
Department of Energy

Arizona College 5 MW System Will be “Solar with a Purpose”

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[Arizona Western College](#) (AWC) wants to be the go-to for solar, says Bill Smith, director of facilities management. AWC is based in Yuma, Ariz., and that, [according to the Guinness Book of World Records](#), is the sunniest place on Earth.

Now, a group of private companies, researchers and AWC educators will tap the solar potential by building a 4.995 MW solar array at the college. When the solar energy system is completed, it will be the largest solar array on any U.S. college campus.

“We are strategically placed geographically. Now that we have this company that has approached us with this awesome opportunity, we want ... to become leaders in the field,” says Smith.

Solar with a purpose

The project, nicknamed Solar With a Purpose, got its start when AWC was approached by [PPA Partners](#), a private California company hoping to develop a solar array combining different photovoltaic (PV) technologies side by side.

After its completion, scheduled for early 2011, the array will use five PV technologies on a ground-mounted system on 25 to 30 acres: high concentration, low concentration, thin film, monocrystalline and polycrystalline surfaces. These will be provided by solar technology companies selected by PPA. The goal is to compare the different technologies' performances under the same conditions. PPA will raise half of the cost of the project; the other half will be defrayed by incentives from the regional utility, Arizona Public Service (APS).

In addition to this main array, Smith says, there will also be a test bed where solar energy companies can test new technologies, helping get them ready for the market. These technologies can take advantage of proximity to the main array to compare performance. They will also have all the advantages that brought the project to campus in the first place – a secure location, constant data feeds and Yuma's abundant sunlight.

"If it'll work in Yuma, then it's going to work anywhere in the world," says Smith.

The main array will [join an existing solar panel on AWC's agriculture building](#), bringing the total solar capacity at the campus to 5 MW. Smith says the proposed system is expected to generate more than enough electricity to meet the school's daytime needs, with some left over to sell back to APS. In fact, the college estimates that it will save at least \$3.5 million during the first 10 years of the array's life.

Delivering curricula and R&D

The benefits to AWC go beyond saving energy and money. The college plans to take full advantage of the array academically, developing solar curricula around it and opening its doors to research opportunities and partnerships. The agreement with PPA allows AWC and its students to access all data from the main array and, in a more limited fashion, from the test bed – information about energy harvest, the weather, temperature of the solar panels and more.

Dr. Joann Linville, vice president for learning services, says the college is integrating the arrays into degree and certificate programs. Starting in the spring of 2011, the college will have certificate programs available in solar PV installation and plans to offer classes for students working toward an associate's degree. It's also developing a transfer program with the University of Arizona, allowing students to earn bachelor's degrees in systems engineering with an option in renewable energy.

“It is unique to have working PV technology of this magnitude on campus,” Linville says. “Part of the reason we will have five distinct photovoltaic technologies is for educational purposes.”

AWC hopes its solar-educated graduates will bolster the economy, helping drive consumer demand for solar energy and attracting developers.

“We think ... the work our students will do here will help to extend the adoption of solar in our community and adjoining communities,” Linville says.

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