

## **COPPER: SOLAR ENERGY'S PERFECT PARTNER**

**Against a background of climate change and high oil prices, the potential for solar energy in Europe, as well as copper's role in improving energy efficiency, are key factors in reducing Europe's energy dependency and CO2 emissions. These conclusions were reached on October 18<sup>th</sup> by the University of Seville and the Spanish Copper Information Centre during a visit to Europe's largest thermoelectric solar platform.**

### **The largest thermoelectric solar platform in Europe**

"Solúcar Energia", the leading solar energy company of the Abengoa group, is building the largest thermoelectric solar platform in Europe at Sanlúcar la Mayor near Seville, currently in its second development phase. The Sanlúcar la Mayor solar platform will be able to generate 302 Megawatts (MW) once it is finished, after an initial investment of 1.3 billion euros.

This project reinforces Spain's position as a pioneer in the development of solar energy. It has, in particular, undertaken an ambitious programme in the field of thermoelectric solar power generation, a technology that uses concentration of the sun's rays. Water converted into steam turns the turbines and alternators to generate electricity. This technology, with its high-level production capacity, is called upon to play a significant role in bringing about sustainable energy production in Europe. Professor Valeriano Ruiz, Head of the Thermodynamics Department at the University of Seville said: "Europe is moving towards a new sustainable energy model, driven by distributed generation (with installations closer to the consumer and interconnected to the power distribution grid), in which solar energy will play a fundamental role".

### **Copper, ally of solar energy**

Copper has the best electrical and thermal conductivity of all non-precious metals, making it the material of choice for modern solar technology. The photovoltaic cells which convert sunlight into electrical energy rely on copper interconnections and cables to transport electricity to the end user. The new generation of photovoltaic cells use new semi-conductors including copper- indium- gallium and selenium. The absorbent surfaces of solar thermal collectors are made from a thin layer of copper, around 0.2 mm thick, and capture the sun's energy to provide heating and hot water. Copper can also be found in the water and heating distribution systems, the heat exchangers and pumps.

### **Solar energy in Europe**

In Europe, 53.9% of electricity comes from fossil fuels and 31.1% from nuclear power. Renewable energy represents 14.4% of electricity production in the EU<sup>1</sup> and is growing sharply. Solar energy is currently contributing least, behind micro-turbines, biomass, wind and geothermal power.

Global solar electricity production from all technologies amounts to 3.2 TWh (2004): 82.2% from photovoltaic plants and 17.8% from thermoelectric power plants. Europe is the third largest producer of solar energy, with 20.7%, behind East Asia (41.2%, largely thanks to Japan) and North America (29.4%, largely from water heating plants)<sup>2</sup>

Together with Germany, Denmark and Finland, Spain is in the group of four member states likely to meet EU goals on green electricity: namely 21% of community-wide electricity consumption by 2010 from renewable energy sources.<sup>3</sup>

***The European Copper Institute is a joint venture between the world's mining companies (represented by the International Copper Association, Ltd). and the European copper industry. Its mission is to promote copper's benefits to modern society across Europe, from its headquarters in Brussels and its network of 11 copper development associations (CEDIC for Spain). [www.eurocopper.org](http://www.eurocopper.org)***

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***Press kit available upon request***

<sup>1</sup> Observ'ER Barometer - 2005 - 2004 figures

<sup>2</sup> Idem

<sup>3</sup> Directive 2001/77/EC - OJ L283/33 on the promotion of electricity produced from renewable energy sources