

## Green Spain

### Solar Power

Solar panels are now compulsory (since September 2006) on all new and renovated buildings in Spain as part of the country's efforts to bring its building rules up to date and curb growing demand for energy.

These panels are in most cases subsidised by the government who are starting to take the issue of energy consumption seriously.

Having few natural resources of its own, Spain is a major importer of fossil fuels, so the benefits to the country are great, it reduces their carbon emissions, decreases the countries vulnerability to disruptions in supply and delays the need to construct more nuclear power stations.

Spanish building regulations were last updated in the 1970s and did very little towards improving energy efficiency.

The code will come into force in March 2007, but the energy saving element was implemented on September 29th 2006.

This changes require that all new homes have to be equipped with solar panels large enough to provide between 30 and 70 percent of their hot water, depending on where the building is located and on its expected water usage.

New non-residential buildings, such as factories, warehouses, leisure complexes, shopping centres and hospitals, must now use solar energy to generate a proportion of their electricity.

Until now solar power has had low priority in Spain, surprising in view of its 300+ days of sunshine per year, and having the worlds leading solar research centre. This is because until now green subsidies have been offered for wind generated energy.

The new building code requires that builders use of better insulation, (many new properties have no insulation at all) require regular qualified maintenance of heating and cooling systems, and an increase in the use of natural light to illuminate buildings (Spanish properties tend to have small windows covered by shutters for most of the day).

The government is hoping that the building standards will reduce energy consumption by 30 to 40 percent for each effected building and a reduction of carbon dioxide emissions from energy consumption of 40 to 55 percent.

The extra cost of the installations should increase the cost of a new house or renovation by between 1 and 5%, though the savings on energy costs by the householder should quickly recoup the expense.

Spain is the worlds second largest producer of electricity from wind, producing over 9000MW (Germany 16000MW, USA 6,500MW).

The governments subsidies to the use of wind power has meant that the country has the many of the worlds leading experts in most areas of wind power. Companies such as Gamesa Eólica, the world's second largest turbine manufacturer, Iberdrola, the Spanish Electrical generator/supplier who own and operate the worlds largest wind-farm and Acciona Energía who have developed and built the world's largest wind-farms.

Spain has a surprising amount of windy areas, and has always been famous for windmills (Don Quixote spent his time fighting windmills). The winds bring cooling breezes that are much needed on hot days, and are used by the major companies to produce power for the national grid, and also by many home owners who have small windmills, solar panels and a generator to power their homes.

Almost everywhere you go in Spain you will see large green wheelie bins, and large bell shaped recycling bins beside the road. Spain is a leading recycler, and has different bins for householders to deposit paper products, plastic products and glass of different colours.

Southern Spain suffers from drought conditions. There have been numerous schemes suggested to transfer water from the relatively fresh water rich areas of Northern Spain to the south, most of which have been shelved. The current drive appears to be in highly energy efficient desalination plants.

Spain built Europe's first desalination plant over 40 years ago, and is now using its experience to provide millions of litres of fresh water every day to drought effected areas of southern Spain.

Spanish companies make up the largest percentage of competitors on the international market for the design, engineering, construction, and operation of new desalination plants around the world

