



Solar Electricity for Schools in Oregon



West Salem High School

Schools throughout Oregon are sprouting solar electric systems on their roofs and solar curriculum in the classrooms, preparing a new generation to embrace solar energy!

Thanks to the generosity of several sponsors, a growing number of high schools in Oregon are installing solar electric systems. Portland General Electric Company, Bonneville Environmental Foundation, EWEB, Bonneville Power Administration, Emerald PUD, and Salem Electric have all contributed to solar photovoltaic systems on local

high schools over the last three years.

The first wave of Solar for Schools systems, sponsored by PGE, were installed three years ago at **Franklin High School in Portland** and the North Salem High School. These 2 kW systems with ASE America modules were installed by teachers and students of each school, with PGE supplying the equipment. The systems are both monitored, and information will soon be available via upgraded Web sites. The systems have been operating successfully for 3 years.

Teacher Mike Duchow-Pressley led

the Franklin team to mount the system on the press box overlooking Franklin High's football field. A statue of the school's namesake, Benjamin Franklin, stands silently observing the "newest" thing in electricity production. Sparkbusters Electric donated the electrical work, including the monitoring system that tracks solar radiation, wind speed and system output.

At **North Salem High School**, students under the direction of teacher Jon Yoder, hefted the solar mounts and solar modules up to the library roof for this 2 kW system. The School District's electrical contractor installed all the wiring to complete the installation. Yoder has been developing curriculum for use beginning this Fall.

Willamette High School, Eugene

This 2.4 kW system was installed in 2001. The system is tied into the grid with an inverter, which is on display in the hallway. The students can see how the system is working. A data monitoring system is being installed by Gary Higbee of Windstream Solar of Eugene. This will provide detailed information available for student use.

Elmira High School, Cottage Grove

Collaboration among Emerald PUD, Bonneville Power

Clackamas High School



Administration, Western Sun, the University of Oregon Solar Monitoring Lab and the staff of Elmira High school brought this 600 Watt DC system, with Xantrex XR inverter, to Elmira High School. The system was installed in early 2002 and has been generating power successfully. Dr. Frank Vignola of the University of Oregon design curricula package for teachers, such as Elmira solar team leader Mr. Mike Hodgert, to teach solar information based on the data from the unit.

West Salem High School, 2002

System was installed with sponsorship from Bonneville Environmental Foundation and Salem Electric. Electrical labor was donated by Northside Electric and the IBEW Local 290. This 2.88 kW DC system is installed on the roof of the gymnasium overlooking the football field, for all to see! The system consists of APEX 130 W modules and one Sunny Boy 2500 inverter. In addition, data is being logged by the Sunny Boy system and downloaded into a local serving computer so that students will have access to it. Also being monitored at the site are solar radiation on the solar array, outdoor temperature, and temperature of the solar modules. All this information will be made available for student use in solar curriculum ranging from technology to math to physics classes.

Clackamas High School, 2003

The facilities and maintenance crew of the North Clackamas School District put their shoulder to the wheel and nose to the grindstone to completely install and wire this 2 kW system on the roof of the new Clackamas High School in Clackamas. This high school is known for its extremely high energy efficiency, use of natural lighting, etc, and the solar electric unit is just the first step in adding solar electricity to the overall environmental superiority of the building. Teacher Andrew Gilford has put the Heliotronics solar monitoring system in place, gathering data for the time when the students will be using it in regular classroom work.

Contacts: Clackamas HS – David Church, Andrew Gilford; Franklin HS – Mike Duchow-Pressley; North Salem High School – Jon Yoder; Willamette HS – Steve Still, Gary Higbee; Elmira HS – Joe Savage, EPUD; West Salem HS – Roger Kuhlman, Salem Electric.

HOW TO GET A

Solar for Schools System on Your School

Make a proposal to a prospective sponsor! The Bonneville Environmental Foundation, as well as many local utilities and the Bonneville Power Administration, are open to sponsoring the installation of solar electric systems to provide educational opportunities for schools. There also is the possibility that the **Energy Trust of Oregon** may initiate a program for schools. Most of these programs include solar electric system components, datalogging and monitoring equipment, and curriculum packages for teachers to teach solar, especially using the real data resource that comes from the solar dataloggers.

What many sponsors look for is a strong commitment from the school's team. The sponsors look for a team solar "champion," either a teacher, administrator or other school staff, that has the support of the school administration. Evidence of a strong community, student, and parent commitment to the project is also very attractive to a sponsor. There should be a set of teachers identified who are open to teach solar curriculum, likely using data acquired from the solar system on the School roof, to teach energy issues and for use in science or technology classes.

Another important factor of a successful proposal is if the school can identify a **BETC Pass-Through partner**. In Oregon, schools can actually get commercial tax incentives (BETC), even though they don't pay taxes! For a school solar installation, this is done by partnering with a local business to "pass-through" the tax credits to the school. In the case of the West Salem installation, the pass-through partner was West Coast Bank. This partnership alone saves the school and sponsors nearly 30% of the system cost, enabling sponsors and schools to stretch their dollars to buy more solar systems. In some cases, the sponsor will work together with the school to identify or line up a pass-through partner.

Finally, the proposal to a prospective sponsor should outline how the installation on the school might increase the use of solar energy in the community, either through community education opportunities at the school, or simply by the fact that providing the community with a real life example of working solar systems promotes home installations.

