



# SENECA

NATION OF INDIANS



***PROJECT:***  
***1.8 MW WIND TURBINE ON***  
***TRIBAL COMMON LANDS NEAR LAKE ERIE***

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Seneca Nation of Indians  
and  
James F. Yockey URS Inc.  
May 4, 2015

# BACKGROUND

## Membership and Territories

### **Total Enrolled**

#### **Membership:**

8,057 members

### **Members Residing**

#### **On Territory:**

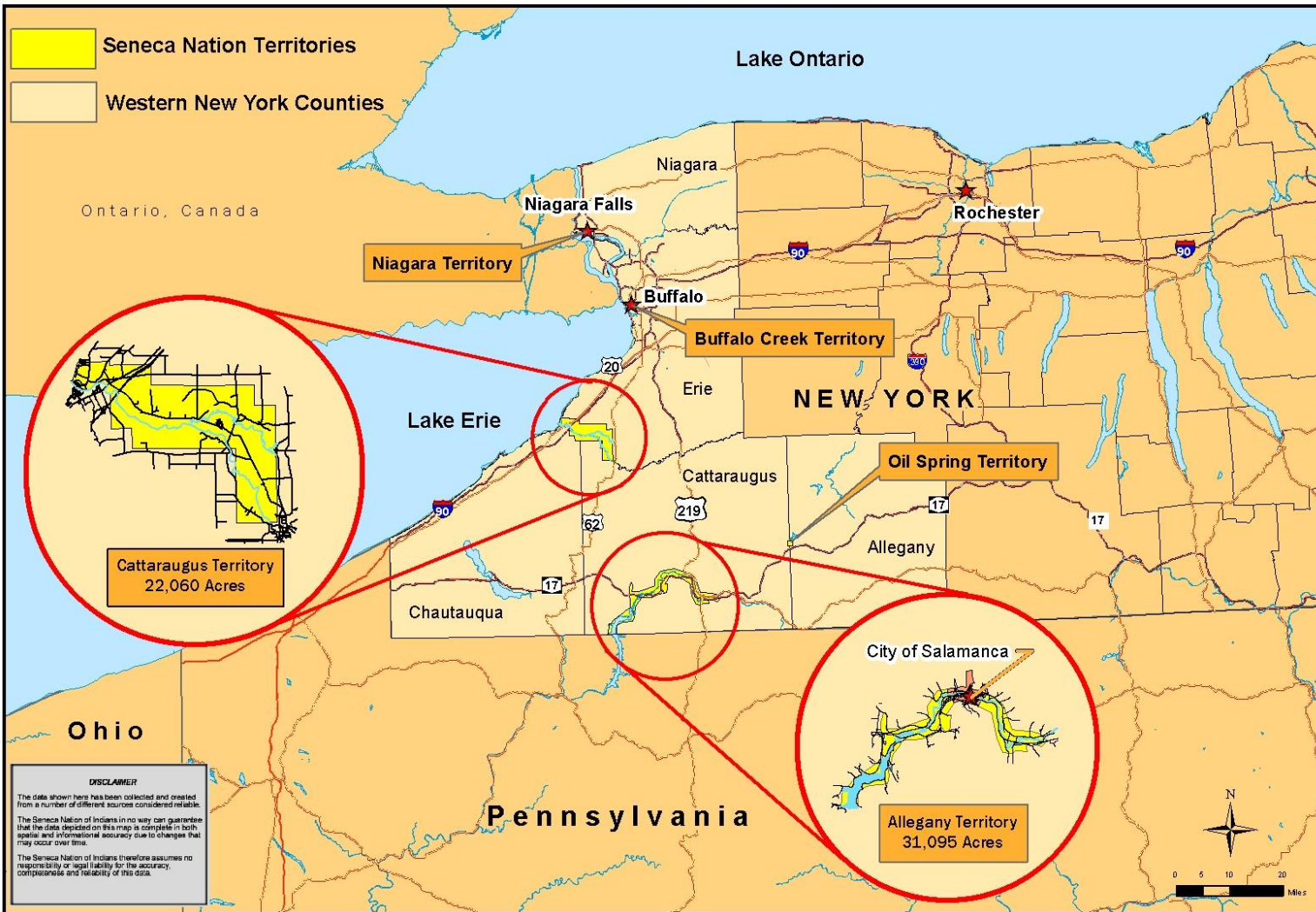
4,006 members

### **Territories:**

- Allegany Territory
- Cattaraugus Territory
- Oil Spring Territory
- Niagara Falls Territory
- Buffalo Creek Territory

# Seneca Nation of Indians

## Locational Map of the Territories



# BACKGROUND

## Clans

### Clans:



- Deer



- Hawk



- Heron



- Snipe

### Clans:



- Turtle



- Beaver



- Wolf



- Bear

# BACKGROUND

## Elected Government

### Elected Form of Government

- President



### Elected Form of Government

- Treasurer



# BACKGROUND

## Elected Government



### Elected Form of Government

- Nation Council

### Elected Form of Government

- 4 Year Term, Staggered



# BACKGROUND

## Economic Development



- **Class III Casinos:**  
Seneca Niagara Casino,  
Seneca Allegany Casino,  
Buffalo Creek Casino
- **Class II Gaming and Entertainment Facilities:** Cattaraugus Territory, Allegany Territory



# BACKGROUND Diversification





# PAST ACTIVITIES & PROJECTS

## 1.8 MW Wind Turbine on Common Lands



- DOE First Steps Grant for Strategic Energy Planning
- DOE NREL Anemometer Loan Program
- DOE First Steps Grant for Energy Organization Planning
- DOE Energy Efficiency and Conservation Block Grant
- DOI Natural Gas Assessment
- DOI Strategic Energy Planning Assistance

# PAST ACTIVITIES & PROJECTS

## Long-Term Energy Plan



- **Phase I: Visioning Process**
  - Community Meetings
  - Review Historical & Current Energy Resources
  - Assess Community Priorities, Energy Potential, & Environmental & Economic Issues
  - SWOT Assessment
  - Final Report
  
- **Phase II: Research and Assessment**
  - Tribal Resource Assessment
  - Rates & Usage Analysis
  - Infrastructure Inventory
  - Industry Relationship Assessment
  - Identification of Technical Assistance Needs
  - Review of Regulation & Jurisdiction Issues
  - Assessment of Environmental & Cultural Components
  - Identification of Future Project Funding Opportunities

# PAST ACTIVITIES & PROJECTS

## Long-Term Energy Plan



- Phase III: Implementation Energy Organization and Governance
  - Formation of Seneca Energy LLC
    - ✦ Staff augmentation agreement
    - ✦ Economic Development Commission (BOD)
    - ✦ Energy Steering Committee
    - ✦ Developed process to prioritize initiatives
  - Hired on as Employee of the Nation
    - ✦ Dual reporting to President's Office and SCED
    - ✦ Balance economic development with Nation infrastructure repair and development

# Identified Goals of Long-Term Energy Plan



- **Create an Energy Organization**
  - Centralize energy decision making for both generation and distribution
  - Create peer relationship with Utilities
  - Evaluate future energy projects
  - Develop COS methods to recover costs
  - Create billing dBase to distribute costs and benefits of electricity and NG

# Identified Goals of Long-Term Energy Plan



- **Self-sufficiency through Resource Development Renewable and Fossil**
  - Cattaraugus wind turbine project
  - Repair and maintain NG distribution system and rectify NFG imbalance issues
  - Purchase of NG field or initiate E&P
  - Swab/maintenance on producing wells/Plug and abandon existing wells
  - 2MW solar feasibility study
  - Microgrid feasibility study
  - Continue energy efficiency improvements in new and existing facilities
- **Create Rate Parity between the SNI Territories**
  - Address electric rate inequalities through DG and control of distribution

# PROJECT OBJECTIVES

## 1.8 MW Wind Turbine on Common Lands



- Design procure and install one wind turbine to be interconnected with NGRID
- Aggregate tribal load at SNI facilities in Cattaraugus served by NGRID
- Aggregated net metering and provide approximately 1.8 MW of wind power credit against SNI load
- Credit through net metering will create rate parity and savings to tribal members on the Cattaraugus Territory
- Seneca Energy will administer credit

# PROJECT TEAM

## 1.8 MW Wind Turbine on Common Lands



- The selected project team includes:
  - ✦ Seneca Nation of Indians/Seneca Energy, LLC
  - ✦ URS, Inc
  - ✦ New West Technologies, LLC
  - ✦ Sustainable Energy Developments, Inc.
  - ✦ Whitman Osterman Hannah

# PROJECT Highlights

## Preconstruction Activities



- Site selection and control
- Permitting and Public Outreach
- Interconnection application
- Turbine selection, modeling and purchase agreement
- Aggregation of load for Net Metering



# PROJECT Highlights

## Site Selection and Control



- Evaluated several sites near Lake Erie for good wind resource
- Environmental and/or visual issues
- Three phase power with SNI load source
- SNI Common Lands

# Project Site



# PROJECT Highlights

## Permitting and Public Outreach



- FAA
- NEPA Environmental Assessment
- SNI SE is lead agency
  - EPD
  - THPO
  - Conservation
  - M&B's
  - GIS
  - Natural Resource Comm.

# PROJECT Highlights

## Interconnection



- NGRID interconnect application
- NGRID sovereign immunity waiver language
- Interconnection process

# PROJECT Highlights

## Turbine, Modeling and TSA



- Negotiating with GE and Vestas
- Chosen site had lower winds but conservative modeling made sure output exceeded grant representations
- Challenges ahead for negotiated term sheet

# Wind Resource



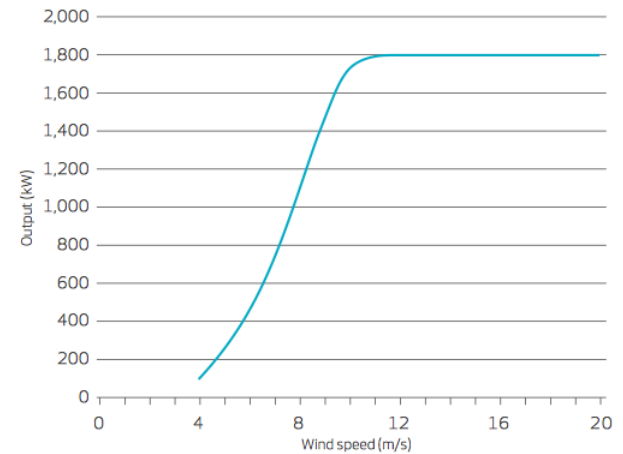
- Original assessment based on a site close to Lake Erie was 7.13 m/s. Chosen site is 6.56 m/s. Output far exceeds initial model of 5,200 MWh based on either GE or Vestas turbine.

Scenario	Wind Turbine	Gross AEP	Net AEP	Capacity Factor	Mean Wind Speed at Hub Height
1	GE 1.7 – 80m Hub	6,639.8 MWh	6,142 MWh	41.2%	6.56 m/s (14.7 mph)
2	V100 – 80m Hub	6,790.4 MWh	6,281 MWh	35.8%	6.56 m/s (14.7 mph)

# V-100 Power Curve



Power curve V100-1.8 MW



Hub Height Average Wind Speed (m/s)	7.13
Air Density Factor	0.98
Average Annual Power Output (kWh)	5,282,067
Implied Capacity Factor	33%

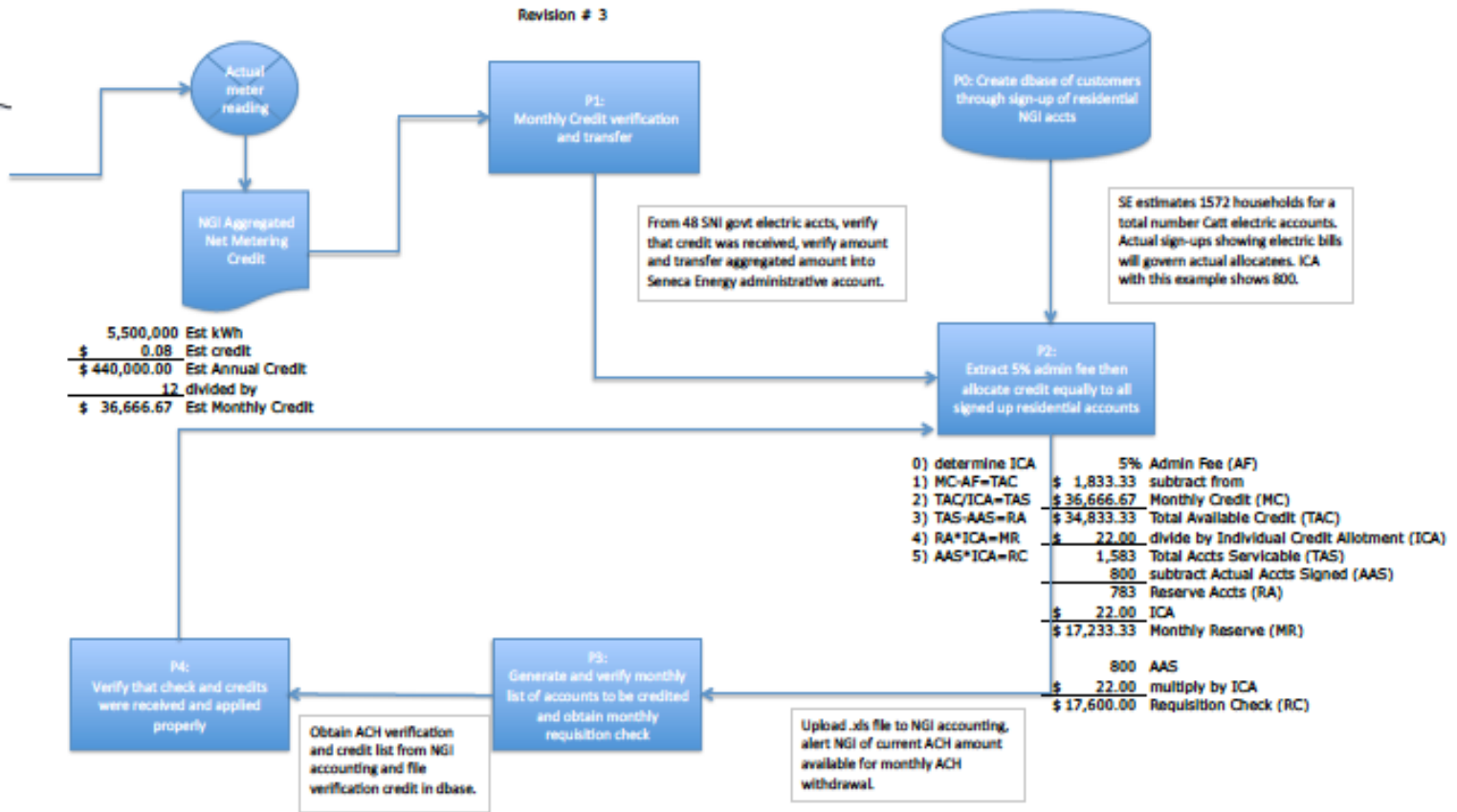
# Aggregated Net Metering: Key to Community Energy



- Optimize location of the renewable resource
- Be able to aggregate load served in the same distribution territory
- Get a full net meter credit for displacement of all kWh



# Aggregated Net Metering: Key to Community Energy



# Aggregated Net Metering: Key to Community Energy



- Wind turbine will generate approx. 5 million kWh/yr.
- Net meter credit in National Grid Territory is 8¢
- Credit is  $\$.08 \times 5,000,000 = \$400,000$
- 48 Tribal Facilities use 10.5M kWh spending about \$1M for a weighted average cost of 10¢ per kWh
- Expect to generate at least 40% savings

# What to do with the Savings?



Seneca Energy is the SNI energy organization who facilitates DG, EE as well as distribution functions for NG and Electricity

- Cattaraugus members pay about 13¢ per kWh whereas Allegany members pay 5¢ per kWh
- Nation bills will be credited, Seneca Energy will allocate and distribute credit directly to SNI members
- dBase of members account info. and capacity building

# Contacts

## 1.8 MW Wind Turbine on Common Lands

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