White Earth Community Facilities
Solar PV Project

DE-IE0000044

White Earth Band of Chippewa Indians

2018 DOE Program Review – December 11, 2018
White Earth Nation has an enrollment of nearly 21,000 members with 40% living on or near the reservation.

Reservation Population:
- 4,250 Native Americans
- 5,312 Non-Native Americans
Land Area

- 1/3 ag / wetlands
- 1/3 mixed ag / forest
- 1/3 forested
Project Overview

Installation of ground-mount solar PV at 3 community facilities:
• Rice Lake Community Center
• Rice Lake Daycare Center
• Elbow Lake Community Center
SolarWorld Sunmodule

- TUV Power controlled
  Lowest measuring tolerance in industry
- Every component is tested to meet
  3 times IEC requirements
- Designed to withstand heavy
  Accumulations of snow and ice
- Sunmodule Plus:
  Positive performance tolerance
  320 watts each -0/+5Wp
- 25-year linear performance warranty
  and 10-year product warranty
- Glass with anti-reflective coating

**SW320 XL Monocrystalline PV Module** - The proposed solar PV System will include 38 SolarWorld 320W PV Modules
Fronius Primo 5.0kW Solar Inverter

- The proposed system would include two Fronius 5.0kW (AC rating) inverters yielding an array AC/DC ratio of 1.21
- Integrated Datalogger and Webserver
- Integrated WIFI wireless standard 802.11 b/g/n
- Free online monitoring via Fronius Solar.web
- Wide DC input power range: 4.0 - 7.8 kW per inverter
- Wide DC input voltage range: 80 - 600 V
- Wide MPPT DC Voltage Range: 270 - 480 V
- Operating Temperature -40° to 131°F
- Peak efficiency at 96.9% and CEC efficiency at 95.5%
- NEMA 4X liquid tight protection
- Conformity to UL 1741-2nd Edition Standard
- 10-year manufacturer’s warranty (see warranty statement)
Fronius Primo 10kW Solar Inverter

- The proposed system would include three Fronius 10.0kW (AC rating) inverters yielding an array AC/DC ratio of 1.21
- Integrated Datalogger and Webserver
- Integrated WIFI wireless standard 802.11 b/g/n
- Free online monitoring via Fronius Solar.web
- Wide DC input power range 8.0 - 13.0kW per inverter
- Wide DC input voltage range: 200 - 600 V
- Wide MPPT DC Voltage Range: 300 - 500 V
- Operating Temperature -40° to 131°F
- Peak efficiency at 97% and CEC efficiency at 96.5%
- NEMA 4X liquid tight protection
- Conformity to UL 1741-2nd Edition Standard
- 10-year manufacturer’s warranty (see warranty statement)
Rayport™·G Eco

Rayport-G Eco Ground-Mounted Solar PV Module Racking
(Back View)

- Designed for 72-cell PV modules, 2-high in portrait layout
- Designed for 90 mph wind load and 60 psf ground snow load
- Single Point of Connection to electrical ground system
- G90 Galvanized Steel for corrosion resistance
- Engineered Racking and Concrete Footings
- 25-year Manufacturer’s Warranty
- 30° Fixed Tilt-angle

Rayport-G Eco Ground-Mounted Solar PV Module Racking
(Side View)
Rice Lake Community Center

• 14 year old building
• Community building, gym, offices, nutrition
• 16,400 s.f., 175,520 kWh usage
• 38 kW install
• 26.3 percent savings (36 kW)
• $5,222 savings
Aerial View of Rice Lake Community Center Proposed Solar PV Array Location

Proposed Solar PV Array Location
Rice Lake Daycare Center

- 32 year old building
- Daycare, tribal program offices
- 3,520 s.f., 52,837 kWh
- 11.4 kW
- 28.85 percent (12.14 kW)
- $1,814
Elbow Lake Community Center

- 4 year old building
- Community building, elderly nutrition
- 2,464 s.f., 30,453 kWh
- 11.4 kW
- 49 percent (12.16 kW)
- $1,628
Aerial View of Elbow Lake Community Center Proposed Solar PV Array Location
Project Participants

• White Earth Economic Development
• White Earth Facilities
• Wild Rice Electric Coop
• Clearwater-Pope Electric Coop
Project Objectives

• Reduce energy costs, increase energy security
• Add additional solar PV capacity
• Offset/reduce coal-fired electric
Progress To Date

• Completed RFP for project engineer
• Selected project engineer
• Finalized system design/bid
• 60.8 kW AC installation completed and operational - June 2018
• Currently in annual proof of production phase
Future Plans

• Potential multi-site community solar in collaboration with local/regional non-profit

• Training contracted local wind tech re solar installs, maintenance
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