

A demonstration project that highlights the conversion and storage of solar and wind energy in the form of hydrogen and the autonomous cooling of buildings based on solar power



*HydroSolar 21*

[www.hydrosolar21.com](http://www.hydrosolar21.com)

the future energy of Burgos

# Lines of action:

The only project in Castile and Leon approved by the European Commission under the 'Environment – Life 2004' funding programme.

The Hydrosolar 21 project incorporates, for the energy supply of a building, an adsorption-based solar-cooling system and an automatic system of electric lighting based on the combustion of wind and photovoltaic-generated hydrogen in a fuel cell.

A zero-emission renewable energy project (No pollutants in any of its processes).

- The use of wind and photovoltaic energy in the production of hydrogen by electrolysis of water and its storage as a fuel.
- The use of adsorption processes powered by solar energy to generate cold air for cooling a building.



# Objectives:

- 1** Innovation and development of solar-cooling systems through a pre-industrial prototype generating cold air for partial cooling of the building. It uses solar radiation in an activated carbon-methanol adsorption system.
- 2** Production of hydrogen by means of renewable energies and its subsequent storage and consumption. The objective is to develop a prototype for electrolytical production of hydrogen to supply the final charge for the illumination of a building.
- 3** The integration of both prototypes in a demonstration building.
- 4** Technological transfer oriented towards the creation of new businesses.



The project demonstration building is situated in the immediate vicinity of the Centro Europeo de Empresas e Innovación de Burgos (CEEI Burgos). [The European Business and Innovation Centre - Burgos].



Its construction plans will be developed in accordance with the guidelines of the Green Building Challenge (GBC), a new tool for the environmental evaluation of buildings.

The demonstration building will be used for social purposes and as an incubator for hi-tech environmental firms.

Subject to prior and post-construction building energy evaluations.



Project  
cofinanced by  
the European Union

Project partners:

