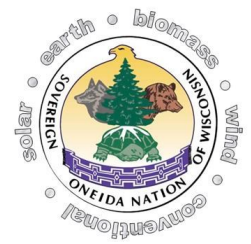


ANNA JOHN RESIDENT CENTERED CARE COMMUNITY SOLAR THERMAL



Description

The solar thermal array on the Anna John Resident Centered Care Community (AJRCCC) is the result of three years of planning, design, and construction.

Many people, departments, and contractors showed a strong commitment to make sure the system and the building worked seamlessly with each other. The AJRCCC was the ideal location for a solar thermal system: a large hot water load; space to put the array; located directly over the utility room; and built during new construction. Community support is also very important!

Goals

- ⇒ Use solar thermal on a building that has a large hot water demand.
- ⇒ Design a system that produces at least 50% of demand.
- ⇒ Design and build the solar thermal system and the building at the same time.
- ⇒ Combine Tribal contribution with grants and other sources.
- ⇒ Build to code and best safety practices.



AJRCCC Array

- * Commissioned September, 2012
- * Array is oriented due south
- * 48 Solar Skies MFG LLC collectors
- * Each collector is 4 feet x 10 feet
- * Total collector area = 1,920 square feet
- * 2,000 gallons of storage
- * Produces up to 75% of demand load
- * Calculated annual savings = \$6,000 (savings is based on \$1/therm for natural gas)
- * Equipment cost = **\$160,400**
- * Labor cost = **\$55,578**
- * Total system cost = **\$215,978**
- * Grants = **\$152,075**
- * Tribal Bond contribution = **\$63,903**

Partners

- ◇ Oneida Nation Commission on Aging
- ◇ Oneida Energy Team
- ◇ Oneida Engineering Dept.
- ◇ Oneida Planning Dept.
- ◇ Oneida Dept. of Public Works
- ◇ Oneida Finance Dept.
- ◇ Oneida Environmental Division
- ◇ Oneida Zoning Dept.

- ◇ Wisconsin Public Service grant
- ◇ Wisconsin Focus on Energy grant
- ◇ Dept. of Energy, Energy Efficiency & Conservation Block Grant
- ◇ GreenSky Energetics
- ◇ Tweet / Garot Mechanical
- ◇ Engberg-Anderson
- ◇ Kraus-Anderson



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Energy Strategies for Our Community

June, 2014



THE SOLAR THERMAL CYCLE

1. Solar array absorbs heat.



2. Heat is transferred to potable water.



5. Control panel manages the system.



3. Hot potable water is stored.



4. Demand for hot water is satisfied with solar.



Solar Thermal Cycle Described

Solar thermal is a technology that uses solar energy to create thermal energy for water and space heating. The array contains several solar thermal collectors (1). Inside each collector is several feet of pipe that contains propylene glycol, an antifreeze, circulating between the array and the utility room. This fluid absorbs the solar heat and is transported back to the utility room. (2) This heat is then transferred to potable (drinkable) water where it is stored (3) and eventually distributed to the rest of the building when there is a demand for hot water (4). The control panel (5) is the brains of the operation; it monitors temperatures, controls the circulation pumps, and tracks system production.



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