and improve its vehicle fleet as next steps toward reducing Cheektowaga's overall energy burden.

> "For us, [the most rewarding part of the program] has been gaining an education for what a clean energy program can do for a community, how much waste there actually is and what can be done to reduce it."
>
> **Peter Johnston**
> Town Engineer

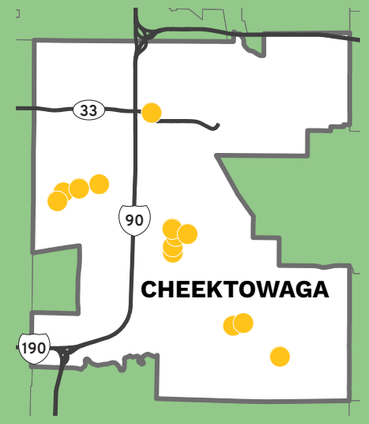


Reducing energy consumption in municipal buildings

In recognition of the high cost of operating an ice rink, Cheektowaga replaced its municipal rink's cooling system with an ammonia based system that does not use ozone-depleting chemicals. Beyond the $2.8 Million ice rink project, Cheektowaga's Facilities Department also replaced florescent lighting with LED fixtures across 14 facilities to **reduce electric usage by 297,918 kWh annually**. The energy saved from the Town's lighting projects is enough to power over 20 homes for a year.

14 Buildings with lighting upgrades resulted in 11% reduction of Greenhouse Gas emissions

Cheektowaga Ice Rink



Electrifying the vehicle fleet with solar energy

Added a 2014 Smart EQ Fortwo battery-electric to the municipal fleet

Leveraging a **$250,000 Clean Energy Communities grant**, Cheektowaga plans to acquire new electric vehicles to replace outdated gas fleet vehicles. The conversion to electric vehicles will help the town **eliminate 400 gas miles per day**. In order to avoid costs associated with charging the new electric vehicles, Cheektowaga plans to install a solar array to offset new electric demand. Between energy savings and eliminated costs, **this project is expected to save $15,810 in fleet-related costs annually**.

An example of the type of solar-powered charging station Cheektowaga plans for its Town Hall

Town of Tonawanda

A Clean Energy Future for Tonawanda's Tomorrow

4 High Impact Actions Completed

- Clean Fleets
- Energy Code Enforcement Training
- Solarize Campaign
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights

Highlighted Project

Zoning Code update

POPULATION	73,567
AREA	20.3 square miles
DENSITY	3,927 people per sq. mile

The Town of Tonawanda is a large first-ring suburban community in northwest Erie County. The Town of Tonawanda also includes the Village of Kenmore, and 5 miles of shoreline along the Niagara River.

In 2016, the Town of Tonawanda launched an economic development planning project called **Tonawanda Tomorrow**. Supported by a broad based community partnership, the effort focused on identifying economic, workforce, and place-based strategies to support economic growth and a vibrant community. Throughout the planning process, **community members, town leaders, and local stakeholders identified clean energy actions as a way to stimulate Tonawanda's economic growth** and increase community health.

Shortly after the plan was completed, an inter-departmental implementation team was formed to pursue priorities identified in the plan including several high impact actions associated with the NYSERDA Clean Energy Communities program.

> Rewriting the zoning code will allow for the development of walkable and mixed-use neighborhoods, as well as infill housing to prevent the sprawl of suburban development. The State gave us great motivation to be leaders [in green energy] through CEC."
>
> **Jim Jones**
> Town Engineer (retired)

Making solar a accessible to all residents

In an effort to ensure the Solarize Tonawanda campaign was something that all residents could participate in, the town leveraged **Community Development Block Grant (CDBG) funding to provide 0% interest deferred payment loans to income qualified home owners** through the Planning and Development Department.

Tonawanda continues to offer income-qualified residents the same no-interest payment plans for installation of solar panels and other energy saving technologies as part of their CDBG funding opportunities.

323,551 kWh
solar energy produced annually

55 residential solar installations

3 CDBG funding eligible homes

Moving forward for a walkable, sustainable and healthier community

In an effort to meet goals associated with the **Tonawanda Tomorrow plan**, the town's implementation team decided to dedicate their **$150,000 Clean Energy Communities grant award toward re-writing their 1950s era zoning code**.

Updated zoning will activate opportunities for numerous **brownfield sites along River Road** including the former coal-burning **Huntley Power Plant.**

The **proposed NFTA light rail extension** on the eastern edge of the town is expected to improve mobility within the community, and access to the wider region. This may also lead to **reduced emissions by taking cars off of Tonawanda streets.**

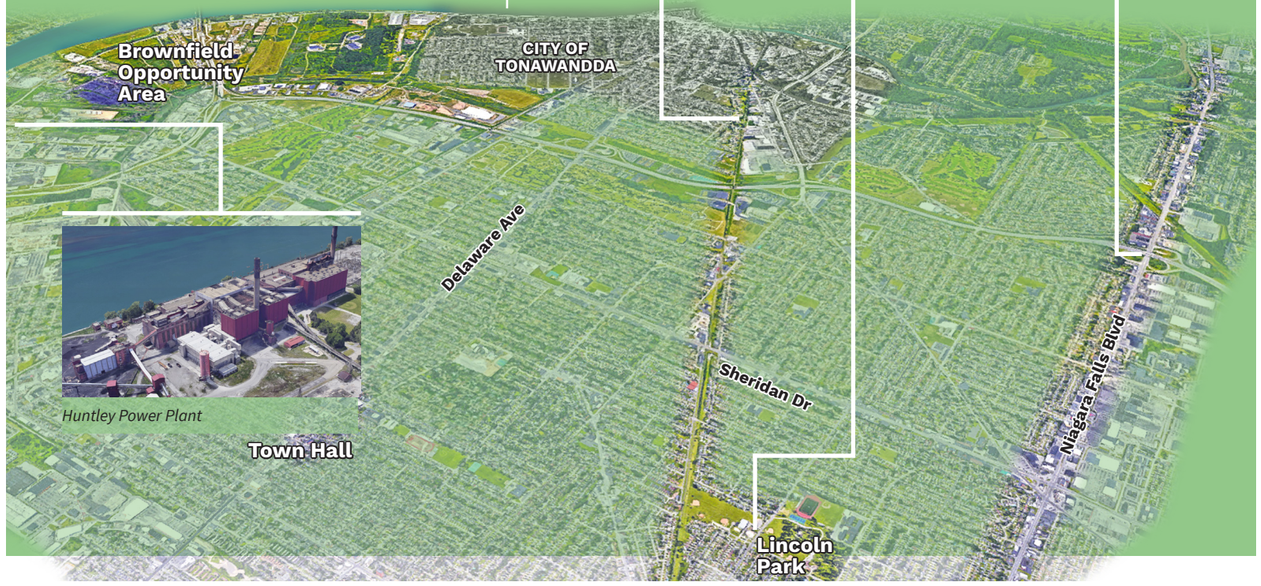
Adoption of **mixed-use zoning** aims to improve walkability and lead to a smaller carbon footprint for the town.

Activating more **Complete Streets** projects is expected to enhance walkability, bicycle travel and community vibrancy. It will also connect the **Rails-to-Trails** project to the waterfront, business corridors and employment centers.

Rails to Trails

Lincoln Park roundabout

Potential NFTA light rail extension



Huntley Power Plant

Town of Aurora

Streamlined Municipal Services and Efficient Facilities

5 High Impact Actions Completed

- Benchmarking
- Clean Energy Upgrades
- Clean Fleets
- Energy Code Enforcement Training
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights

Highlighted Project

Installing LED lighting at new Town Hall facilities

POPULATION	13,782
AREA	36.4 square miles
DENSITY	378.6 people per sq. mile

The Town of Aurora is a small rural community in the Southtowns of Erie County. Within the town is the historic Village of East Aurora: the childhood home of Millard Fillmore, the 13th President of the United States, and a pivotal place for the American Arts and Crafts movement founded by Elbert Hubbard and the Roycroft Community during the late 1800s.

The Town of Aurora's Clean Energy Communities designation effort was led by the town supervisor, and was supported by his staff as well as several other town departments. The highlight of the town's effort was their ability to **show a 38% reduction in building-related greenhouse gas emissions.** These reductions are associated with an interior lighting project Aurora completed in 2015 prior to the launch of the Clean Energy Communities initiative.

Aurora will leverage a grant associated with its Clean Energy Communities designation to install LED lighting at a new municipal center to house municipal operations for the town and Village of East Aurora. The results of the previous lighting upgrade project lowered operating costs at the former Town Hall making it more attractive for purchase by a third party. Revenue from the sale is supporting development of the new Town-Village municipal center strategically located in the heart of the village on Oakwood Avenue.

> We're trying to conform to being a first-class energy efficient community. Anything that we can do that's in our range of affordability we look at."
>
> **James Bach**
> Town Supervisor

Reducing energy consumption

The 2015 lighting project converted outdated fluorescent lighting to more efficient and safe LED technology. This **reduced town electrical consumption by 324,690 kWh annually,** that's 38% of what town facilities consumed on a yearly basis.

324,690 kWh equates to a reduction of **185.2 MTCO2e** from being released into the atmosphere annually.

38% of GHG annual reduction
from upgrades at municipal facilities

Combining the town and village offices to increase efficiency of government and energy consumption

Aurora is using their **$50,000 Clean Energy Communities grant award** to install high efficiency LED interior lighting at the new Town-Village Hall facility. The new facility will retrofit a former firehouse to **LEED standards**. Some of the features that will help the building attain LEED certification include:

- re-use of an existing structure;
- use of natural lighting and passive ventilation;
- water conservation and low flow fixtures;
- interior and exterior LED lighting fixtures and technology;
- high efficiency heating and cooling systems;
- lighting control systems;
- use of energy efficient materials throughout construction.

Having both town and village offices relocated to this highly efficient building should also create efficiencies for residents by providing a one-stop-shop for all municipal services.

New Town-Village Hall
BEFORE

New Town-Village Hall
AFTER (rendering)

EV Chargng Station

Town of Grand Island

Promoting Self-Sufficiency with Conscious Placement of Renewable Energy

4 High Impact Actions Completed

- Benchmarking
- Energy Code Enforcement Training
- Solarize Campaign
- Unified Solar Permit

High Impact Actions underway

- LED Street Lights
- Clean Fleets

Highlighted Project

Three solar arrays installations

POPULATION	20,374
AREA	33.3 square miles
DENSITY	610 people per sq. mile

Grand Island is the only municipality in the region that is an island. Surrounded by the waters of the Niagara River in Erie County, the town is mainly reachable via a pair of bridges with the town's namesake. Balancing growth while also protecting farmland and forested wetlands areas continues to be a priority for town leaders and residents.

Clean energy, and in particular solar, has been embraced in Grand Island as a way to build on its strengths and promote self-sufficiency across the island community. Town officials were committed to ensure solar development in Grand Island would complement the town's other sustainability and natural resource protection goals. This led to the development and adoption of a solar law that guides where and how solar will develop in the town.

Leadership saw the Clean Energy Communities program as a way to support implementation of that solar law, and their Clean Energy Communities efforts culminated with the successful implementation of the **Solarize Grand Island Campaign** during the summer of 2018.

> I lived in Love Canal, that's where some of my passion comes from. Those areas needed to be cleaned up; they caused a lot of illness. For years, we were surrounded with things that hurt people physically. We can do better, we can do much better. Solar is cheap, green and clean power that does not damage the water, air, or ground."
>
> **Bev Kinney**
> former Town Councilmember

Building a solar community

In 2017, the Town passed a solar law to guide how Grand Island would allow for the development of solar energy. It was important that the Town identify where and how it wanted solar to develop.

The adoption of the solar law allowed the Town to focus large-scale solar developments along otherwise undevelopable lands under the power lines that cut across the island delivering electricity from the Robert Moses Niagara Hydroelectric Power Station in Lewiston, NY.

The law also allows rooftop and ground mounted residential solar that meet specific requirements to comply with existing zoning regulations.

Solarize Grand Island

Supported by a $5,000 NYSERDA grant, Grand Island assembled a team of over 20 volunteers, hosted 5 workshops, participated in 10 outreach events, canvassed the community, and helped residents make informed decisions about the installation of solar at their home or business.

23 Installations

539 Solar panels installed

194,505 kWh Solar energy produced annually

Leading the way with community solar

Grand Island has two "community solar" projects that allow residents to access solar power without installing rooftop panels or groundmounted arrays on their property. The most recent installation is 40-acres and includes land conservation and habitat restoration elements, such as a planting and polinator program to promote floral diversity.

3 MW array, *9 acres, 6,000 panels*

7 MW array
42 acres
20,100 panels

EV Charging Stations

City of Lockport

Strengthening Community through Clean Energy

6 High Impact Actions Completed

- Benchmarking
- Clean Fleets
- Energy Code Enforcement Training
- Energize NY Finance
- Solarize Campaign
- Unified Solar Permit

High Impact Actions Underway

- Climate Smart Communities
- LED Street Lights

Highlighted Project

Downtown Revitalization Initiative

POPULATION	21,165
AREA	8.6 square miles
DENSITY	2,641 people per sq. mile

The City of Lockport is the county seat of Niagara County, and is named for the historic "Flight of Five" locks on the Erie Canal. As the **first designated Clean Energy Community in Niagara County**, local government leaders looked to the program as a way to positively impact the environment, reduce wasteful spending on energy-related costs, and increase Lockport's economic competitiveness.

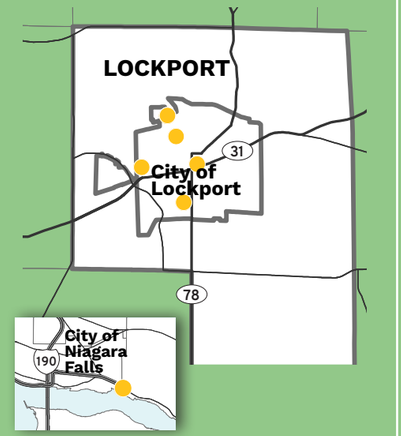
Led by the community development department with support from City Council, Lockport completed six high impact actions, more than any other municipality in Buffalo Niagara at the time. The completed high impact actions were focused on providing clean energy resources to the community at-large. This effort includes supporting **renewable energy development, increased building efficiencies,** and infrastructure to support **reduced emission vehicles** for visitors to the city's downtown core.

City officials expect the Clean Energy Communities high impact actions to pair well with other ongoing efforts associated with a **$10 Million Downtown Revitalization Initiative grant award announced in 2018**.

> "Lockport is forward-thinking; policies and programs that motivate us are tried, especially when they give benefit to property owners."
>
> **Brian Smith**
> President of Greater Lockport Development Corporation

Measuring energy usage in municipal buildings

By measuring energy consumption at municipal facilities the City of Lockport is identifying high-consuming facilities and using data to target capital improvement projects toward those that will have the greatest return-on-investment through avoided energy costs.



Downtown revitalization to create a more dense, walkable, and vibrant city

Lockport's **Downtown Revitalization Initiative (DRI)** will include a focus on enhanced multi-modal transportation networks, mixed-use housing developments, and expanded employment opportunities throughout the downtown core.


Lockport Downtown Market

Many of the DRI projects are also good candidates to leverage **Energize NY financing.** These projects include renovations at the **Historic Palace Theatre**, redevelopment of a former YMCA building into a mixed use development, and continued developments at **Harrison Place**: a business incubator that houses nearly 40 small businesses and employs 200 people in downtown Lockport.

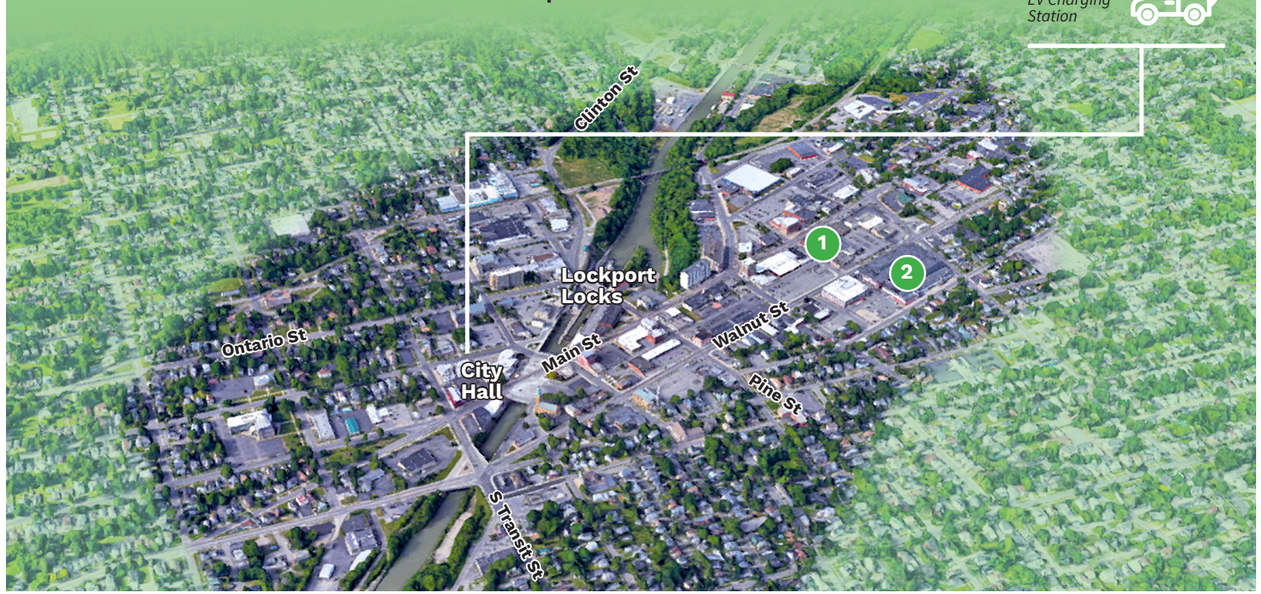
Palace Theater

Harrison Place

The city has also taken steps to make sure its facilities are contributing to the downtown revitalization. The city installed an **electric vehicle charging station** for public use, and is investigating their best options for upgrading their **street lights to LED.**


EV Charging Station

Additional improvements are intended to improve the pedestrian experience throughout **downtown Lockport.**



City of Tonawanda

Operating to Foster a more Sustainable Future

4 High Impact Actions Completed

- Benchmarking
- Energy Code Enforcement Training
- Cleam Fleets
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights

Highlighted Project

- Blueways and Greenways Intermodal Hub

The City of Tonawanda is a waterfront community located in northern Erie County where the Erie Canal meets the Niagara River.

POPULATION	15,130
AREA	4.1 square miles
DENSITY	3,690 people per sq. mile

The City was poised to become a Clean Energy Community early on as it had taken numerous steps to address energy related issues prior to the launch of the program.

According to Tonawanda's mayor, the city was **one of Buffalo Niagara's first communities to install an electric vehicle charging station**, and has installed as much solar as New York State will allow. Leadership sees the value of implementing energy saving measures that save taxpayers' money as a win-win situation. With this in mind the city made the decision to pursue actions that would improve operations while encouraging the community to embrace the benefits of new technologies.

This commitment to a sustainable future has resulted in solar installations at City Hall, Niawanda Park Pavilion, and Department of Public Works facility. These arrays offset much of the city's electricity while also supplying clean energy to the electric vehicle charging station at City Hall.

> We're a small city on this world, but if more cities and villages took on half of what we're trying to do... communities and the environment will be better off for our kids and kids' kids"
>
> **Rick Davis**
> Mayor

Transforming the economy with solar

Tonawanda has expressed a desire to expand solar development on brownfields left behind from the city's industrial past, and is proud to host the **Riverview Solar Business Park**.

Riverview Business Park

Riverview Solar Business Park acts as a living solar lab, where the future of solar technology is tested and implemented to improve energy efficiency and energy production for all tenants of the business park. Some solar technologies utilized in the park include thin film solar technology, roof-mounted photovoltaic panels, ground-mounted solar arrays, and building integrated photovoltaics.

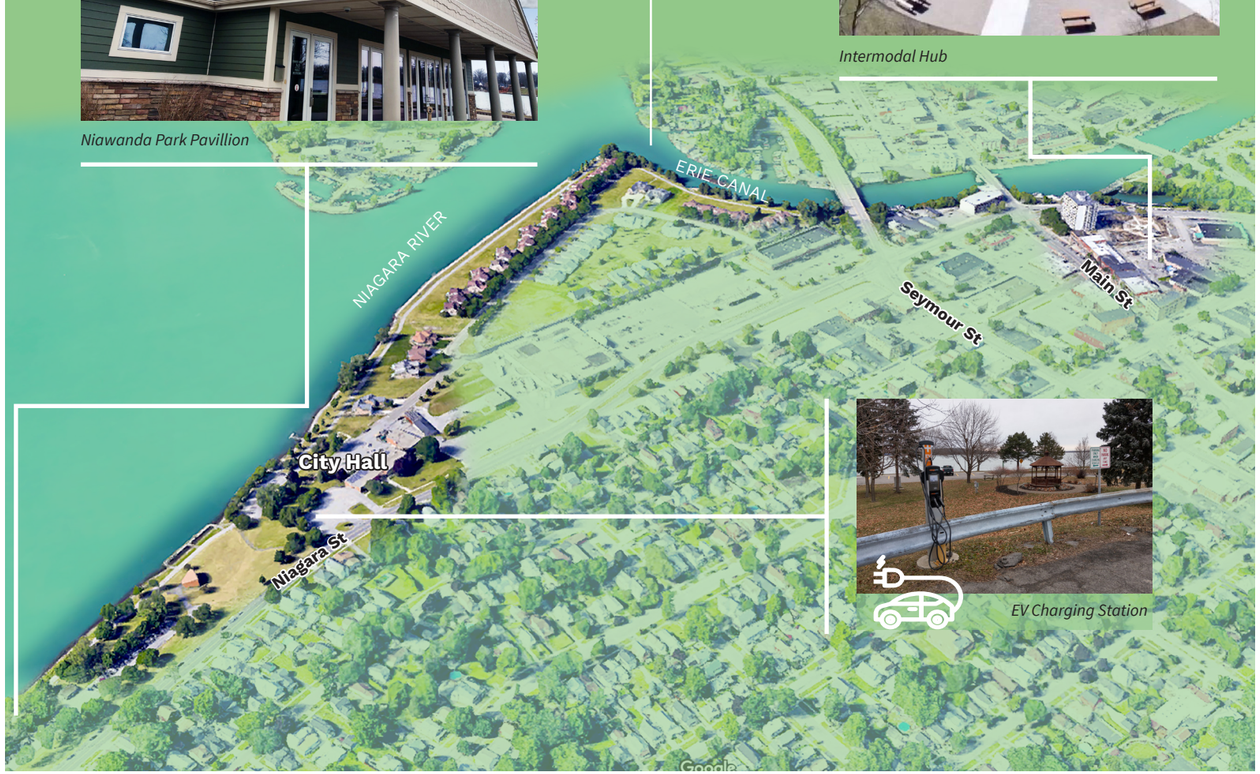

Niawanda Park Pavillion

Supporting multi-modalism

The City of Tonawanda's commitment to sustainability goes beyond energy as it recently developed the **Blueways and Greenways Intermodal Hub.** This regional resource capitalizes on the city's proximity to the Erie Canal, the Niagara River, and Ellicott Creek as well as the Tonawanda Rails-to-Trails, Erie Canalway Trail, and Riverwalk.

The hub provides a public plaza within the downtown area, close to restaurants and shopping. It offers amenities such as parking, lockers, public bathrooms, a bike service station, as well as a water fountain and vending machines for an on-the-go snack.


Intermodal Hub



EV Charging Station

Town of Lewiston

An Ongoing Commitment to Long Term Sustainability

5 High Impact Actions Completed

- Benchmarking
- Clean Energy Upgrades
- Clean Fleets
- Energy Code Enforcement Training
- Unified Solar Permit

High Impact Actions Underway

- LED Street Lights
- Climate Smart Communities Certification

POPULATION	16,262
AREA	41.1 square miles
DENSITY	461.4 people per sq. mile

The Town of Lewiston is located in Western Niagara County along the Upper Niagara River, and is home to the Lewiston Reservoir. This 22 billion gallons of stored energy at the Robert Moses Hydroelectric Power Station is the fourth largest hydroelectric power plant in the United States, and can generate 2,675 megawatts of clean electricity across the facility's 13 turbines.

Lewiston learned about the Clean Energy Communities program while their code enforcement officer was participating in the **NYSERDA Energy Code Enforcement Training**. The Town Board was supportive of the effort to reduce inefficiencies in their operations, and saw aspects of the program that could be used to guide long term sustainability in the town.

From reducing time spent reviewing applications for renewable energy installations, to eliminating costs associated with their vehicle fleet and building operations, the Clean Energy Communities program has enabled Lewiston to improve government operations and reduce greenhouse gas emissions at the same time.

Lewiston is currently looking into **energy upgrades** at their municipal wastewater treatment facility, the largest energy consuming facility in the town. Lewiston officials are also leveraging the **Climate Smart Communities** framework as a guide for long term sustainability efforts.

> We're always looking for ways to save tax dollars, and projects like these help us make that happen."
>
> **Rob Morreale**
> former Town Councilmember

Using data to inform capital improvement projects

The Town of Lewiston committed to tracking energy consumption through benchmarking legislation that was passed in 2018. **The commitment involves tracking energy consumption across five of their largest and highest energy consuming buildings.**

This effort not only allows the town to make capital investment decisions based on potential high consuming facilities, but the tool also allows them to look back through historical usage to see if energy reducing projects' savings estimates were actually realized.

Using this method Lewiston was able to **confirm that the LED lighting projects completed between 2014 and 2018 actually lived up to the projected energy savings associated with the project.**

	2018 Annual GHG Emissions (MTCO2e)
1 Town Hall	15.3
2 Highway Department	15.5
3 Police Station	9.7
4 Wastewater Campus	260
5 Senior Center	4.6

LED Lighting for a Brighter Future

Leveraging a **program offered through a local utility**, the town converted over 700 fixtures at municipal buildings between 2014 and 2018. This transformation reduced facility related greenhouse gas emissions by nearly 37% a year.

By converting outdated lighting fixtures to long lasting LEDs the **Town eliminated an estimated 127,874 kWh of electric consumption while reducing annual electric expenditures.**

714 LED lighting fixtures

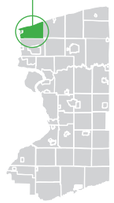
36 Exterior lighting in 2014

+

678 interior lighting in 2017

36.5% of GHG reductions from 2014 to 2018

Town of Porter



Supporting Government Efficiencies with Clean Energy

4 High Impact Actions Completed

- Clean Energy Upgrades
- Clean Fleets
- Energy Code Enforcement Training
- Unified Solar Permit

High Impact Actions Underway

- Benchmarking
- Climate Smart Communities
- LED Street Lights

POPULATION	6,771
AREA	37.7 square miles
DENSITY	179.6 people per sq. mile

The Town of Porter is located at the northwest corner of New York State where the Niagara River meets Lake Ontario in rural Niagara County. Porter is home to historic Old Fort Niagara, the Village of Youngstown and the Hamlet of Ransomville.

Led by the town supervisor with support from the Town Board and staff, Porter attained NYSERDA's Clean Energy Communities designation in the summer of 2019. Having already completed several energy efficiency projects at the Town Hall and Department of Public Works highway garage, the program supported Porter in documenting the impact of these investments while expanding the town's commitment to electric vehicles.

Porter continues to find ways to reduce energy consumption and promote clean energy for its residents, while also taking a leadership role on a regional level. In addition to serving as the **Niagara County Supervisors representative on the One Region Forward Implementation Council**, the town supervisor led an effort to educate peer municipalities in Niagara County on the benefits of **LED street light conversions** and the various options to do so. As a result, numerous towns and villages across the county, including Porter, are moving forward with LED street light conversions.

> "...to have a team like I have where everybody works together...like a well-greased watch; it's amazing. I like coming to work...and they care about this community - THEY CARE!"
>
> **John "Duffy" Johnston**
> Town Supervisor

Reduce consumption, increase production, and eliminate waste

Prior to the CEC program, Porter installed solar arrays at its Town Hall and highway garage, greatly reducing those facilities' GHG emissions. When it introduced an LED lighting project at those buildings in 2018, it further reduced already low GHG emissions and is **bringing Porter's facilities closer to net zero**. Compared to 2015, metric tons of carbon dioxide equivalent was reduced by 98%.

Porter's Town Hall has an EPA Energy Star score of 99 of 100, making it the **most energy efficient Town Hall of all participating Clean Energy Communities**.

97.9% GHG Reductions from 2015.

Town Hall

33 new LED fixtures

6,190 kWh annual energy savings

Highway Garage

51 new LED fixtures

10,635 kWh annual energy savings

Public-Private partnerships to foster innovation

Porter partnered with a local hardware store that has provided a **no cost electric drone mower** to tend to the 3.75 acres of lawn at Town Hall. This GPS guided, self-driving, self-charging, mulching mower cuts the grass at Town Hall and allows the town's Department of Public Works crew to focus their time and attention toward more pressing issues across town.

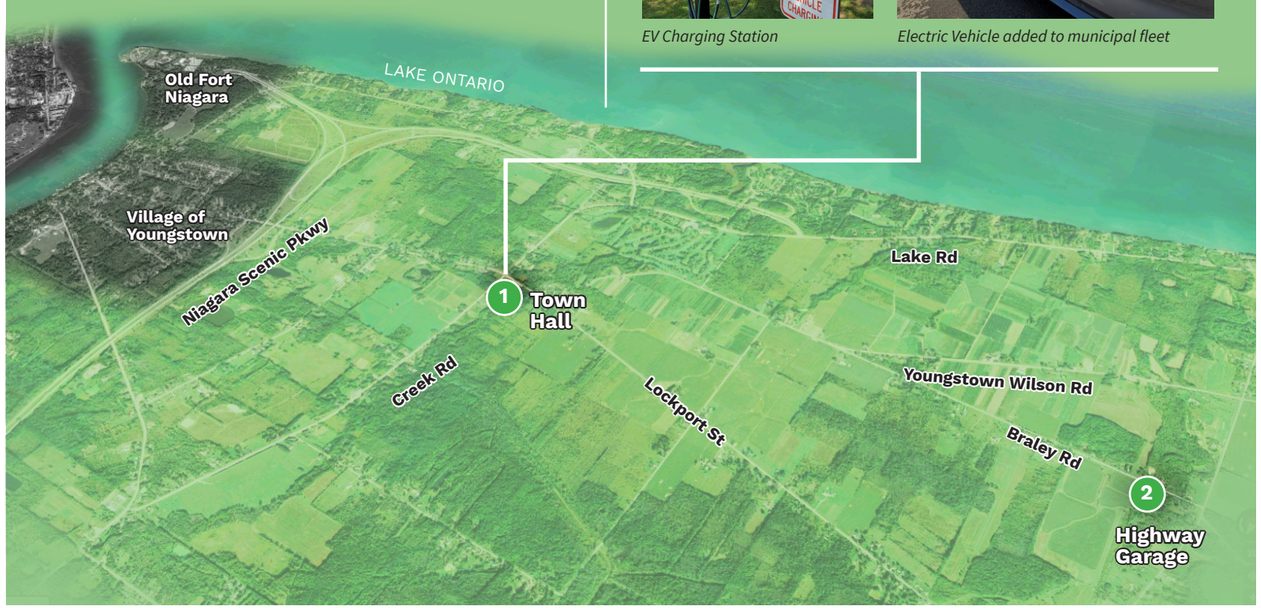
Beyond reducing personnel costs, The all-electric mower helps Porter reduce emissions related to gasoline consumption.

The mower's electric usage is completely offset by electricity generated by the solar arrays at Town Hall for a zero emission lawn care service.

Electric mower

EV Charging Station

Electric Vehicle added to municipal fleet



Town of Colden

Improving Government Through Energy Policy

4 High Impact Actions Completed

- Benchmarking
- Energy Code Enforcement Training
- LED Street Lights
- Unified Solar Permit

High Impact Actions Underway

- Clean Fleets
- Solarize Campaign

POPULATION	3,323
AREA	35.7 square miles
DENSITY	93 people per sq. mile

The Town of Colden, located in the rolling hills of rural southern Erie County is home to a number of seasonal recreational activities including the Buffalo Ski Club and Kissing Bridge snow sports area.

Colden's charge to become a Clean Energy Community was led by its planning board chairman with support from the Town Board. As a small rural community, this type of collaboration among volunteer residents and local elected officials can be critical to advancing new ideas, programs, projects and policies.

Colden was the first designated Clean Energy Community in Buffalo Niagara to complete **LED Street light conversion**, a project that realized energy savings less than one year after project completion. The town was also instrumental in deploying a multi-community solarize campaign for rural communities in Erie County's southtowns in the summer of 2019. Though Colden has yet to submit its documentation showing completion of this high impact action, it successfully signed up 12 new solar customers through the campaign.

> "As a community in rural Erie County we feel it is important to be a leader in this area, due to our limited rural infrastructure, and our desire to save our citizens' money through efficient use of energy within our town."

James Depasquale
Town Supervisor

Tracking progress with data

Through municipal benchmarking Colden was able to confirm assumed inefficiencies at the town Highway Garage which led to energy saving improvements at the facility.

A new garage door and updated heating system were installed in 2018 and the town hopes to see reductions in GHGs associated with the facility moving forward.

Highway Garage

Senior Center

Town Hall

Lighting the way to save

In 2019 Colden became the first Clean Energy Community in the region to replace their outdated street lighting with new LED technology.

232 **lights converted**

89,000 kWh **annual energy savings**

$13,519 **annual savings (estimate)**

The project allowed the town to realize **over $13,000 in annual savings**, and the project cost was recuperated through energy savings within 9 months of completion.

By replacing their 232 high pressure sodium and mercury vapor lights to LED the town reduced their energy consumption by 89,000 kWh, or **62.9 Metric Tons of CO2 emissions** from being released into the atmosphere annually. That represents the **equivalent of what 74 acres of forest draws from the atmosphere in a single year**.

Working together to Solarize the Southtowns

Colden was 1 of 5 participating communities in Green Springville's Solarize Southtowns campaign during the summer of 2019.

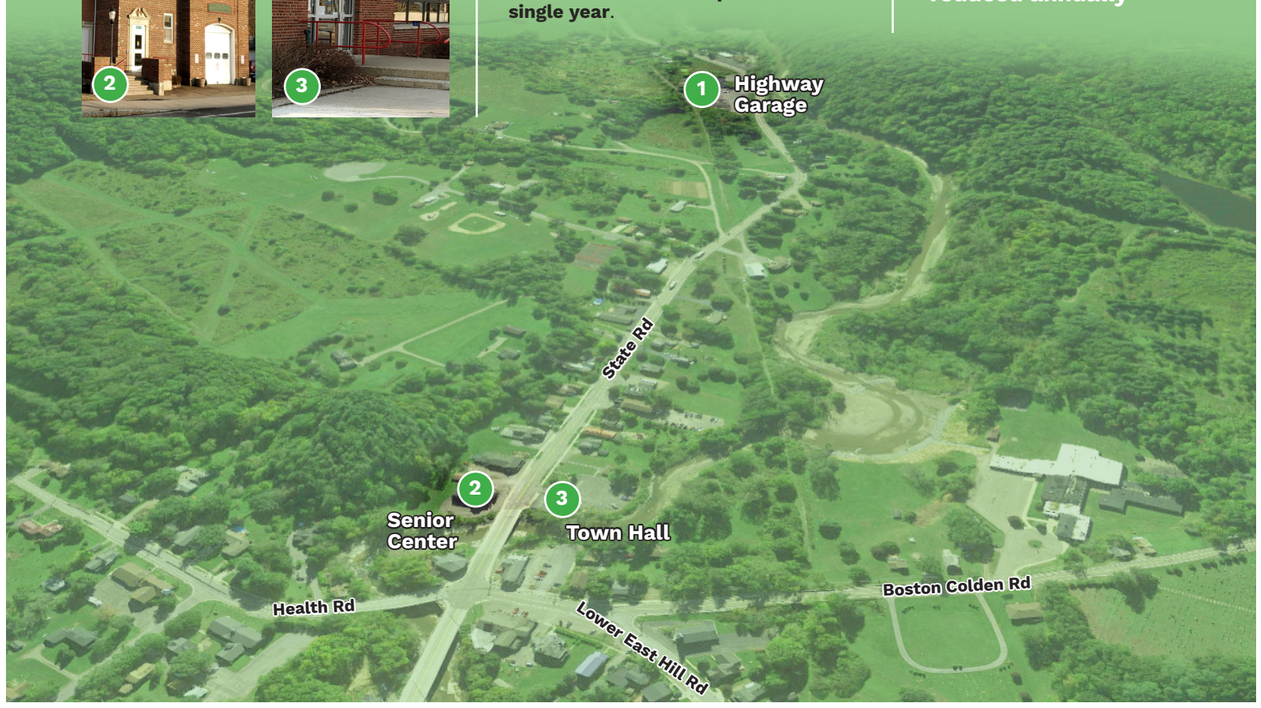
Working with Concord, Eden, Evans and Sardinia, Colden accounted for 12 of the **34 solar energy systems installed. In total, the campaign adds 383,725 kWh of carbon free electricity** across southern Erie County each year.

Solarize Campaign in Colden:

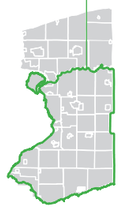
12 **systems installed**

116,150 kWh **installed through solarize**

82.1 MTCO2e **of GHG emissions reduced annually**



Erie County



Commitment to Address Effects of Climate Change

4 High Impact Actions Completed

- Benchmarking
- Clean Fleets
- Climate Smart Communities
- Solarize Campaign

High Impact Actions Underway

- LED Street Lights
- Energize NY Finance

> The Solarize campaign was one of the most fulfilling results of the efforts to achieve CEC designation...The message was taken across the entire county... We made a significant difference and the breadth of the project was inspiring."
>
> **Bonnie Lawrence**
> Deputy Commissioner of the Department of Environment and Planning

POPULATION	925,528
AREA	1,227 square miles
DENSITY	881 people per sq. mile

Erie County is New York's most populous county outside of the New York City Metropolitan area. It is home to the City of Buffalo, and lies on the international border between the United States and Canada where Lake Erie meets the Niagara River.

Erie County's road to Clean Energy Communities designation was motivated by a 2017 Executive Order to adhere to the Paris International Climate Agreement. The County Executive saw a need for local governments to take the lead when addressing issues related to climate change.

With that in mind, the county's Department of Environment and Planning focused efforts to meet those goals and saw the Clean Energy Communities program as a way to support that process. Through program related actions as well as ongoing internal practices and policies, Erie County was able to show **26% greenhouse gas emission reduction within their governmental operations** from a 2005 baseline year. They accomplished this goal within a year of making the commitment.

Organizing data related to meeting the goals of the Paris agreement paved the way for Erie County to become the **first Bronze level Certified Climate Smart Community in Buffalo Niagara**.

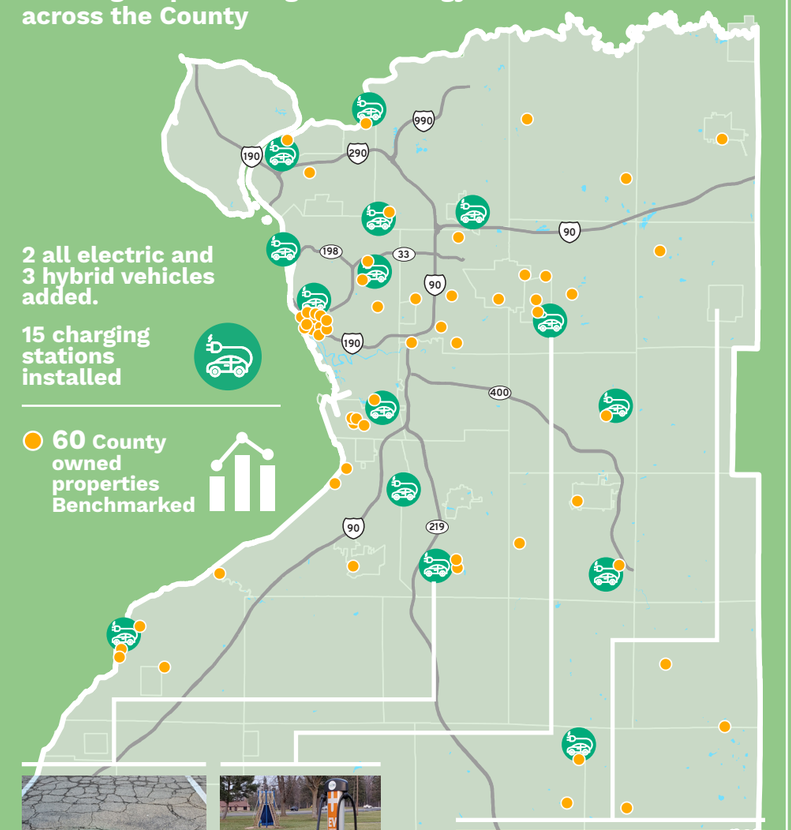
Erie County continues to lead the conversation about climate change and regularly engages regional stakeholders to develop climate action priorities in a thoughtful and inclusive way. These groups include their Environmental Management Committee (EMC), Climate Change Task Force, Internal Green Team, and the Western New York Sustainable Business Roundtable (WNYSBR). These committees allow Erie County to engage and assist local governments, residents and businesses that are also working to take climate action in their communities.

Working on promoting Clean Energy across the County

2 all electric and 3 hybrid vehicles added.

15 charging stations installed

60 County owned properties Benchmarked



EV Charging Station Logo, Chestnut Bridge Park

EV Charging Station, Como Lake Park

2 MW solar array at the Correctional Facility in Alden

Western New York Sustainable Business Roundtable Solarize Campaign

In 2017, Erie County launched the region's second solarize campaign in partnership with 75 member businesses of the Western New York Sustainable Business Roundtable.

- **29 systems and 540 panels installed**
- **Estimated 236,993 kWh of clean energy produced by solar annually**
- **168 MTCO2e GHG Reduction = what 219 acres of forest consumes annually**

Largest Upstate NY Community to achieve Bronze level Certification

Building a Green Team: what began with an internal team has expanded to include the Environmental Management Committee (EMC) and the Erie County Climate Change Task Force. Both include County employees as well as various community stakeholders.

Tracking Energy Consumption Needed to Maintain Over 140 County-Owned Buildings, 1,195 vehicles, 6 water resource recovery stations, 90 pumping stations, and 2,400 lane miles of county owned roads.

Improving Building Stock: Erie County has taken numerous steps to reduce energy consumption across county facilities and eliminate outdated facilities that use excessive energy.

Shifting to Clean, Renewable Energy: Erie County has installed a 2MW solar array at the Alden Correctional Facility and is working to develop an additional 15MW of solar power through **NYSERDA's REV Campus Challenge**; a collaboration between the University at Buffalo, Buffalo State College, SUNY Erie and the City of Buffalo to site 100MW of solar across the region.

Climate Smart Materials Use and Land Management: Erie County adopted the Green Buildings Act which requires all newly constructed or renovated County-owned facilities to adopt LEED building standards, and has published an **interactive natural resource inventory map** on the County's website.

Green Economic Development Plans: Erie County's economic development plan "Initiatives for a Smart Economy" was first developed in 2013 and updated in 2017. Portions of the plan that have been realized include the creation of the **Western New York Sustainable Business Round-table (WNYSBR**).

What was the impact from the CEC communities?

Since the launch of the program in 2017, more than 40 local municipalities have engaged the NYSERDA Clean Energy Communities program. With support from the local technical assistance team at the UB Regional Institute, these local governments are implementing many of the climate and energy goals outlined in the 2015 regional plan, One Region Forward, and are **making our building stock more energy efficient and resilient, transforming our transportation infrastructure, setting the stage for renewables to flourish, and creating climate change policy frameworks to make local communities more resilient.**

Making our building stock more energy efficient and resilient

More than half of the energy consumed in Buffalo Niagara is used to power the region's homes and commercial buildings. A number of Clean Energy Communities high impact actions enable local governments to promote efficiency in publicly and privately owned buildings through policy, programs, projects, and training.

190 municipal buildings
are being tracked for annual **energy consumption** in **10 municipalities**

505.7 MTCO2e reduced annually in **4 communities** through **Clean Energy Upgrades** at **17 municipal buildings**

Over **20** **Code Enforcement Officers** completed the Energy Code Enforcement Training.

Transforming our transportation infrastructure

On average, each car, truck, or bus in the region travels 19.5 miles per day and account for more than a third of all GHG emissions in Buffalo Niagara. Making an impact on this requires the region to focus on efforts that transition us from a largely automobile-dependent region to one that more fully supports diverse travel modes

Part of that solution includes new infrastructure that promotes electric vehicles and smart street lighting. Through the Clean Energy Communities program, local municipalities are turning to electric vehicles and reducing reliance on gasoline in their vehicle fleets while converting low-efficiency street lights to cost effective, high-efficiency LED technology.

25 communities converting **23,000 street lights**

Over **50** **electric vehicle charging stations** installed

18 **electric vehicles** added to municipal fleets

Over 3, 500 gallons of gasoline consumption eliminated

Setting the Stage for Renewables

As Buffalo Niagara transitions away from fossil fuels toward a renewable energy future, local governments are working to ensure access to renewable energy for residents and business owners.

In response to stated clean energy goals and increasing demand to develop renewable energy projects, local municipalities have developed solar laws, adopted streamlined permitting processes, and engaged in community wide campaigns to help residents and businesses implement renewable energy projects. These efforts have resulted in a significant increase in renewable energy generation throughout the region.

6 Solarize Campaigns

Solar installations in **39 ZIP Codes**

1.7 MWh produced annually **by solar installed through Solarize Campaigns**

25 communities across the region have **adopted the Unified Solar Permit**

Policy Frameworks to prepare for climate change

The regions 2 largest communities, **Erie County** and **the City of Buffalo**, have achieved **Climate Smart Communities Bronze Certification.** Several others are taking strides to leverage the Climate Smart Communities framework to inform local planning practices, improve resiliency, reduce waste, and enhance local sustainable actions.

2 Bronze certified **Climate Smart Communities**

13 communities in Erie and Niagara Counties **adopted the Climate Smart Community Pledge**

Commercial Properties

across Niagara County **have access to a new financing tool for energy efficiency and renewable projects for commercial properties.**

Energize NY Financing legislation has been adopted across Niagara County to allow commercial property owners access to financing tools for energy efficiency and renewable projects. Several other municipalities across the region **including the City of Buffalo and Erie County** are exploring adopting the financing mechanism as an economic development tool for clean energy projects in the commercial sector.

Moving Clean Energy Forward

Although this report reflects the work of many communities across Buffalo Niagara, it focuses only on participating communities in the NYSERDA Clean Energy Communities program. We recognize there are other ongoing efforts not reflected in this report that address issues related to resiliency goals outlined in the One Region Forward plan.

Moving clean energy forward is just one way communities across the Buffalo Niagara Region are working to help make the region stronger and more resilient in the face of a changing energy landscape. Regardless of size, municipalities are leading by example by reducing energy consumption and embracing renewables within their operations. At the same time they are also creating pathways for residents and businesses to access clean energy and increased efficiencies through policy initiatives, permitting processes, programming, technology, and training.

Local governments across Buffalo Niagara remain committed to ongoing sustainability efforts including updating inefficient street lighting, developing laws for responsible citing of renewables and energy storage, planning more walkable and vibrant neighborhoods, as well as innovative ways to address more localized issues related to long term sustainability and resiliency.

Support for those actions come from a wide range of community partners including volunteer groups, local not-for-profit organizations and various state agencies. These partnerships often allow local governments to look at projects and planning through a larger sustainability lens. Municipalities are increasingly looking toward the Clean Energy Communities and Climate Smart Communities programs as a framework for implementing high impact actions that preserve our environment while helping foster a clean energy future for the region.

Through continued support from the One Region Forward Implementation Council, the Buffalo Niagara region will have access to direct technical assistance for municipalities, regular training opportunities for municipal staff as well as various resources to empower local officials and residents to affect change across the region. Additional information and resources for One Region Forward can be found at:

One Region Forward: www.oneregionforward.org

NYSERDA Clean Energy Communities Program:

www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities

NYS DEC Climate Smart Communities program:

https://climatesmart.ny.gov/

Data sources and notes

Population and land area figures in case study overviews were drawn from the US Census Bureau, American Community Survey, 2017 estimates (https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2017).

Benchmarking data provided in case studies and the collective impact summary on pages 32-33 were generated using the EnergyStar Portfolio Manager tool, drawing on local building energy data provided by municipal representatives (https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager).

Clean energy upgrade data shown for projects in Aurora, Lewiston, Cheektowaga, and Porter represent the official energy and greenhouse gas savings these projects documented and submitted to NYSERDA for the clean energy projects they completed. NYSERDA estimates GHG reductions based on emission factors provided in the August 2015 ENERGY STAR® Portfolio Manager Technical Reference.

Street light data pertaining to the number of lights considered for conversion to LED technology was provided by individual municipalities. The figure of 23,000 street lights being explored for conversion to LED reported on page 32 is the sum of all street lights in the 25 municipalities that have discussed their intent or desire to convert street lights to LED with the Clean Energy Communities technical assistance team. Annual estimated savings reported for the Town of Colden (p. 29) are based on documentation submitted to NYSERDA in support of their completed street lighting project.

Solarize data summarized in case studies and the collective impact summary on pages 32-33 are based on official reporting of Solarize campaigns submitted to NYSERDA. In the Amherst case study where a map illustrates estimated annual output by census tract, individual solarize contracts signed were aggregated to the census tract level to protect participants' anonymity.

Energy and greenhouse gas equivalency estimates provided in case studies and the collective impact summary on pages 32-33 were generated using the US Environmental Protection Agency Greenhouse Gas Equivalencies Calculator (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator).

Individual interviews were conducted with municipal representatives to identify pertinent project information and perspectives on the Clean Energy Communities process as well as future efforts related to sustainability. Interview participants included: Maggie Hamilton Winship (Village of Williamsville); Mike Delamere (Town of Amherst); Supervisor Diane Benczkowski, Richard Coburn, Dan Ulatowski, and Peter Johnston (Town of Cheektowaga); Jim Jones, James Hartz, Carl Heimiller, and Councilmember William Conrad (Town of Tonawanda); James Bach (Town of Aurora); Beverly Kinney (Town of Grand Island); Brian Smith (City of Lockport); Rick Davis (City of Tonawanda); Timothy Masters, Rob Morreale, Steve Broderick (Town of Lewiston); J. "Duffy" Johnston (Town of Porter); Walter Kammer (Town of Colden); Bonnie Lawrence, P. Josh Wilson, Tracy Skalski, Reed Braman (Erie County)

Images in the document were taken by the Clean Energy Communities technical assistance team at the UB Regional Institute with the exception of the following:

Williamsville: (p. 9) Images of buildings benchmarked and parks are from Google StreetView; base map is from Google Maps (with modification from UBRI); and the photograph of the Village's Nissan Leaf was provided by Village of Williamsville staff.

Amherst: (p. 11) Images of community centers are from Google StreetView; base map is from Google Maps (with modification from UBRI); and the photograph of the Town's Toyota Prius Prime Plus is from the Amherst Bee.

Cheektowaga: (p. 13) Images of Cheektowaga Ice Rink provided through Town Social Media; Solar Charging Station rendering from fleetcarma.com; and base map is from Google Maps (with modification from UBRI).

Tonawanda (Town): (p. 15) Images of Roundabout and Rails-to-Trails provided by the Town of Tonawanda, NFTA Light Rail Rendering is from NFTA; base map and Huntly Power Plant are from Google Maps (with modification from UBRI).

Aurora: (p. 17) Town-Village Hall images (before and after rendering) from Fontanese, Folts, Aubrecht, Ernst Architects PC; base map is from Google Maps (with modification from UBRI).

Grand Island: (p. 19) Solar Array Rendering from Montante Solar; Solarize tabling event image from Grand Island Solarize staff, base map is from Google Maps (with modification from UBRI).

Lockport (City): (p.21) Images of Harrison Place and Main Street Market provided by the City of Lockport; Palace Theatre from lockportpalacetheatre.org; Lockport Locks from Wikimedia.org; base map is from Google Maps (with modification from UBRI).

Tonawanda (City): (p. 23) Image of Riverview Solar Business Park from TM Montante; Intermodal Hub from City of Tonawanda; base map is from Google Maps (with modification from UBRI).

Lewiston (Town): (p. 25) Image of Robert Moses Hydro-Electric Power Station and base map is from Google Maps (with modification from UBRI).

Porter: (p. 27) Images of Town Hall, Highway Garage, and base map is from Google Maps (with modification from UBRI).

Colden: (p. 29) Base map is from Google Maps (with modification from UBRI)

Erie County: (p 31) Image of solar array at Alden Correctional Facility from Erie County

Cited Reports:

One Region Forward: www.oneregionforward.org/the-plan/

Tonawanda Tomorrow: www.tonawandatomorrow.org

City of Lockport (DRI): www.ny.gov/sites/ny.gov/files/atoms/files/Lockport_DRI_Plan.pdf

Erie County Commits to Paris: www2.erie.gov/exec/index.php?q=press/erie-county-commits-paris-climate-agreement

Moving Clean Energy Forward

Case Studies of Buffalo Niagara Designated Clean Energy Communities

2017-2019

Produced by
University at Buffalo Regional Institute

University at Buffalo
Regional Institute
School of Architecture and Planning