

## Seneca Nation of Indians: Renewable Energy for a Changing Climate

The Seneca Nation (O-non-dowa-gah) are known as the “Keeper of the Western Door,” which was a name delegated to the Seneca Nation during the formation of the Iroquois Confederacy for being the westernmost of the Six Nations (sni.org, 2021). Historically, Seneca Nation occupied territory throughout the Finger Lakes area in Central New York and in the Genesee Valley in Western New York (sni.org, 2021). Early Seneca members were subsistence hunters and fishers and relied heavily on agriculture to cultivate the Three Sisters: corn, beans, and squash.

Today, Seneca Nation is comprised of five noncontiguous territories in New York – Cattaraugus, Allegany, Oil Spring, Niagara, and Buffalo. Allegany and Cattaraugus are the two residential territories which are each about thirty thousand acres. The City of Salamanca is the “only city in the world entirely on an Indian reservation” (sni.org, 2021). Seneca has approximately 8,500 members worldwide, with ~4,500 living within the two residential territories.

### Climate Context & Challenges

Like, many Native Nations and communities across the country, Seneca Nation has experienced effects of the changing climate in recent years, including increased average temperatures, more frequent and severe precipitation events, and flooding. This past August, the Nation experienced its hottest temperatures on record; with 2016 being its second hottest summer to date. Warming temperatures in this region are impacting the Nation’s wildlife, particularly the aquatic species like walleye and trout. The Allegany River and Cattaraugus Creek are well known for their vibrant fishing waters. However, increased water temperatures threaten to drastically reduce or eliminate these fish species. These waterways, as well as Lake Erie, are paramount to the cultural and environmental preservation of the Seneca Nation. In addition to warmer summer temperatures, the Nation is experiencing increased flooding across the Cattaraugus and Allegany Territories. Although not yet a major threat, continued increased flooding could impact Seneca Nations’ agricultural livelihoods and significantly impact residential areas.

In congruence with climatic changes, Seneca Nation is experiencing an increase in populations of invasive species such as: emerald ash borer, gypsy moth, giant hogweed, knotweed, and phragmites; among many others. A recent gypsy moth outbreak has had major effects on the health of many other tree species. The emerald ash borer devastation also poses a threat to the estimated 1,000 dead ash trees on the Cattaraugus Territory. If these trees fall or burn, this could be detrimental to the Nation’s recent ~\$9-million-dollar investment in the broadband and electrical infrastructure. Not to mention, there are potential wildfire risks associated with falling branches on electrical infrastructure.

### Seneca Energy

With climate change and the environment at the forefront of Seneca Nation’s values, renewable energy development has brought environmental, social, and economic benefit to the Nation. Seneca Energy is owned and operated by the Seneca Nation, whose operations are maintained by a small but mighty team of seven employees, including Anthony Giacobbe, director of Seneca Energy. Seneca Energy was established in 2014 under the Tribal



leadership of President Berry Snider in response to increased natural gas and propane prices and as an attempt to reduce their carbon footprint and improve the environment. The Nation believes that they must actively promote, attract, and encourage economically sound commercial activities through governmental action for the purpose of diversification and growth of the Nation. The purpose of Seneca Energy is to develop, acquire and/or invest in energy related economic development opportunities both on and off its territories.

In its early inception, Seneca Energy investigated the possibility of hydropower as an energy source because of the 1960s Kinzua Dam which was created to avoid flooding in Pittsburg. Unfortunately, the Kinzua Dam was extremely problematic for Seneca as it diverted water from the Allegheny River and flooded nearly 10,000 acres of Tribal land. Seneca Energy did not end up pursuing any hydropower energy projects.



Seneca Nation has however, gained national recognition for its solar and wind installations. After many years of planning, the \$6 million, 1.5 MW wind turbine was installed on the Cattaraugus territory in 2016. The planning and implementation period for the \$3.4 million, 2 MW solar installation in the Allegany territory was significantly shorter thanks to many learned lessons from the wind installation. The solar project started in 2016 and was installed by 2017, consisting of a total of 5,746 solar panels. These projects were both funded by the New York State Energy Research and Development Authority

(NYSERDA), along with significant investment from the Nation. The Nation also received \$1.5 million from the Department of Energy (DOE) for the installation of the wind turbine through the Office of Indian Energy. Since 2017, these two renewable energy installations have generated 20 million kilowatt hours of power combined, which is equivalent to removing 3,000 cars off the road each year and has generated power for over 2,500 homes.

These renewable energy projects evolved with the larger tribal community in mind both in terms of involvement and beneficiaries of these projects. As a treaty nation, Seneca Nation is not required to go through the National Policy Environmental Act (NEPA) process but since Seneca received Department of Interior funding for these renewable energy projects, NEPA studies were required which includes a community engagement component. Seneca Energy received positive feedback about the projects overall from the community meetings held and public comments gathered. The solar and wind projects emerged with the intent to stabilize and reduce electric costs for Seneca members living on the territories. Currently, Nation members receive a \$25 savings on their monthly electric bill, which equates to 25-33% of an average bill in the area.

While it is important to Seneca Nation for its members to benefit from the direct cost savings associated with renewable energy, it is equally essential to build tribal capacity to plan, install, and maintain these projects and accompanying infrastructure. For example, the wind turbine was installed by nine Seneca members who are also union workers, and Seneca Energy partnered with a

local, Seneca owned business to install the solar racking and modules. Tribal capacity building continues through taking over the natural gas utility from National Fuel.

As owners and operators of the natural gas service, Seneca Energy will further bring down energy costs for Tribal members by converting energy use from propane to natural gas. There is an



estimated \$1,500-\$2,000 savings depending on the household.

The Seneca Nation has entered into an agreement with the local, investor-owned utility company to take over all-natural gas distribution assets and customers on the Cattaraugus Territory. This will result in the Nation controlling ~14 miles of natural gas distribution pipeline and servicing ~220 customers. Taking over the natural gas service not only creates more job opportunities for Tribal members, but also contributes to the Seneca's values of energy independence and sovereignty.

### **Challenges and Lessons Learned**

Many challenges that Seneca Energy experienced occurred during their first project, which was the 1.5 MW wind turbine.

In the middle of the NEPA process, the New York long-eared bat was discovered in the area where the wind turbine was going to be installed and put on the threatened species list.

Seneca Energy worked with U.S. Fish and Wildlife to assess

mitigation strategies to preserve the bats which included: installing a light on the turbine, reducing the cutting speed for the first year, and post-construction on the ground monitoring of birds and bats. Since no wildlife were getting caught in the blades, the wind turbine is now able to operate at full speed. Another challenge faced during the wind install was sourcing a single wind turbine, as most companies prefer to sell multiple turbines at once. In the end, Seneca Energy worked with the German company, VENSYS, to purchase the turbine and complete the project. The Seneca Nation has enjoyed its partnership with VENSYS, who manufactures a state-of-the-art direct drive turbine, reducing the overall required maintenance.

Seneca Energy learned many lessons during their wind and solar installations. Networking and collaboration, both internally and externally, played a huge role in their success. It is important to work across the various departments upfront, which includes establishing an Energy Steering Committee and a Utilities commission. These Commissions provide guidance on the project's past, present, and future. Equally important is having good working relationships with the established investor-owned utilities, working with technical experts that the Nation finds trustworthy, as well as working with companies and entities that are similar in size and scope.

## **Moving Forward**

Seneca Energy recently installed LED in all Tribal buildings and created a small microgrid run on solar and batteries at the walleye fish hatchery in Allegany. The company is currently performing a feasibility study for an emerging microgrid project that would power its Cattaraugus Administration Building, Clinic, Community Center and Wastewater Treatment Plant during emergencies, power outages or when costs exceed certain levels.

This is an exciting project that would allow the Nation to operate these key facilities during times of

emergencies on Territory thereby enhancing the Nation's resilience during times of increasing climate extremes. This November Seneca Energy will begin construction on its broadband project which has been a year and half in the making. Construction includes a 52-mile network that would provide high speed internet to the Tribal community, which the it currently lacks. This broadband project indirectly contributes to Seneca's climate mitigation efforts because high speed internet is needed to run microgrid controls. Seneca Nation has proven to be a leader in energy independence and sovereignty through its many energy projects.



## **References**

Seneca Nation of Indians. (2021). [sni.org/culture](https://sni.org/culture)