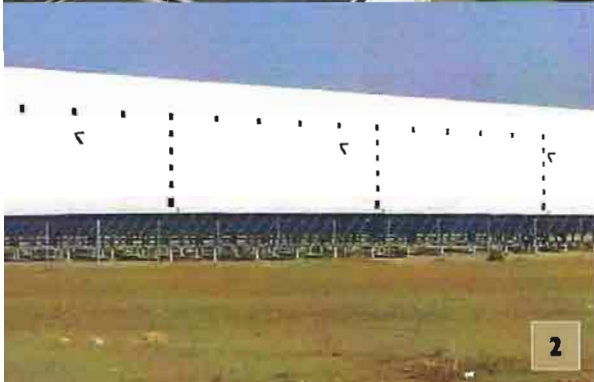


# *Solar Energy* for **Commercial** **Applications**





## Solar Applications

- 1 - OK Produce
- 2 - The GAP Distribution Center
- 3 - California State University, Fresno Parking Facility
- 4 - Weather Station

This publication is part of a series of solar energy informational pieces from the International Center for Water Technology (ICWT). It is a companion piece to "Solar - Green Energy for a Bright Future" booklet and is part of a Solar Education Program developed by ICWT and funded by the Environmental Protection Agency (EPA). This booklet is intended for **commercial users** of electrical energy.

Examples of solar uses for commercial applications are:

### Packing Houses

Solar energy can also be used to power the entire packing process. In Fresno, California, PR Farms has been at the forefront of the solar movement. PR farms powers 50% of its facility with their solar installation. At full capacity their solar installation could power 216 homes. Their 98,000 square foot facility processes 1.5 million boxes of fruit a year. Before installing the system PR Farms estimated that they spent over 1 million dollars a year on electricity. The investment should pay for itself in 10 years.

In December 2002, OK Produce, in Fresno, California, installed a solar electric system on its roof. The 2,100 solar panels provide power for the facility, while at the same time act as insulation. The solar electric system covers 35,000 square feet and is one of the largest commercial solar rooftop installations in the Central Valley. OK Produce's solar electric system generates enough electricity to power over 230 homes. In addition, this grid-connected solar system reduces OK Produce's electrical load especially during peak demand times.

### Distribution Centers

In October 2008, The GAP Distribution Center in Fresno, California, installed a 1 megawatt solar energy system on their facilities. The installation spans over 5 acres and is one of the largest solar power system installations in the northern California region. The system was designed by SunPower and features their tracking technology which tracking technology helps them increase energy captured by up to 25%. This installation is believed to offset up to 2.5 million green house emissions every year and equivalent of taking 2,466 vehicles off the road. The system is owned and operated by MMA Renewable Ventures and will sell the power to the GAP through a 20-year purchase agreement at or below utility rates.

### Parking Facilities

In 2007, Chevron Energy Solutions, a unit of Chevron Corporation, and California State University, Fresno, completed a large-scale solar power installation on the Fresno State campus. The installation will supply 20% of the University's annual power needs.

The 1.1-megawatt solar system is considered the largest photovoltaic-paneled parking installation at a US university and is expected to save the University more than \$13 million in utility costs over a 30-year lifespan. The project cost was \$11.9 million and was offset by a \$2.8 million rebate administered by Pacific Gas & Electric Co. under the Self-Generation Incentive Program.

The 10 carport structures are topped by 3,872 photovoltaic panels that generate more than 1.5 million kilowatt hours of power annually. The Fresno State solar system offsets about 950 metric tons of carbon dioxide emissions, an equivalent to planting more than 24,300 trees or removing more than 200 cars from the road every year.

### Airports

In July 2008, Fresno Yosemite International Airport (FYI) installed a 2 mega watt solar energy system. This array will provide up to 40% of the day to day lighting, air conditioning, controls and towers of the airport. The solar array is considered the largest of any airport in the entire United States. The installation covers the equivalent of 7 football fields and will save taxpayers \$11 million. The solar installation produces up to 2 megawatts of electricity. The City of Fresno donated the 20 acres of land needed for the installation.

### Emergency Traffic Signs

Emergency traffic signs can be powered by solar panels. The solar power it doesn't use during the day can be stored in batteries for night time use, or solar can be utilized during the day and augmented with diesel power at night.

### Speed Limit Signs

Speed limit signs are already being powered by solar panels. At night the signs generally use electricity from the grid, but can also be battery powered.

### Lighting

Can be solely powered by solar energy in areas where it is dark such as parking structures or barns. Batteries can store energy for the lighting to use at night.

### Warehouses

Warehouses can be powered by solar energy while connected to the grid. Most warehouse equipment uses a small enough amount of energy that can be supplied by energy collected directly from solar panels.



### Solar Applications

5 - Emergency Traffic Signs

6 - Speed Limit Signs

7 - Lighting

8 - Warehouses

## Glossary

For a list of terminology and definitions, please refer to *Solar-Green Energy for a Bright Future* published by ICWT.

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