

## Sun Power for Schools: A Case Study

By Kelly Hendry

Green Power Electric Membership Corporation (EMC) and Southface joined forces in 2004 to launch the Sun Power for Schools program, the first statewide academic initiative to showcase the benefits of solar energy in Georgia. Through the installation of sixteen grid-connected photovoltaic (PV) systems at schools in Green Power's service area, Sun Power for Schools aims to educate and empower students to make informed energy choices.

### Team & Process

Green Power EMC is a collection of 29 electric membership cooperatives in Georgia who give residents the option to support "green" energy sources. To further their mission as a renewable energy advocate and provider, Green Power EMC decided to allocate research and development funds to solar education in schools. Led by Alan Shedd of Jackson EMC, each participating cooperative serve as the liaison for the participating school in their region. Southface coordinated teacher education in the project with funding from the Department of Energy's Million Solar Roofs Initiative.

Phase One of Sun Power for Schools, completed between fall 2005 and fall 2006 at high schools, included the first six installations of PV systems capable of producing 1.2 kW each. Phase Two will include the final ten installations at middle and high schools, as well as a mentoring program for participating



teachers. The first set of installations were at these locations:

- Irwin County High School / Irwin EMC
- Sandy Creek High School / Cowetta-Fayette EMC
- Oconee County High School / Walton EMC
- Heritage High School / Snapping Shoals EMC
- Hiram High School / Greystone Power
- Mill Creek High School / Jackson EMC

### Equipment & Purchasing

Because the Sun Power for Schools program is educational in nature, all electricity produced by each array is sent back to the grid but only offsets a tiny fraction of the school's electrical usage.



Oconee High. Left to right: Tim Blackwell, OneWorld Sustainable Energy Corporation; Greg Brook, Walton EMC; Alan Shedd, Jackson EMC; Keith Freeman, OneWorld; Cy Martinez, Horizon Multimedia Systems.





Above: Sun Power for Schools ribbon-cutting ceremony at Mill Creek High. Left: Southface staff and teachers with their EMC

representatives included: Tim Baker, Many Ann Bell, Terry Brown, Batte Chatham, Connie Cook, Randy Dellinger, Peter Fischer, Scott Fuss, Phil Gaddy, Erin Gawron, Joel Gibson, Bonnie Jones, Angelynn Kennedy, Robb Maag, Linda Pickering, Suzanne Roginski, Alan Shedd, Edde Sommer, Vicki Soutar, Laura Uhde, Cynthia Wolfe, Robbie Young

All components for the Sun Power for Schools solar electric systems were purchased complete as a kit from Sunwize Technologies. Each kit included: seven Sharp NE-165U1 165 W modules, a Sunny Boy model SWR i1800U inverter and AC/DC disconnects, Power-fab top-of-pole mount, as well as all wiring for the panels. Using the kits ensured a common denominator at the schools and simplified procurement of individual parts. OneWorld Sustainable Energy Corporation and Horizon Multimedia Systems undertook the physical installation of the first six systems. With installation costs, Green Power EMC spent just under \$11,000 at each of the 6 schools.

Data acquisition systems (DAS), designed to monitor performance of the solar electric system via computers and the Internet where the information is recorded and displayed were purchased from Fat Spaniel. These systems allow students to monitor their PV, along with other school PV systems across the nation and worldwide. The collected information displays the amount of electricity generated as well as variables affecting power production.

### Teacher Education

Since the inception of the program, teachers and administrators were eager for PV to come to their schools. Southface and Green Power EMC offered a one-day teacher training in February 2006. Several local cooperatives were present, as were teachers from across the



Teachers were provided with an assortment of lesson plans and discussion topics, as well as PV, general solar and renewable energy resources already being utilized in other schools with established PV curricula.

science curriculum. During the training, teachers were given an overview of the program and their systems. Additionally, they were provided with lesson plans and discussion topics, much of which were obtained from the New York State Energy Research and Development Authority and the Florida Solar Energy Center.

The first training was designed to link Sun Power for Schools to the topics and issues teachers already address. At the training it became apparent that many teachers did not necessarily need or desire complete lesson plans as much as they needed the confidence to trust their own creativity. Several schools have already discussed plans to hold district wide trainings for teachers of all grade levels. One teacher intends to assign students a project presenting a solar unit to younger grades in their district.

### Conclusion

A solar and renewable energy curriculum in secondary schools is well suited to the State of Georgia's new Environmental Science standards. As the second phase of the program gets underway Green Power EMC and Southface are making plans to offer a follow-up training with delegates from the first and second phases of the program. Teachers will have a forum to discuss the obstacles encountered, opening up a network of dialogue and support integral to developing a set of lasting energy curricula in Georgia. Ultimately, Sun Power for Schools and similar programs can only grow if the schools and teachers find it feasible and worthwhile. ■