

Growing 30% more electricity in a “solar garden”

Using a similar principle to that employed by sunflowers, following the sun to maximise the amount of sunlight received.

Spanish systems integrator Electricidad Alsanbo has recently installed a 100 kW photovoltaic plant at Higuera in southeast Spain. Photovoltaic systems generate electricity from sunlight and the installation at Higuera produces about 30% more electricity than comparable fixed installations. It does this by using a similar principle to that employed by sunflowers, following the sun to maximise the amount of sunlight received. The Alsanbo system has double-axis solar trackers which continually adjust the positioning of the solar panels so that they always face the sun.



The installation is a product of the company’s environmental commitment, and was a personal initiative of Andrés Almendros, Alsanbo Director and native of Higuera, who has a keen interest in this kind of development: “The environmental impact of photovoltaic solar panels is less than other renewable energy sources such as wind power. It is clean, doesn’t cause any noise that might disturb local people, and is not harmful to birdlife.”

Higuera is an ideal setting to guarantee maximum output from a photovoltaic solar installation: an altitude of 1000 metres, a clean atmosphere, plenty of sunlight and low temperatures. The “Solar Garden” has five double-axis solar trackers - manufactured by Aplicaciones de Energías Sustitutivas (ADES) - with movement controlled by an automated system that can determine the exact position of the sun throughout the day.

Omron provided the technology required for the automated units, as well as advice, services and technical support.

The movement of the panels is controlled by an automated system based on an Omron CJ1 programmable controller which uses an astronomical clock to calculate the exact position of the sun. Five 4 kW Omron KP40G inverters are installed in each support structure, to convert the direct current generated by the panels into alternating current for transfer to the grid. The modular layout minimises production loss in the event of a fault, while installation and maintenance of the smaller inverters is easier, quicker and more economical compared with centralised inverters.



Contribution to green energy

The results of the installation are even better than anticipated. Reduced downtime and maximum productivity have resulted in an average generation of 630-640 kW/h (compared with a forecast of 400kW/h) according to Spanish energy company Iberdrola. Moreover, low voltage connections mean that the electricity produced can be used by the local population, so there are no transport losses, maximising the benefit of the increased power output.

Martín González, Mayor of Higuera, comments that: "Our municipality has been a pioneer in the development of alternative energy in Castile-La Mancha. The first wind farm was set up here in Higuera and in its day was the largest in Europe. Now we are concentrating on photovoltaic solar energy. We are currently working on a 300 kW project for local investors. We are very proud of our contribution to promoting green energy."

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Omron's Environmental Performance

Omron considers addressing environmental issues to be its corporate responsibility, therefore it is an important management objective for the company. Based on this, we established our "Green Omron 21" environmental vision in May 2002, which is intended to maximize Omron's corporate value on a long-term basis and contribute to building a sustainable, resource-circulating society.



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