



Wind and Solar Learning Center

Project Description

This innovative energy conservation and education project is located in Glacier Ridge Park, which is operated by Metro Parks of Franklin County near Columbus, Ohio. The project consists of a 7.5-kW energy wind turbine and two solar panels that generate electricity for the park. In addition to the wind turbine and solar array, a small education center called the Wind and Solar Learning Center was constructed near the tower to interpret wind and solar energy science and educate the public about renewable energy sources.

This project is an outgrowth of the Metro Parks agency mission to promote environmental conservation. The flat, open grasslands of the park are an ideal setting for siting wind and solar energy facilities, and robust public visitation to this park makes it an ideal location for public and youth education. This structure and education facility are consistent with the education focus of the park on alternative energy sources.

In addition to the facility at Glacier Ridge, Metro Parks partners with the nearby Dublin City Schools in assisting with curriculum development on renewable energy sources and other conservation principles.

Obstacles Encountered

When Metro Parks first proposed the alternative energy project, the electric distribution cooperative Union Rural Electric rejected the plan. Union Rural Electric (URE) and the 24 other Ohio electric cooperatives own Buckeye Power, and they agreed to buy all their power from Buckeye. When the Glacier Ridge project was proposed, URE staff believed that interconnection to any other power than that which they generated would technically violate that agreement. Research for the project turned up a 1978 regulation that required Buckeye to allow interconnection regardless of the all-requirements

contract. Confirming that there were no further barriers at either URE or Buckeye Power, the process to write an interconnect agreement was launched. Today, that agreement is used as the model for agreements in electric cooperatives statewide.

This infrastructure for the project was completed in 2004, but that didn't mean that regulatory hurdles were over. Once the generation was functional, the next obstacle was interconnecting with the transmission grid, which is regulated by the Federal Energy Reliability Council (FERC). A generation supplier must be rated as a "qualified facility" before connecting to the grid. Obtaining FERC formal approval was a long and arduous process, but eventually the FERC qualifying facility designation for Glacier Ridge was approved in November 2007.

Project funding

Phase I included installation of a Bergey 10-kW wind power generator mounted on a 120-foot free standing tower and a 48-volt battery bank at a cost of about \$80,000 in 2002. Phase II in 2003-2004 included two 1,200-watt solar panels and 1,000 feet of cable connecting the generation station with the park restroom and shelter for heat, lights, and pumping, at about \$30,000 in project costs. Fifty percent of the project cost was covered by an Ohio Department of Development grant to purchase the equipment. The Wind and Solar Learning Center was completed in 2008.

Project benefits are many

This project has produced many benefits for the park agency and the public at large. It has received significant publicity and has been used in marketing materials by the agency.

Educationally, there have been a number of outcomes. A bi-directional meter toggles between displays that show both the kilowatts the park has consumed from grid and the production of the generation



station in excess of consumption. An educational display explains to park visitors how the system is structured, how alternative energy is generated, and how the park is using it. Events at the park draw in visitors and enhance the learning process.

In addition to partnering with Green Energy Ohio, Glacier Ridge is also working with teachers from nearby Dublin City Schools, faculty from Ohio State University, and educators from the Ohio Energy Project to develop supplemental curricular materials (science and math) that can be used by all of Ohio's K-12 teachers with their students when visiting the park. By informing the expected 300,000 child and adult visitors to Glacier Ridge each year, Metro Parks is spreading the news about one of Ohio's natural resources, renewable energy.

While the wind/solar project generates energy to power park facilities, the primary focus is on education through the interactive Wind and Solar Learning Center. Electricity generation is metered and measured. The educational benefits are outstanding, as Metro Parks collaborates with local schools and informs the public about the science of wind and solar power and the value of alternative energy sources.

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