

## **RES-e Regions - WP4: Specific technology promotion**

### **Technology selection for Government of Navarre, Spain: Photovoltaic solar energy (PV)**

#### ***Background***

The first photovoltaic solar energy facilities were deployed in Navarre in the early 90s. These facilities were usually small facilities in remote settings to provide for lightning for livestock buildings, leisure houses and chlorination systems for small municipalities. In 1998 the Government of Navarre opened the first call for proposals for financial aid to small renewable energy facilities. This meant the starting point for the actual development of PV in remote settings.

#### ***Current situation***

Navarre boasts the largest photovoltaic solar power plant in Spain. Total generated power amounts to 1.18 MWp produced by 400 sun followers. 280 of these, amounting to 10080 panels and an overall power of 856 kW have centralized inverters, and the remaining 120 devices, fitted with distributed inverters and an overall power of 321 kW, are consecrated to testing different solar energies as well as to researching other production systems and inverters.

A Royal Decree on the connection of photovoltaic facilities to low-tension grids was adopted in late 2000. In 2001, in addition to typically small remote facilities, larger 5-knowledge facilities were deployed and connected to grids, a circumstance favoured by the existence of a special selling price for produced kWh to the distributing electricity company, as well as by the obligation of the latter to buy the electricity produced. Although Navarre is located in Northern Spain, it has many areas with a strong annual sunshine, with maximums of yearly sunshine of until 2800 hours, which is allowing the deploying of facilities of this type owned by individuals.

In late 2004 there were over 400 fully operative remote facilities and over 800 facilities connected to the electrical grid.

Current Spanish legislation in force allows facilities ranging from 100 WP to 100 kWp to connect to the electrical grid.

#### ***Barriers***

- Large investment costs. Currently installed WP involves too many expenses. To promote the expansion of this type of facilities, certain measures need to be taken: the owner should benefit from regulated prices within special rates schemes and additional financing systems should be available.

## ***Opportunities***

- The region of Navarre has a large number of areas with a high solar radiation index.
- The region boasts a high awareness rate of the population as to the use of renewable energies in general.
- There are experienced promoting enterprises deploying and grouping facilities (up to 400 grid-connected facilities).
- Although the region's electrification rate is rather high, it is still possible to develop isolated facilities in rural settings for livestock and farming facilities or buildings of other types.

## ***Target groups***

Current regulation includes a higher-rate price guarantee for a certain number of years, which makes it possible to install connections to the electrical grid in industrial plant roofs, single-family houses and other types of buildings. Although each facility may only produce a few kWp, the network allows to reach totals over 1 MW.

## ***Actions needed***

The region's industrial production and PV research rates rank among the top at global level.

Spain is as of today the leading producer in Europe of photovoltaic cells and panels, amounting to 10% of world production.

However, in order to attain the utmost performance of the industrial photovoltaic system, it is necessary for enterprises and research institutes to implement a continuing and relevant R&D activity.

Summing up, necessary measures should lead in the direction of breaking down existing obstacles, such as the high cost of installed WP.