ENERGY MASTER PLANNING PROJECT

U.S. DEPARTMENT OF ENERGY

FIRST STEPS TOWARD DEVELOPING RENEWABLE ENERGY AND ENERGY EFFICIENCY ON TRIBAL LANDS

THE PROJECT

- The Nation contracted with an energy consultant to provide a comprehensive analysis of energy consumption for approximately 50 buildings (~3.5 million square feet) and to develop a plan to move forward with the implementation of energy efficiency measures. The audit will be consistent with ASHRAE Level II requirements and requirements of the DOE First Steps Toward Developing Renewable Energy and Energy Efficiency on Tribal Lands, Topic Area 2.

- Prior to beginning the audit process, the Nation provided the consultants with consumption data for gas, electricity, oil, propane, etc., and building usage profiles for each of the Nation's facilities, including occupancy and hours of use.

TURNING STONE IS THE AREA'S LARGEST CONSUMER OF ENERGY

Over the last twelve months Turning Stone purchased 29,966,000 kWh of electricity from the local utility, generated 32,708,000 kWh of electricity and consumed 6,499,000 therms of natural gas. 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.

PROJECT OBJECTIVES

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 Nation of New York *Energy Master Planning Project* is to conduct a baseline energy analysis of all Nation properties and facilities in order to meet the ***objectives*** of:

(1) establishing a system for setting energy efficiency improvement goals,

(2) developing an evaluation tool to assist with future comparison of energy usage, and

(3) providing a comprehensive analysis of energy consumption to enable the development of a plan that will result in less use of less energy, increase energy efficiency in tribal buildings, and increase available funding to meet the Nation's economic and environmental priorities.

The ***benefits*** of the project will enable the Nation to achieve governmental self-sufficiency and economic independence by reducing dependency on outside energy sources and realizing cost savings associated with energy efficiency, while still protecting the environment.

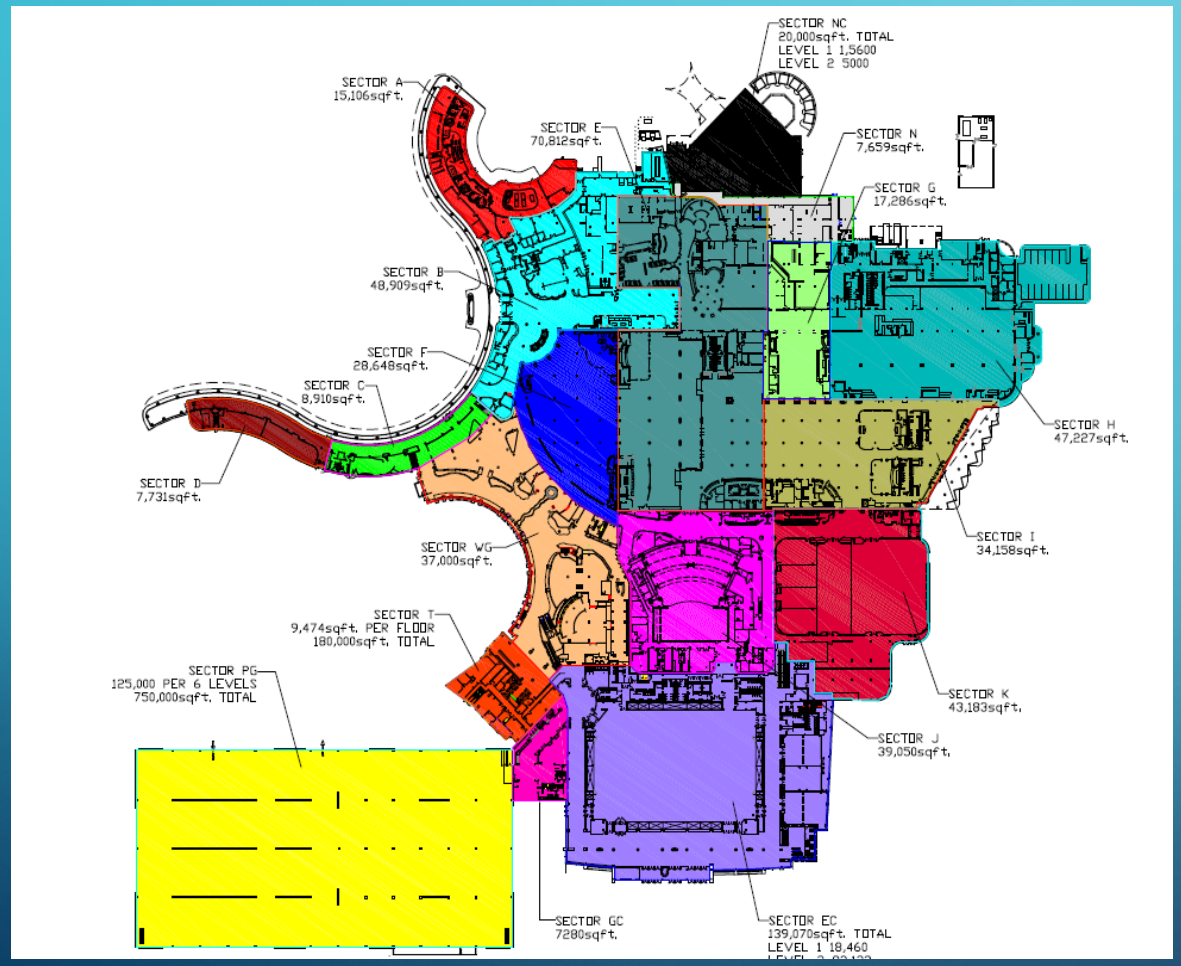
The ***impact of DOE funding*** will support the Nation's efforts to maintain government programs and services by streamlining economic efficiency and development and to protect its environment and natural resources, to ensure a safe, healthful and productive environment for current residents and visitors on its lands, and for the seventh generation to come.

ANTICIPATED OUTCOME

At a minimum the measurable end-products were to include:

1. All reasonable measures, including capital improvements, that would, if implemented, reduce energy use and/or the cost of operating the building;
2. For each measure, the associated annual energy savings, the cost to implement, and the simple payback, calculated by a method determined by the department;
3. A break-down of energy usage by system and predicted energy savings by system after implementation of the proposed measures; and,
4. A general assessment of how the major energy consuming equipment and systems used within spaces impact the energy consumption of the base building systems based on a representative sample of spaces.

SUMMARY OF NATION PROPERTIES STUDIED



Turning Stone Resort Casino

Turning Stone Resort Casino 700 Hotel Rooms –
Over 4.5 million guests per year

- **4 Hotels**
- **2 Golf course clubhouses**
- **11 Restaurants**
- **2 Spas**
- **Golf Dome and Sports Complex**
- **Entertainment Venues**

Yellow Brick Road Casino

10 SavOn gas stations and convenience stores

Warehouses

Administrative buildings

Marina operations

Community facilities (Recreational center, cultural center, cookhouse, etc.)

PROPERTY INVENTORY

Building Name	SF	Use
Yellow Brick Road Casino	57,407	Casino
Main TS Casino Building	3,200,000	Casino Campus
Banquet/Meeting Facilities	3,200,000	Casino Campus
Spa- Gym - Pools	3,200,000	Casino Campus
Gaming Floor	3,200,000	Casino Campus
Restaurants	3,200,000	Casino Campus
Casino Hotel	3,200,000	Casino Campus
Administrative Offices	3,200,000	Casino Campus
Lodge- Hotel and Pool	3,200,000	Casino Campus
Skana Spa	3,200,000	Casino Campus
Tennis Dome	33,700	Casino Campus
Golf Dome	79,300	Casino Campus
Sportsplex	7843	Casino Campus
Beach Mart	4,779	Convenience Store
Oneida Lake	4,900	Convenience Store
SavOn Verona	6,885	Convenience Store
SavOn Diesel	1,200	Convenience Store
SavOn TS	7,955	Convenience Store
SavOn Oneida	5,040	Convenience Store
SavOn Oneida	3,014	Convenience Store
SavOn Oneida	5,500	Convenience Store
SavOn Sherrill	5,500	Convenience Store
SavOn Canastota	5,500	Convenience Store
SavOn Smoke Shop	5,500	Convenience Store
SavOn Chittenango	5,500	Convenience Store

Building Name	SF	Use
Court, Language, Recreation, Cook House, Pool	3,000	Community
Cultural Center	4,421	Education / Museum
Children / Elders Center	34,284	Kitchen / Recreation / Office
Marshall Houseman	500	Maintenance
White Pines Housing	1,000	Management Office
Mariner's Landing	2,800	Marina and Trailer Park
Inn at Turning Stone	30,000	Motel
Heritage Center	14,141	Museum, Old Gas Station
Member Benefits	2,000	Office
OIN Police	3,500	Police Dept. Annex
OIN Police	13,609	Police HQ
TS Warehouse	2,000	Storage
Former D Cube building	2,000	Vacant
4 D Productions	2,000	Video Production / House
Annex	12,000	Admin, Offices, Print Shop
Dreamcatcher Plaza	121,616	Administrative / Old AMES
Nation Recovery Warehouse	21,615	Archives, Storage
Car Care Center	8,000	Auto Repair
Telecom Building	800	Block Building
Atunyote	20,000	Clubhouse
Shenendoah	28,000	Clubhouse, Golf Maintenance, Carts

PROCESS

Step 1: Decide on boundaries

- Oneida Indian Nation identified the buildings that formed the boundaries for this study.

Step 2: Choose a baseline year or years

- The baseline year was established as the most recent year of utility bills that were available at the start of this project, October 2016 through September 2017.

Step 3: Gather Energy Data

- 24 consecutive months of utility data was collected where available. This data was entered into The Weidt Group's B3 Benchmarking program. In cases where a complete billing history could not be provided by the Nation, for the baseline energy use intensity (EUI) was estimated based on the established benchmark and on-site observations.

Step 4: Survey energy use and identify significant energy users

- An energy audit was conducted on the buildings identified in Step 1. The audit was used to determine how energy is consumed in the facilities and identify opportunities to improve efficiency.

Step 5: Identify opportunities for energy savings

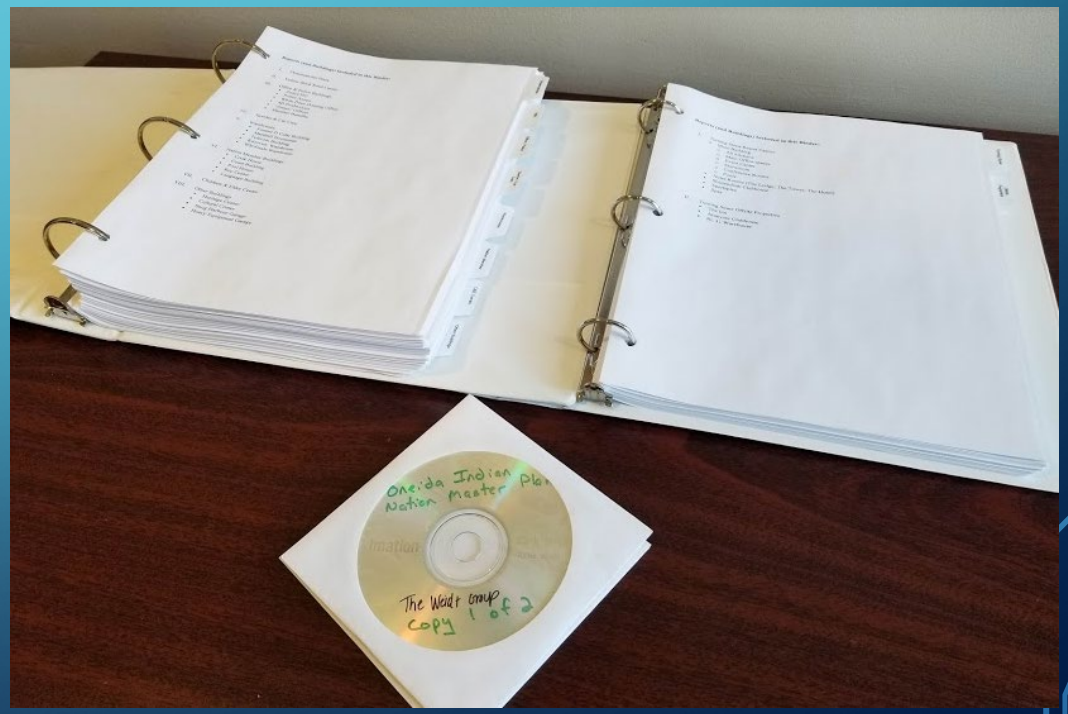
- Opportunities for reducing energy use and costs were developed based on the site surveys. The energy and cost savings along with the estimated maintenance savings and implementation costs were identified for each measure.

Step 6: Develop an energy action plan

- With Weidt's assistance, the Nation has prioritized the actions to be taken.

DELIVERABLES

- Analysis and recommendations for all studied properties
- 1 year license for vendor's proprietary energy benchmarking tool (software & training)



EXAMPLE RECOMMENDATIONS

Interior / Exterior LED Lighting

- In general, replacing the existing incandescent, fluorescent, and high intensity discharge fixtures with new LED fixtures produces an attractive payback.
- In instances where the building is used sporadically, or has limited operating hours, a total LED retrofit may not make sense. The Oneida Indian Nation should consider replacing the fixtures with new LED fixtures when the fixtures are no longer serviceable, or the use of the space changes.

Remote HVAC Management

- While installing a building automation system would save a significant amount in energy costs, the implementation costs would likely be prohibitive to implement across the entire building portfolio.
- The Oneida Indian Nation should consider installing a remote HVAC management system, as discussed in the audit reports. Advanced units, such as the Honeywell Prestige IAQ kit, can provide the basic functions provided by a building automation that The Nation desires at a fraction of the cost.

HVAC Replacement

- In general, the early replacement of HVAC systems do not produce the a desirable level of payback. However, The Oneida Indian Nation should consider energy efficiency options discussed in the reports upon equipment failure or at the end of the equipment serviceable life, as opposed to in-kind replacements.

Considerations included in the study…

- Floor plans and building usage
- Hours that various areas within the buildings are open and typical occupancy profiles
- Temperature & humidity targets for occupied spaces (typical vs specialty spaces)
- Major equipment lists – for central plant or building based heating and cooling systems
- Log data for central plant for various times of day, outside air temp, season, and vacation periods
- Notation of comfort or service deficiencies to attempt to resolve if possible
- Information related to either limitations or future plans impacting building use
- Historical building limitations
- Future capital improvements

TIMELINE – 15 MONTHS

ACTIVITY	START	END
Project Kick Off	10/9/2017	
Identify Boundaries of Study	10/17/2017	11/30/2017
Data Gathering	10/30/2017	1/30/2018
Complete Analysis Begin Benchmarking	2/1/2018	
Complete Benchmark Study	2/1/2018	4/1/2018
Identify Buildings for Cost Savings	2/1/2018	4/1/2018
Report Review Utilizing B3 Tool	3/1/2018	6/1/2018
Identify Next Steps	4/1/2018	6/1/2018
Begin Energy Audit	2/1/2018	9/1/2018
Audit Draft Review	8/1/2018	10/1/2018
Interactive Analysis	10/1/2018	10/31/2018
Final Report and Close Out	10/1/2018	11/30/2018

IMPACT

- Given the current (and future) energy needs of the Nation's operations and potential expansion activities, the *impact of DOE funding* through this grant opportunity will be to enable the Nation to further support its efforts to maintain government programs and services by improving economic and energy efficiency, achieving increased governmental self-sufficiency and economic independence by reducing dependency on outside energy sources, and simultaneously protecting its environment and natural resources for the benefit of seven generations into the future.

Thank You!

Questions?