

Solar Energy at Work

...a word from Tucson Electric Power

Let the sun shine in!

What would life on Earth be like without light and warmth from the sun? It wouldn't exist. There would be no plants, no animals, and no human beings. Every link in our planet's food chain is dependent on the sun's energy. Since ancient times, people have used the sun's light and heat to grow and preserve food, warm our homes, and accomplish



Hohokam petroglyphs, Tucson Mountains

other tasks. And we continue to do so—the sun is linked to almost all energy sources on Earth, from fossil fuels, which are produced from the remains of prehistoric animal life, to wind power generated by the sun's heating of the atmosphere.



Solar panels atop Tohono Chul's Education Center provide about 5,000 kilowatt-hours of energy annually.

PV power: Plugging into the sun

Think about the many electrical appliances and pieces of equipment you use every day—every single one can be powered by the sun. The most common way to harvest solar energy and convert it to electricity is with photovoltaic (PV) technology. When sunlight falls on a PV cell, specially treated materials in the cell absorb particles of energy from the sun. The particles—photons—release electrons, creating a photovoltaic effect and generating electricity. A single PV cell can produce 1 or 2 watts of electricity. Most practical applications require multiple cells, connected in a weather-tight module, such as the panel here, which powers the ramada's overhead fan.

Block the sunlight from reaching any part of a solar panel, and the cells stop making electricity. Cloudy days interfere with PV cells' ability to work, and, of course, at night the cells don't work at all. As with any solar-powered equipment, to keep the ramada's fan running when the sun isn't shining would require a battery pack to store electricity produced during sunny, daylight hours.

Use the wooden paddle to cover a portion of the solar panel, and watch what happens to the ramada's fan.

SUNNY FACTS

- This solar panel was funded by TEP's GreenWatts program.
- It takes about 8-1/2 minutes for light from the sun to reach earth.
- The earth receives more energy from the sun in one hour than it uses in an entire year.
- In a single month, a 1-kilowatt (1,000 watts) PV system will save approximately 150 pounds of coal and 105 gallons of water, and prevent the release of about 300 pounds of CO₂ into the atmosphere.

Green Energy Programs

Solar energy is renewable, earth-friendly energy that conserves natural resources including fossil fuels! Solar energy is friendly to our natural environment and sunlight is free to everyone.

GreenWatts, a program supported by Tucson Electric Power (TEP) customers, paid for the solar panel you see here. More solar panels like this are located on the roof of the Park's Desert Discovery Education

Center. The panels on the Education Center generate about 5,000 kilowatt-hours of electricity per year, supplementing energy supplied by TEP that saves the Park approximately \$500 annually.

To learn more about Tucson Electric Power's green energy programs, visit tep.com.

...a bright solution



Mogollon concentric circles symbolizing the sun

This display was made possible through a solar partnership with TEP and Tohono Chul Park.

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