

# ENGINEERING, PROJECTS AND CONSTRUCTION OF SOLAR PLANTS



**The recollection of quality remains long after the price is forgotten.**

Gordon Selfridge



# ¿Why solar energy?

The “Comunidad Valenciana” is situated in the part of Europe where greater amount of sun hours/year are measured, which places it in a perfect location for solar photovoltaic installations.

The average solar radiation per year in the south of Spain is 1.752 kWh/ m<sup>2</sup>, whereas in Germany are measured only around 1000 kWh/ m<sup>2</sup> and in the north of the Great Britain only 876 kWh/ m<sup>2</sup>.

These data have aroused our interest in using energy from the sun in Spain to produce electricity and hot water.



# Company description

The company was created in March 2005. It now has its own engineering department as well as its own qualified workers who guarantee professionalism in the accomplishment of the works that allow us to offer the maximum guarantees to the customer.

Our philosophy is to maximize customer investment by offering a high profitability of these facilities using high quality materials from solvent European suppliers capable of dealing with the guarantees offered.



In July 2005 was inaugurated the first solar grid-connected power plant (100 Kw) in Muro de Alcoy, and it was the first one of this kind in the area of Alicante.

Micó has been installing solar power plants for companies and particular owners and for this reason have a solid experience in planning, building and putting into operation roof and ground solar power plants.

Micó develops his activity in differents branches of business:

Grid-connected photovoltaic energy

Off grid photovoltaic systems

Solar Thermal Energy

Wind Power



# Grid-connected photovoltaic energy

Photovoltaic energy involving the conversion of incident solar energy into electricity. The direct current (DC) created by the solar modules is converted into alternating current (AC) suitable for the grid by the inverter.

The energy generated is either fed into the grid or consumed directly, thus reducing dependence on a main electricity provider.

The installations may be mounted at ground level (in rural plots or low-value industrial land) or on roofs (on blocks of buildings, private homes and particularly on industrial warehouses).



100 kWp – Muro de Alcoy (Alicante)



50 kWp – Alquería de Aznar (Alicante)

## 2,3 MW Solar Power Plant in Cieza (Murcia). Building process



Clearing the land (around 70.000 m<sup>2</sup>) and setting the metal structure for the panels.



A small building is set up to protect the inverter and electrical devices from the open air.



The photovoltaic panels are placed in their optimum inclination and orientation to maximize their performance.

# off-grid photovoltaic systems



This off-grid facility provides electricity to a country home in Xixona (Alicante). The PV array supplies the whole electricity consumption for this house during all the year including lighting, TV, fridge, microwave, PC...



A series of batteries store the energy for later use, supplying electricity at night or during cloudy periods.



An inverter converts direct current (DC) produced by the PV array to alternating current (AC) used by household appliances, and the charge controllers protect the battery bank from being overcharged.

# SOLAR THERMAL energy in housing

Solar thermal installation in a country house in Cocentaina (Alicante)



The plain thermal collectors provide hotwater and heating, reducing the use of fossil combustible.



A small solar accumulator is used for harnessing the thermal energy.



In a forced or “pump-circulated” a circulating pump moves water or heat transfer fluid between the tank and the collectors.

# SOLAR THERMAL energy in hotels

Solar thermal installation in Hotel Melina (Benidorm)



The solar thermal collectors collect heat by absorbing sunlight. This installation provides more than 70% of the heat water needs, resulting in a great reduction in the use of fossil combustible.



The solar accumulators are used for harnessing the thermal energy, and the circulating pumps move water between the accumulators and the collectors.

# Wind Power

Conversion of wind energy into electricity using wind turbines.

Significant areas of the world have mean annual windspeeds of above 4-5 m/s which makes small-scale wind powered electricity generation an attractive option.

Small wind turbines (3,5-7 kW) in conjunction with batteries are used to generate household electricity in remote areas.



3,5 kW wind turbine in Castalla (Alicante)



3,5 kW wind turbine in Castalla (Alicante)

- 100 kWp grid-connected facility in Muro de Alcoy (Alicante)
- 552 panels, 750 m<sup>2</sup>
- Annual production 158.574 kWh



- 24 kWp in Castalla (Alicante)
- 280 panels, 380 m<sup>2</sup>
- Annual production 35.127 kWh



- 49,3 kWp in Alquería de Aznar (Alicante)
- 300 panels, 400 m<sup>2</sup>
- Annual production 72.700 kWh



- 50,75 kWp in Benimarfull (Alicante)
- 290 panels, 390 m<sup>2</sup>
- Annual production 69.434 kWh

10 kW in Cocentaina (Alicante)  
66 panels, 90 m<sup>2</sup>  
Annual production 16.414 kWh



36,8 kWp in Jijona (Alicante)  
210 panels, 290 m<sup>2</sup>  
Annual production 49.026 kWh



2.300 kWp in Cieza (Murcia)  
10.000 panels, 150.000m<sup>2</sup>  
Annual production 3.391.683 kWh



City Hall in La Romana (Alicante), 15 kWp  
90 panels, 120 m<sup>2</sup>  
Annual production 22.139 kWh

100 kWp in Muro de Alcoy (Alicante)  
552 panels, 750 m<sup>2</sup>  
Annual production 157.556 kWh



10 kW City Hall in Villena (Alicante)  
66 panels, 90 m<sup>2</sup>  
Annual production 16.233 kWh



112,2 kWp in Jijona (Alicante)  
660 panels, 900 m<sup>2</sup>  
Annual production 162.163 kWh



20 kWp City Hall in La Romana (Alicante)  
120 panels, 160 m<sup>2</sup>  
Annual production 30.095 kWh

11 kWp in Cocentaina (Alicante)  
70 panels, 90 m<sup>2</sup>  
Annual production 16.879 kWh



100 kWp in Alcoy(Alicante)  
520 panels, 800 m<sup>2</sup>  
Annual production 136.604 kWh



11 kWp in Cocentaina (Alicante)  
64 panels, 86 m<sup>2</sup>  
Annual production 16.118 kWh



**HOTEL MELINA \* \*  
(BENIDORM)**

133 rooms  
40 solar thermal collectors  
6.000 l solar accumulator tank  
Annual production 184.537 kWh

50 kWp in Cocentaina (Alicante)  
290 panels, 380 m<sup>2</sup>  
Annual production 69.436 kWh



**HOTEL \* \* \* \* (BENIDORM)**

200 rooms  
96 solar thermal collectors  
15.000 l solar acumulator tank  
Annual production 442.890 kWh



18 kWp in Cocentaina (Alicante)  
90 panels, 140 m<sup>2</sup>  
Annual production 25.983 kWh





Mico Solar Energy is a Technical Partner  
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