

# Arizona solar plant achieves six hours after sun goes down

October 11 2013, by Nancy Owano

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(Phys.org) —Abengoa's Solana plant in the desert near Gila Bend, Arizona, passed commercial testing this week. The 280-megawatt Solana solar thermal power plant producing electricity without direct sunlight made the announcement on Wednesday. Abengoa said Wednesday that the facility, about 70 miles southwest of Phoenix, can store the sun's power for six hours via thermal energy. The three -square-mile facility near Gila Bend uses concentrated solar power (CSP) technology to collect the sun's heat. Thermal energy storage is Solana's distinctive

feature. At 280 megawatts, Solana is one of the largest plants using parabolic mirrors. Its 2,700 parabolic trough mirrors follow the sun to focus heat on a pipe containing a heat transfer fluid, which is a synthetic oil. The heat transfer fluid flows to steam boilers, where it heats water to create steam. The steam drives 140-megawatt turbines to produce electricity.

Solana is one of the largest [power plants](#) of its kind in the world. Beyond size, what makes Solana special as a solar power plant is the ability to store the heat from the sun for electrical production at night, using substantial thermal storage to keep the juice flowing for hours after sundown. In a [report](#) on the Arizona plant by *IEEE Spectrum*, the point was made that proving that this storage tech can work is a huge step for the solar industry. Intermittency, said the report, is still among the most common complaints about industrial-scale renewable energy.

According to Abengoa, "Solana's [thermal storage](#) system, without the use of the solar field, can produce clean energy for six hours at maximum power." These six hours, said the company, can satisfy Arizona's peak [electricity](#) demands during summer evenings and early night hours. Abengoa added that "Dispatchability also eliminates intermittency issues that other renewables, such as wind and photovoltaics, contend with, providing stability to the grid and thus increasing the value of the energy generated by CSP."

Abengoa is an international technology and engineering company, which began construction of the plant in 2010. A power purchase agreement with Arizona's biggest electricity utility, Arizona Public Service, is in place covering the full solar plant's output for its customers. Electricity generated by the plant at its peak would power around 70,000 homes. *IEEE Spectrum* refers to Gila Bend, Arizona, as a "solar power wonderland," with four solar plants approved in the area.

Don Brandt, APS President and Chief Executive Officer, said he regarded Solana as providing a boost toward the APS goal of making Arizona "the solar capital" of America. With the addition of Solana, APS will have 750 megawatts of [solar power](#) on its system by the end of the year, enough to serve 185,000 Arizona customers.

**More information:** [www.aps.com/en/ourcompany/news...r-sun-goes-down.aspx](http://www.aps.com/en/ourcompany/news...r-sun-goes-down.aspx)

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