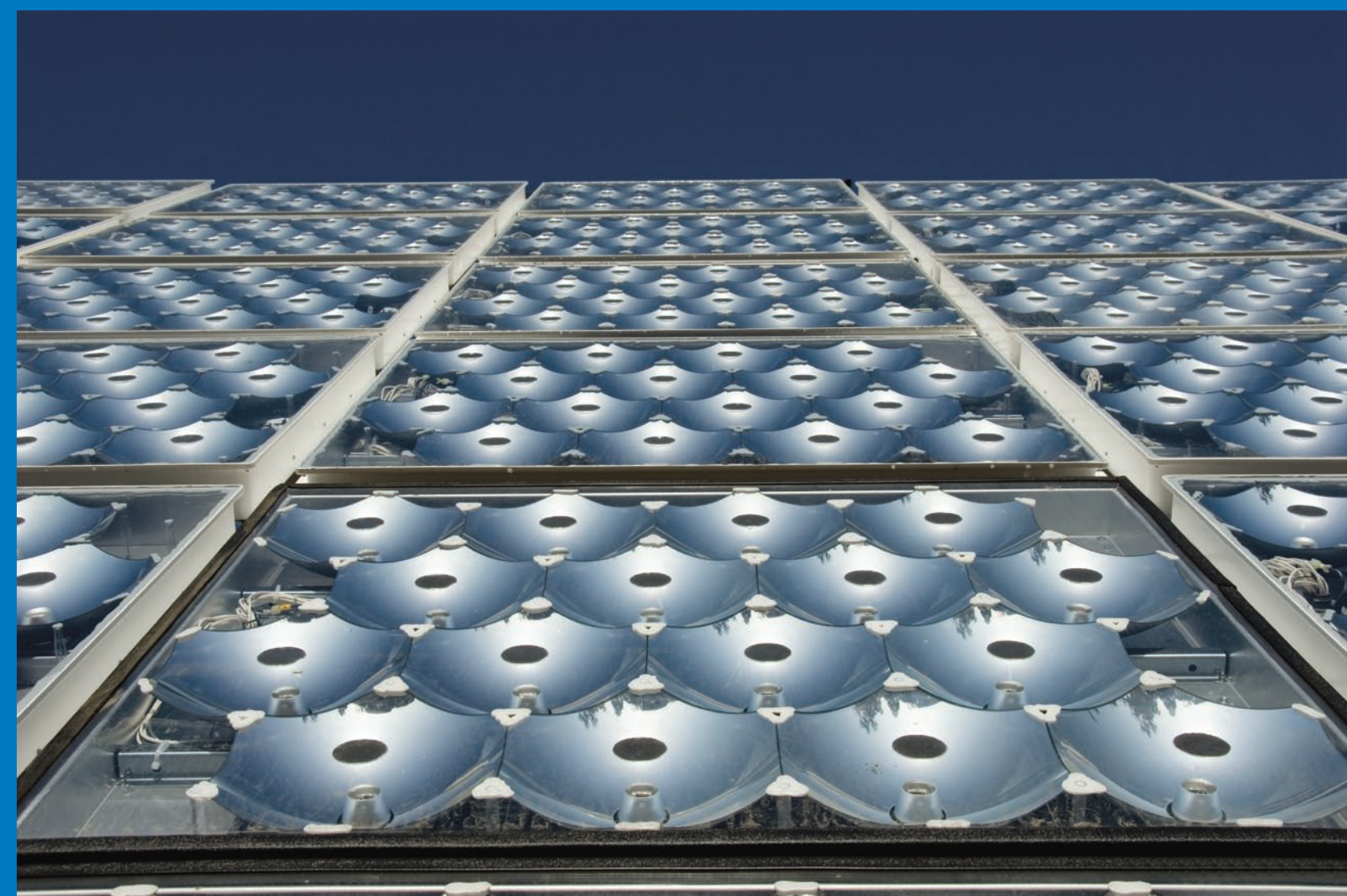


Solar Photovoltaics - Concentrator Photovoltaics



(SolFocus Corporation 2007)

Close-up of several concentrator photovoltaic (CPV) modules.

Future Power Plants

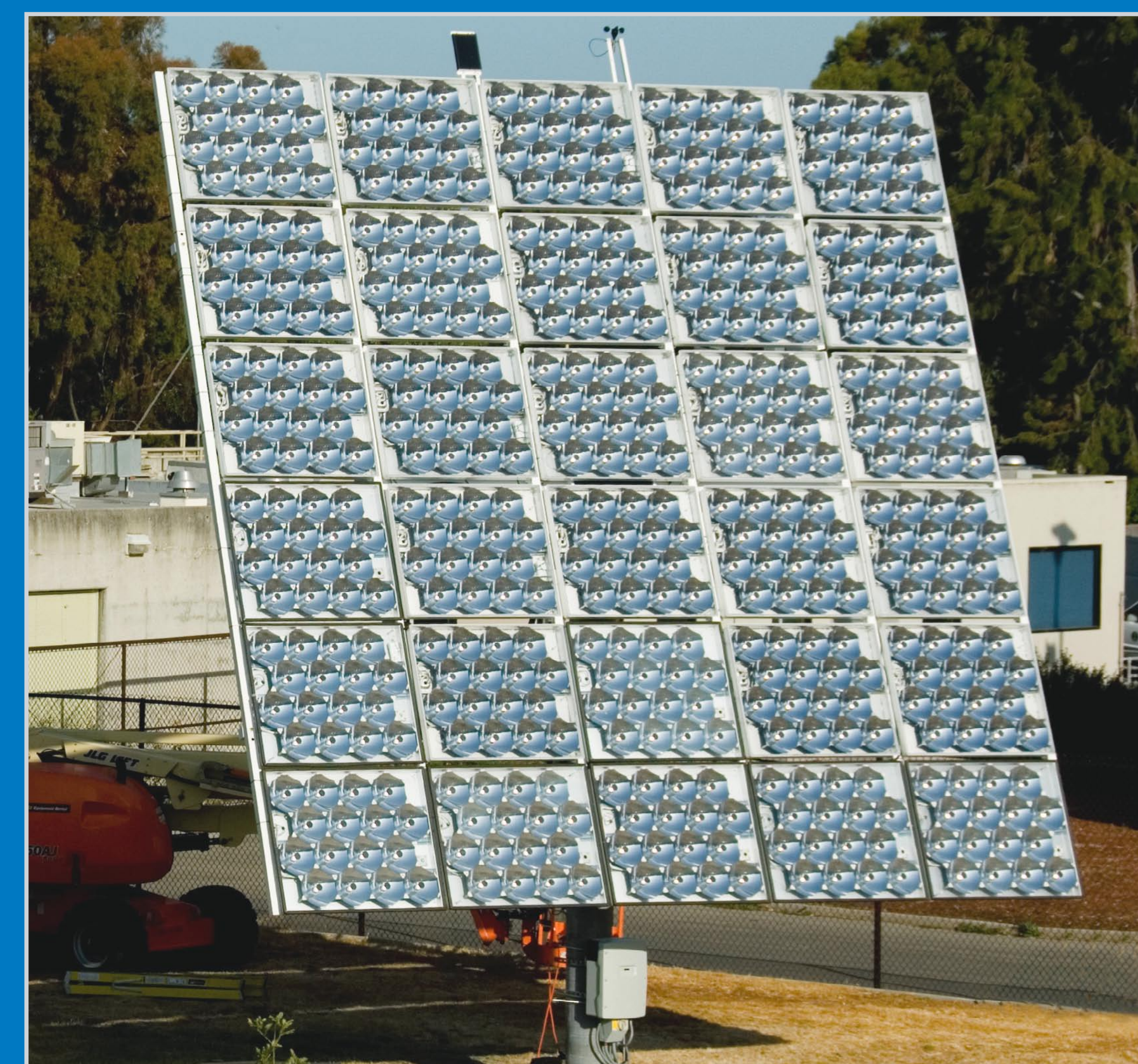
Spain – In September 2007, the Institute of Concentration Photovoltaics Systems in Spain announced plans to build several 1.3 MW pilot power plants. Three companies were awarded funds to complete the first phase totalling 1.7 MW: Isofoton (700 kW), SolFocus (500 kW), and Concentrix (500 kW). These pilot plants are to be operational in summer 2008. The balance of the pilot plants from the first phase are single company pilot plants located in rural areas of Castilla La Mancha each with differing microclimates and solar radiation. Isofoton will install 300 kW near Toledo, and SolFocus will install 300 kW near Guadalajara, the coldest area in Castilla La Mancha. Meanwhile, Concentrix is installing 300 kW near Cuenca.



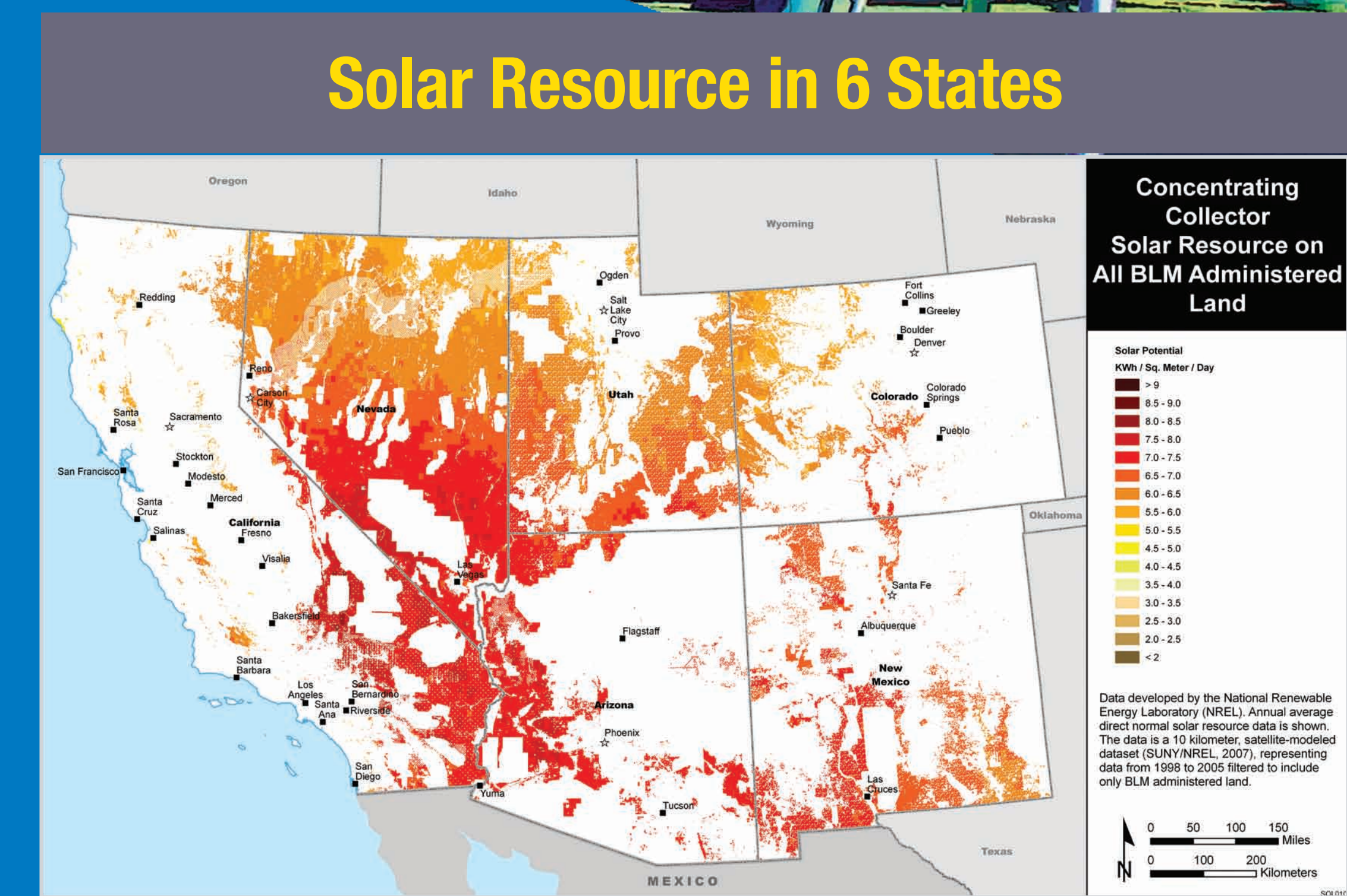
CPV Systems (Dual-Axis)



The world's first grid-tied CPV system to use the latest high-efficiency solar cells. The dual-axis tracking modules use small mirrors to focus sunlight on high-efficiency solar cells.

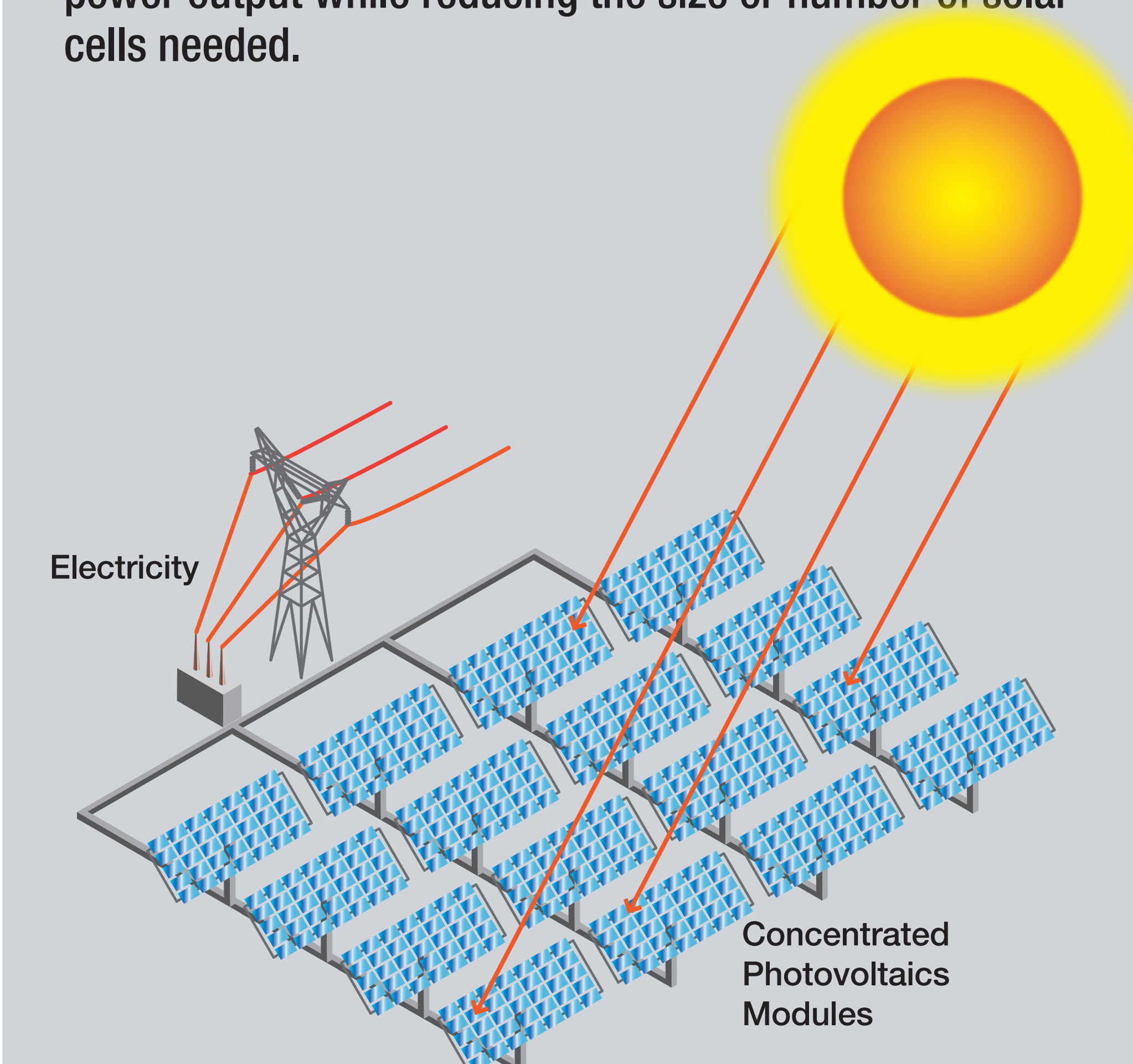


A module using concentrator photovoltaic technology (SolFocus Corporation 2007)



How They Work

Concentrator photovoltaics (CPV) uses inexpensive materials such as mirrors or plastic lenses to capture the sun's energy and focuses it onto PV solar cells. CPV technology differs from flat-plate PV modules in several ways: they are usually made using high-efficiency, multi-junction PV solar cells and they use mirrors or lenses to concentrate sunlight onto the solar cells. The primary reason for using concentrators is to be able to use less solar cell material. Concentrator systems increase the power output while reducing the size or number of solar cells needed.



Operational Concentrator PV Power Plants

Plant Name	Location	First Year of Operation	kW
Clark Generating Station	Las Vegas, NV, USA	2006	75
Unknown	Hermannsburg, Yuendumu and Lajamanu, Australia	2005	720
Center for Energy Research	University of Nevada, Las Vegas, NV, USA	2004	25
Arizona Public Service	Prescott, AZ, USA	2003	140
Unknown	Umuwa, South Australia	2003	220
APS Star Center East Field Site	Tempe, AZ, USA	2002	125
Arizona Public Service	Prescott, AZ, USA	2002	175
Arizona Public Service	Phoenix, AZ, USA	2001	100
APS Star Center West Field Site	Tempe, AZ, USA	2000	145
Unknown	Whitecliffs, Australia	1996	40