

BAD RIVER BAND'S AIR MONITORING STATION

Solar PV

Previous renewable energy studies conducted on the Bad River Reservation covered wind power, biomass energy and solar. Solar potential needed to be investigated further. Bad River's ambient air monitoring site provided a convenient location to conduct a solar demonstration. The demonstration offsets the electrical usage by the air monitoring equipment.

Bad River Band of Lake Superior Chippewa



System Overview

- Installed by Bad River Natural Resource Department Staff
 - Training conducted by Chris LaForge
- Ground-mount system with ability to tilt array
- Grid-tied to Bayfield Electric Cooperative with net metering

Technical Specs

- 3.4 kW DC consists of 12, 285-watt SolarWorld solar modules
- SunnyBoy SMA AC Inverter
- Estimated generation is 4,908 kWh per year
- Covers 50% of ambient air monitoring site electrical use

Financial Incentives:

- Majority funding through an Indian Health Services grant as a demonstration project: \$10,000

Costs: (overview):

- Total cost including modules, inverter, mounting, electrical: \$12,930
- Estimated payback of total cost: 5 years
- See below for full cost breakdown

Installation

- Approximate Time to Complete the Project:
 - 60 hours: planning, organization, training
 - 60 hours: ground mount construction, array installation, electrical connections
- Lessons Learned:
 - Soil conditions led us to plan a robust mounting foundation, increasing the costs of the system overall
- Recommendations:
 - Other mounting options without concrete will be explored in the future

Cost breakdown

- System Costs: \$ 8,803
 - Costs per watt: \$ 2.67
- Electrical Costs:
 - Installation completed in-house
 - System inspection (Bayfield Electric): \$500
- Site Prep Costs:
 - Preparation done in-house
 - Foundation (steel posts and framing): \$ 3,627
- Total Cost: \$ 12,930

