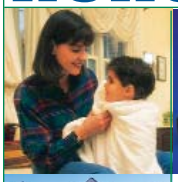
Renewable Energy Education Project



Dakota Electric Association and the School for Environmetnal Studies

Dakota Electric Association and the School of Environmental Studies (SES), an optional school of District 196, located on the Minnesota Zoo's property, are working on a renewable energy educational project. Together, they will install a 20-kilowatt wind turbine and two 1-kilowatt solar panels on the school's property.

The SES will use the wind turbine and solar panel to educate future generations about renewable energy. Students from SES are on the project team. The plan includes an educational display that will include information about how wind and solar energy is generated as well as output readings from the equipment. This endeavor will provide learning opportunities for years as students see the actual output of the turbine and solar panel.

The project is scheduled to be completed this fall.

Generating Learning Opportunities

Statistics

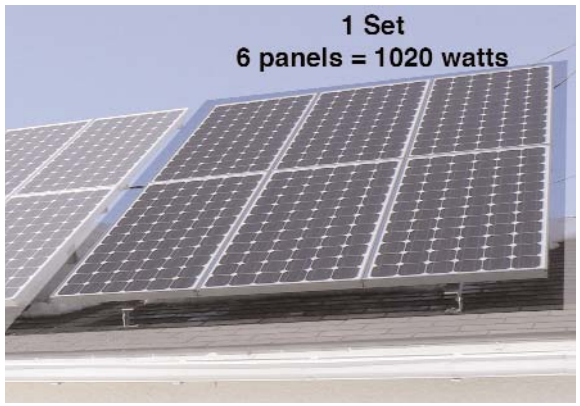
SES Principal: Dan Bodette
Project Manager: Craig Turner, engineering manager, Dakota Electric Association

Wind turbine

Model: Jacobs 31-20
Rating: 20 kW (3,000 kWh/month; equal to power used by approximately three homes)
Output: 240 volt AC, 60 hertz
Tower height: 160 feet
Cut-in wind speed: 8 mph
Peak output: 25.5 mph
Rotor diameter: 31 feet
Contractor: Winkelman's Environmentally Responsible Construction, Brainerd
Cost:* **$80,000-$100,000**

Solar Panel

Model: SunTech 170
Output: 170 watts each, two sets of 6 panels totaling 1020 watts each (1 kW)
Dimensons: 62"x32"x1.4" (each panel)
Weight: 34 lbs.
Mounting: One set on building roof
one set on pedestal
Inverter: Sunny Boy 1100U (1 per set of panels)
Contractor: NorthTek, Shoreview
Cost:* **$10,000-$14,000**



*Approximate cost of standard design.

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