U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Solar Photovoltaics - Flat Plate

Solar Energy Technologies Program

Arizona Public Service 2-MW PV Power Station

Future Power Plants

The following photovoltaic (PV) plants were announced in 2008.

United States

- Duke Energy announced plans to build a 16-MW solar PV farm in North Carolina.
- CleanTech announced plans to build an 80-MW solar farm near Fresno, California.

Australia

- Announced plans to build a solar PV power station in Victoria of 154 MW.

Portugal

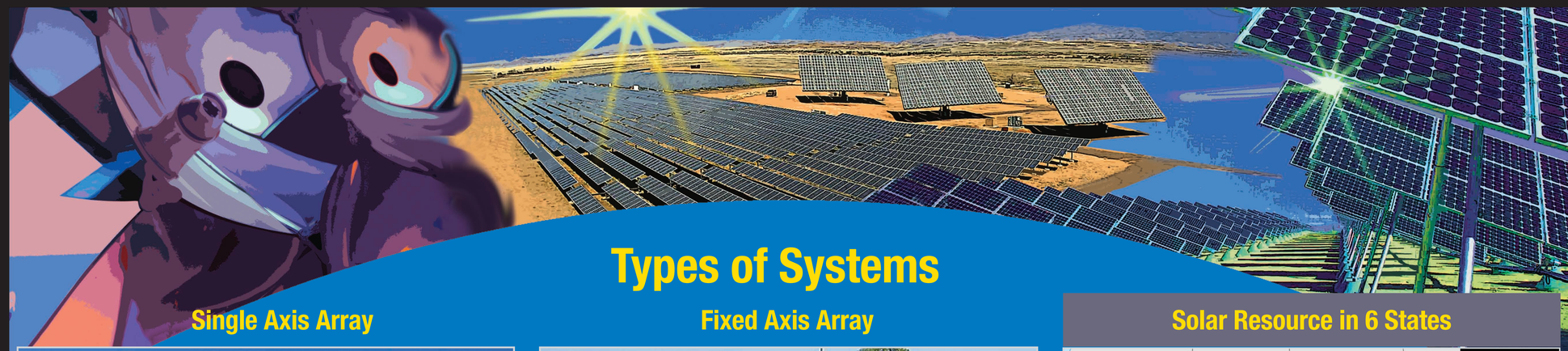
- BP and Yingli Green Energy are constructing a 62-MW solar power plant in Moura called the Girassol Power Plant.

Germany

- Announced plans to build a 40-MW solar park called Waldpolenz near Muldentalkreis.

Spain

- Parque Solar Hoya de los Vincentes project – announced plant to build a 23-MW solar park near Jumilla.
- Announced plans to build a 21-MW solar park near Calaveron.
- Planta Solar La Magascona – announced plans to build a 20-MW solar park near Trujillo.



Types of Systems

Single Axis Array

A single-axis tracking system is used for the 14.2-MW flat-plate PV system at Nellis AFB in Nevada. The solar system meets 25% of the base's total electricity needs.

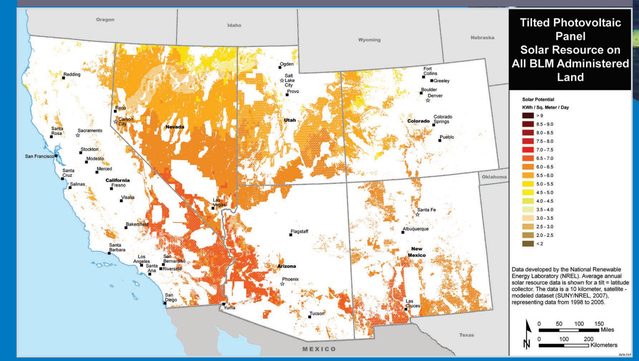
Fixed Axis Array

A fixed-array, 11-MW PV power station in Serpa, Portugal.

World's Largest PV Power Plants

Plant Name	Location	First Year of Operation	MW	Land Area
Beneixama Power Plant	Beneixama, Spain	2007	20	124 acres (50 hectares)
Nellis Solar Plant	Nellis AFB, Nevada, USA	2007	14.2	140 acres (57 hectares)
Planta Solar de Salamanca	Salamanca, Spain	2007	13.8	89 acres (36 hectares)
Lobosillo Solar Park	Murcia, Spain	2007	12.7	?
Gut Erlasee Solar Park	Arnstein, Germany	2007	12	?
Serpa Solar Plant	Serpa, Portugal	2007	11	150 acres (60 hectares)
Pocking Solar Park	Pocking, Germany	2006	10	79 acres (32 hectares)
Monte Alto PV Plant	Milagro, Spain	2006	9.5	126 acres (51 hectares)
Alamosa PV Power Plant	Alamosa, Colorado, USA	2007	8.2	80 acres (32 hectares)
Springerville Generating Station	Tucson, Arizona, USA	2005	4.6	44 acres (18 hectares)

Solar Resource in 6 States



How They Work

Flat-plate PV panels convert sunlight into electricity. Flat-plate panels do not require direct sunlight and they generate energy regardless of where the light source is located. They can be fixed in place or allowed to track the sun with solar trackers. A single-axis array tracks the sun from East to West during the day, which provides 30%–40% more energy than a fixed array. Output power is also more uniform. They use light sensors or computer programming to avoid unnecessary tracking movement.