Facility Energy Efficiency Project

US DEPARTMENT OF ENERGY OFFICE OF INDIAN ENERGY

ENERGY INFRASTRUCTURE DEPLOYMENT ON TRIBAL LANDS

Oneida Indian Nation

FACILITY ENERGY EFFICIENCY PROJECT

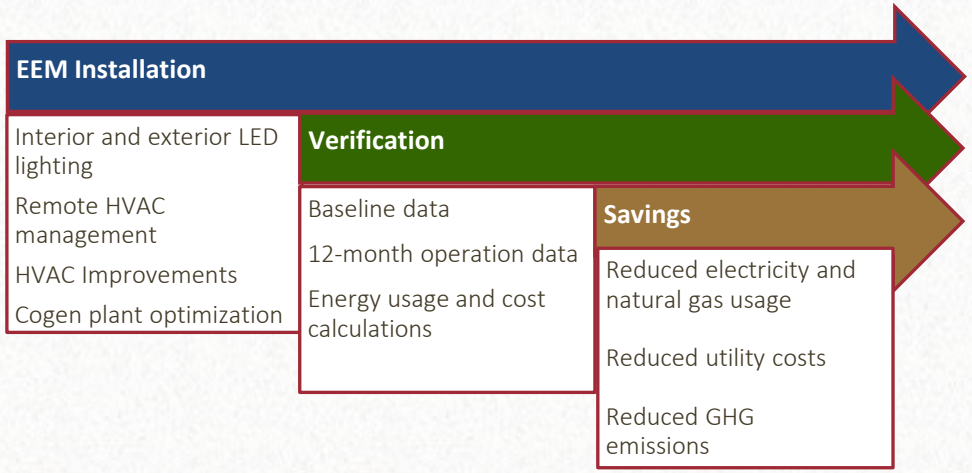
MULTIPLE ENERGY EFFICIENCY MEASURES

Oneida Indian Nation's building energy efficiency upgrades will generate substantial financial and environmental benefits

Oneida Indian Nation's *Facility Energy Efficiency* project aims to reduce energy usage by installing energy efficiency upgrades throughout ***27 Oneida-owned buildings*** (office space, warehouses, police facilities, convenience stores, and entertainment venues), covering over ***3.8 million square feet*** of facility space:

- Interior and exterior lighting upgrades with LED technology
- Remote HVAC management
- Improvements to kitchen hoods, HVAC units, and central utility plant

This project furthers the Oneida goal to preserve and protect its natural resources to ensure a safe, healthful, and productive environment for current residents and visitors on its lands, as well as for the seventh generation to come.



Key Personnel

Key Oneida Indian Nation personnel include:

- Ray Halbritter, Nation Representative & Chief Executive Officer
- Peter Carmen, Chief Operating Officer, Business Contact
- Bryan Mignone, Deputy General Counsel, Technical Contact
- Paul Gwilt, Director of Oneida Indian Nation Facilities
- Brian Snyder, Director of Turning Stone Facilities

Budget

Federal funds requested: $1,523,946

Cost-share: $512,768

Total Project Costs: $2,036,714

Project Outcomes

(1) over ***$450,000*** saved annually
(2) decrease of more than ***4 million kWh*** and ***50,000 therms*** of energy usage annually
(3) reduction of more than ***3,000 metric tons of greenhouse gas emissions*** annually

The payback period for this project is ***4 years***.

Realization of these impacts will help the Oneida Indian Nation achieve its goal of effective environmental stewardship.

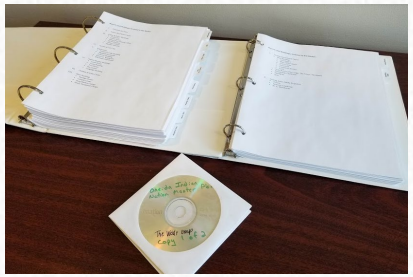
Project Goal

The Oneida Indian Nation recognizes the need to be a responsible steward of its resources—including energy resources—while encouraging economic development to support the needs of its operations, programs, and members. The ***goal*** of the Oneida Indian Nation *Facility Energy Efficiency Project* is to build upon a previously conducted energy audit of Oneida buildings to implement energy efficiency measures across 27 facilities.

As part of a US Department of Energy *First Steps toward Developing Renewable Energy and Energy Efficiency on Tribal Lands* grant awarded in 2017, the Nation contracted with an energy consultant to provide a comprehensive analysis of energy consumption for approximately 40 buildings (~3.8 million square feet of building space).

The resulting audit, consistent with ASHRAE Level II requirements, provided dozens of recommended efficiency measures for the facilities studied.

Energy Master Planning deliverables



- A full energy audit of all Oneida facilities was conducted by a highly qualified consultant group in 2018.
- The consultant made recommendations for specific technologies that would boost energy efficiency in each building.
- The recommendations included cost estimates, savings projections, and a Savings-to-Investment Ratio for each measure.
- Oneida leadership reviewed the audit results and energy efficiency recommendations and selected project components with reasonable returns on investment and significant impact in terms of energy and cost savings.

Energy Efficiency Measures

Interior / Exterior LED Lighting (28 buildings)

Replacing the existing incandescent, fluorescent, and high intensity discharge fixtures with new LED fixtures and occupancy sensors.

Exterior lighting (primarily parking lots, including those at Turning Stone) are being updated to LED fixtures, some with photocell sensors.

Remote HVAC Management – most facilities

Installation of programmable, remote thermostats with demand control ventilation system, CO_2 sensors, and Remote Terminal Unit Distributed Control System (RTU DCS) controllers.

Other EEMs include

- Kitchen exhaust hood controls
- Snow melt boiler replacement
- HVAC replacements
- Central Utility Plant chilled water upgrades – VSD pump and controls

Turning Stone is the area's largest consumer of energy

The Turning Stone Resort Casino is comprised of 3.4 million square feet of facility space across multiple buildings on an 812-acre campus. Turning Stone is the largest Oneida facility and includes gaming space, lodging facilities, spas, entertainment complexes, dining and banquet facilities, and administrative offices.

In a given year, the amount of electricity and natural gas purchased and used by Turning Stone could light over 104,100 homes and heat over 7,600 homes in New York State.

The EEMs for Turning Stone include exterior LED lighting replacement; a chiller system upgrade at the Cogen plant which includes the installation of water pump controls to balance water temperature and volume for maximum efficiency; and, installation of energy efficient kitchen exhaust hoods with sensors that allow operation to be adjusted based on cooking intensity.

Turning Stone EEMs represent 44% of the projected savings over 4 years.

How it started . . .

Project staff completed initial project steps:

- Complete list of all equipment and supplies with model numbers and brands, where applicable, and identification information for each item.
- Developed detailed scopes of work that could be provided to potential vendors.
- Prepared requests for proposals (RFPs) for each element of every project component. Some components require materials, installation, mechanical work, and electrical work – four RFPs for one project component.
- Found vendors that were available to bid on project components.
- Scheduled and conducted walk-throughs to familiarize vendors on the details of the project components and to answer vendor questions.
- Accepted and reviewed bids and selected the most appropriate vendors; sent bids to DOE for approval.
- Negotiated contracts with the selected vendors.

How it's going . . .

Completed project components:

- Kitchen exhaust hood controls installed so they don't run constantly.
- Central Utility Plant (CUP) chilled water optimization upgrade.
- CUP chilled water pump upgrade to VSDs.
- Parking lot lights replaced with LED units.
- Snow melt boiler put into service.
- 87 Remote thermostats placed.
- LED replacement light fixtures in 28 buildings.

HVAC upgrades, which were only approved via modification in early 2024, are being completed now.

Started measuring verification of savings on January 1, 2023, which will continue until all components are installed and savings verification is complete.

Challenges

COVID-19 Pandemic

- Production of parts was delayed, and there were repeated changes to delivery dates.
- Delivery transportation was delayed everywhere for all materials during and immediately after the pandemic.
- Vendors were working with fewer staff members or closed permanently, while other were so busy they did not have the time to bid or complete the project work.
- Oneida lost some key staff who had to be replaced.

Running a 24/7 Operation

- Oneida is working with input from facilities staff and building occupants to minimize disruption to daily operations.

Inflation

- To offset the higher cost of light fixtures, staff reevaluated the need for new poles and determined that it could reuse most of them.

Quantity

- The sheer number of light fixtures required to replace all of the existing light fixtures – 7 tractor trailer loads! - required a phased delivery process.

Verification: Turning Stone Deemed Savings Approach

Challenge: Verification of savings at Turning Stone presents a unique challenge.

- EEMs will not be individually metered, making isolation of each EEM difficult.
- Turning Stone is a large, multi-use facility with multiple maintenance and expansion projects potentially occurring each year with timetables that overlap this EEM project.

Solution: At Turning Stone, savings are based on data from the 2018 energy audit for each EEM. This method assumes that the stipulated monthly savings for each EEM will be held constant and that EEMs are successfully installed and operating properly. Annual energy savings, in kWh and therms as applicable, are calculated and projected now that all Turning Stone EEMs are installed and functioning. Monetary savings are calculated using the resulting energy savings and the current utility rates for Turning Stone.

Verification: Other Oneida Buildings
Whole Building Verification

The Oneida Indian Nation uses a B3 Benchmarking system to track energy use in its facilities.

- The software provides the ability for the user to flag a point in time where a change was made, allowing staff to note the implementation date of any EEMs made at a building.
- Staff uses the program to compare a baseline year to a 12-month period after installation of EEMs. The analysis takes into account when each event occurred, which helps to explain fluctuations.

BENCHMARKING

Dreamcatcher Plaza

Period 1: April 2023 - June 2023

Period 2: April 2022 - June 2022

				Electric								Natural Gas									
				Usage				Cost				Usage				Cost					
Site Name	Building Type	Avg. SF During Period 1**	Avg. SF During Period 2**	Period 1 (kWh)*	Period 2 (kWh)*	Change From Period 2	% Change From Period 2	Period 1 (Cost)*	Period 2 (Cost)*	Change From Period 2	% Change From Period 2	Period 1 (Therms)*	Period 2 (Therms)*	Change From Period 2	% Change From Period 2	Period 1 (Cost)*	Period 2 (Cost)*	Change From Period 2	% Change From Period 2	Organization ID	Site ID
Dreamcatcher Plaza	Office	100,130.00	100,130.00	143,933	199,503	-55,570	-27.85%	12,829	20,403	-7,575	-37.12%	9,006	13,002	-3,995	-30.73%	5,247	12,192	-6,945	-56.96%	2044	16060

Facility Energy Efficiency Project

US DEPARTMENT OF ENERGY OFFICE OF INDIAN ENERGY

CLEAN ENERGY TECHNOLOGY DEPLOYMENT ON TRIBAL LANDS 2022 GRANT

Oneida Indian Nation
Oneida Indian Nation Clean Energy Deployment Project

Project Summary

The Oneida Indian Nation's Clean Energy Deployment project will significantly reduce the Nation's energy usage by supporting the installation of energy efficiency upgrades to its Central Utility Plant and energy efficient lighting in the Nation's large event venues. The Central Utility Plant provides energy to the 3,400-acre Turning Stone Resort properties, reducing the Nation's footprint on the local public energy grid.

This project furthers the Nation's goal to preserve and protect its natural resources to ensure a safe, healthful, and productive environment for current residents and visitors on its lands, as well as for the seventh generation to come.

EEM Installation
- Air Compressor upgrades
- Boiler upgrades
- Energy efficient lighting

Verification
- Baseline verification
- 12-month operational data
- Energy usage and cost calculations

Savings
- Reduced electricity and natural gas usage
- Reduced utility costs
- Reduced greenhouse gas emissions

Key Personnel/Organizations

Key Oneida Indian Nation personnel:
Ray Halbritter, Nation Representative and Chief Executive Officer
Peter D. Carmen, Chief Operating Officer, Business Contact
Bryan Mignone, Deputy General Counsel, Project Manager
Brian Snyder, Turning Stone Director of Facilities

Budget

Federal funds requested: $549,524
Cost share proposed: $137,381
Total project costs: $686,905

Project Outcomes

This project will result in the following outcomes:

1. Save more than $100,000 in annual energy costs;
2. Decrease annual energy usage by 660,000kWh and 50,000 therms;
3. Reduce annual greenhouse gas emissions by 779 tCO_2e.

The simple payback period for all project measures is 1.90 years.

Realization of these impacts will help the Oneida Indian Nation achieve its goal of effective *environmental stewardship*.

Oneida Indian Nation's energy efficiency upgrades will generate substantial environmental and financial benefits.

Project Goal

This project is in response to an energy audit of Oneida Indian Nation buildings that was performed in 2022-2023 by a consultant consistent with ASHRAE Level II requirements, which identified high-value upgrades that will have the greatest impact on energy and cost efficiency. All energy efficiency measures (EEMs) identified by the Oneida Indian Nation for this project will be located at the Turning Stone Resort Campus.

The project will improve the energy efficiency and self-sufficiency of the Nation by reducing the amount of energy purchased from the local grid and the costs of that energy, at levels exceeding the above-stated project goals, and will provide the Nation with the opportunity to further support efforts to protect its environment and natural resources, ensuring a safe, healthful, and productive environment for residents and visitors on Nations lands, as well as for the seventh generation to come.

Energy Efficiency Measures

Central Utility Plant Upgrades

- *Boiler economizer upgrade* - adding an exhaust stack economizer (heat exchanger that recovers waste heat from boiler flue gases to preheat water) to feed a heat exchanger that will then be utilized to preheat the make-up water to the boiler, thus resulting in lower gas usage.
- *Air compressor Variable Frequency Drive (VDF) upgrade* - replace one of the existing 50 horsepower air compressors at the plant with a VFD air compressor to reduce energy consumption while more accurately meeting the central utility plants compressed air needs.
- *Boiler VFD* – Upgrading the boiler units that provide provide steam to the plant with VFDs and upgraded controls for the combustion air to fuel mixture that will reduce the electrical and natural gas consumption.

Lighting Upgrades

- Upgrade to lighting and lighting controls in Turning Stone's Event Center, which opened in 2004, is Turning Stone's large main arena, covering 48,000 sq. ft. and seats up to 5,000 guests. This will include retrofitting the existing compact fluorescent high bay light fixtures and compact fluorescent can light fixtures with new LED lamps.
- Upgrade to lighting and lighting controls in Turning Stone's Showroom, which opened in 1998, was recently renovated and seats up to 715 guests. This will include retrofitting the existing two lamp compact fluorescent can light fixtures with LED lamps that are compatible with the existing dimming system.

Project Status

Procurement for all scopes of work is wrapping up and vendors will be selected and under contract by early 2025. All work is expected to be complete within the 2025 calendar year, at which point energy/cost savings verification will begin.

Facility Energy Efficiency Project (Phase 2)

US DEPARTMENT OF ENERGY OFFICE OF INDIAN ENERGY

CLEAN ENERGY TECHNOLOGY DEPLOYMENT ON TRIBAL LANDS 2023 GRANT

Oneida Indian Nation
Oneida Indian Nation Energy Efficiency Project Phase 2

Project Summary

The Oneida Indian Nation's Clean Energy Deployment project will significantly reduce the Nation's energy usage and expense and decrease greenhouse gas emissions by supporting the installation of energy efficiency upgrades to ten facilities on Nation land. The combination of upgrades to air and water handling units, replacement of light fixtures with energy efficient LED models, installation of occupancy sensors, and weatherization improvements to selected buildings will continue the Nation's efforts to increase its energy efficiency and reduce costs associated with its purchase.

This project furthers the Nation's goal to preserve and protect its natural resources to ensure a safe, healthful, and productive environment for current residents and visitors on its lands, as well as for the seventh generation to come.

EEM Installation
- Air Handling Unit upgrades
- Hot water pump upgrades
- Energy efficient lighting
- Weatherization improvements

Verification
- Baseline verification
- 12-month operational data
- Energy usage and cost calculations

Savings
- Reduced electricity and natural gas usage
- Reduced utility costs
- Reduced greenhouse gas emissions

Key Personnel/Organizations

Key Oneida Indian Nation personnel:
Ray Halbritter, Nation Representative and Chief Executive Officer
Peter D. Carmen, Chief Operating Officer, Business Contact
Bryan Mignone, Deputy General Counsel, Project Manager
Jerry Marrello, Vice President of Regional Casinos
Brian Snyder, Turning Stone Director of Facilities
Paul Gwilt, Director of Nation Facilities

Budget

Federal funds requested: $1,097,112
Cost share proposed: $274,279
Total project costs: $1,371,391

Project Outcomes

This project will result in the following outcomes:
- Save more than $260,000 in annual energy costs;
- Decrease annual energy usage by 3,000,000 kWh and 35,000 therms;
- Reduce lifetime greenhouse gas emissions by more than 7,500 tCO2e.

The aggregate simple payback period for all project measures is 5.20 years.

Realization of these impacts will help the Oneida Indian Nation achieve its goal of effective *environmental stewardship*.

Oneida Indian Nation's energy efficiency upgrades will generate substantial environmental and financial benefits.

Project Goal

This project is in response to the same previously mentioned energy audit of Oneida Indian Nation buildings that was performed in 2022-2023 by a consultant consistent with ASHRAE Level II requirements, which identified high-value upgrades that will have the greatest impact on energy and cost efficiency.

This project will increase the energy efficiency of multiple buildings through 19 energy efficiency measures (EEMs) that will improve the efficiency of air handler fans and water pumping systems, upgrade lighting, increase energy efficiency through the addition of occupancy sensors, and enhance

The EEMs will be installed in facilities within the Turning Stone Resort Casino campus, the adjacent Car Care facility, and four additional structures, a convenience store, the Dreamcatcher Plaza administrative building, Point Place Casino, and The Lake House.

Energy Efficiency Measures

- **Turning Stone Event and Banquet Center:** This EEM will install variable frequency drives on the existing air handler supply fan motors and modify constant volume to variable air volume boxes servicing the corresponding areas. This will allow the motors to run at slower speeds, providing electricity savings and reduced greenhouse gas (GHG) emissions.
- **Turning Stone Shenandoah Clubhouse Hot Water Pump:** Install a variable frequency drive (VFD) to the pumps. Currently, the control valves cannot completely close, leading to excess energy use on the boiler.
- **Turning Stone Shenandoah Clubhouse Hot Water Valve:** Related to the above, change the existing control valves so that they can completely close. This will result in natural gas savings and reduced GHG emissions.
- **Turning Stone Brook Hotel Building New Boiler and Hydronic Heating Upgrade:** This EEM will install a new condensing boiler rated at 2 MBTU to satisfy the heating load during the summer. The savings will come from operating a properly sized boiler instead of the existing high-capacity boiler sized for heating load in summer.
- **Turning Stone Convention Center New Occupancy Controls:** Six Turning Stone conference rooms are mostly unoccupied, yet the light and temperature controls operate 24/7. This EEM will install occupancy controls to reduce lighting and turn off HVAC systems when unoccupied.
- **Car Care Facility Weatherization:** Existing double-paned windows are subject to condensation and mold, indicating damaged glazing and sealant failure. This EEM will replace them with high-efficiency windows with reduced thermal conductance and solar heat gain coefficient.
- Other EEMs will include lighting upgrades across the facilities, additional window weatherization improvements and installation of occupancy sensors at various facilities.

Project Status

For most of the EEMs, scopes are being prepared so that the procurement process can begin.

Projects at Point Place Casino, the Lake House (lighting upgrade and occupancy sensors), Dream Catcher Plaza (weatherization) and the SavOn Convenience store (lighting upgrade) are underway.

Thank You!

Questions?