

Low-Cost Installation of Concentrating Photovoltaic

August 2011

Fact Sheet

The Issue

Several factors inhibit the potential growth of the California photovoltaic market: high installation costs, expenses related with system components, and traditional solar designs that limit installation locations. Many improvements have been made in recent years on the assembly and deployment of flat-plate photovoltaic technologies. However, installation and multi-vendor assembly costs remain a large and complicated component of the installed cost for a full system. New concentrating photovoltaic technologies promise to reduce total cost while offering higher energy production. However, most systems fall short with incomplete expensive offerings. Currently, no solar company provides a complete photovoltaic or concentrating photovoltaic comprehensive solution.

Project Description

This project will demonstrate installation cost reductions, low-cost manufacturability, technical performance improvements, reductions in ground footprint, which allow for minimal disturbance of soil and ecosystem, and comprehensive full system delivery of the GreenVolts new concentrating photovoltaic system. This new system will speed the deployment and adoption of concentrating photovoltaic technology in various applications, including in disturbed lands; it has support poles with small footprints and can be compatible with low-growing, natural vegetation. Due to its scalable nature, it can be used for distributed near-load



GreenVolt's concentrating photovoltaic system installed in Fremont, California.
Source: GreenVolts, Inc.

locations, as well as scaled up to multi-megawatt utility-scale power plants. The system is designed for rapid deployment and simple assembly. This will significantly reduce installation costs and increase the number of deployment sites, serving the commercial, industrial, agricultural, and wholesale (utility) markets.

PIER Program Objectives and Anticipated Benefits for California

GreenVolts' concentrating photovoltaic system is now in full production with about 0.5 megawatts from six installations in California and Arizona. Several sites are also in development with capacity ranging from 200 kilowatts to 1 megawatt in

addition to a 2.5 megawatt power plant for the Pacific Gas and Electric Company near Tracy, CA – the first solar concentrating photovoltaic power purchase agreement (PPA) signed by PG&E.

Other benefits to ratepayers:

- Benefiting California utilities and large scale industrial energy consumers by delivering needed solar systems.
- Placing concentrating photovoltaic power plants close to loads, thereby reducing congestion at substations and decreasing transmission costs.
- Delivering solar energy to the grid, thereby reducing fossil fuel consumption and the resulting emissions.
- Creating a complete packaged solution that will bring down system costs and help lower the cost of energy for California ratepayers.
- This project spurred many new jobs; 100 jobs were created at Greenvolts, and about 20 manufacturing and 30 installation jobs were created as a direct result of this project.

Project Specifics

Grant Agreement Number: PIR-07-011

Contractor: GreenVolts, Inc.

City/County: Fremont/Alameda County

Application: Statewide, Nationwide

Amount: \$250,000

Cofunding: \$242,166 from GreenVolts

Term: April 2009 to March 2012

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