

Solar

Solucar Energía is its holding company. This Business Unit's activity focuses on the design, promotion, finance attainment, construction and operation of electric energy generating plants that utilize the sun as their primary energy source. It possesses the know-how and technology required for thermoelectric solar power plants: plant receiver systems, parabolic cylinder and parabolic dish collectors, and for photovoltaic plants, with and without concentration.



With the sun... we produce thermoelectric and photovoltaic electric energy

Leader on the home market in electricity generation from solar energy, with a development plan for 302 MW over the next few years

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As a result of more than twenty years investing in solar energy research and development projects, Abengoa has established a specific Business Unit to carry out its solar energy electricity generating activity.

Abengoa is currently in a privileged position in the field of solar energy exploitation as it has been able to work with, during the development of its activity in this field, the two technologies that enable electricity to be generated from solar energy: thermal and photovoltaic.

On the one hand, it is vastly experienced in the different techniques involved in thermal exploitation: power plant receiver systems, parabolic trough collectors and parabolic dishes. With all these technologies, thermal energy is transferred to a fluid by utilizing optic solar radiation concentration systems.

On the other hand, it develops photovoltaic projects, with and without concentration, that directly convert solar radiation into electricity through the use of photovoltaic cells and modules.

This new Business Unit will execute the design, promotion, construction and operation of electric energy production plants that will utilize the sun as their primary energy source.

The companies in the Business Unit are:

Solúcar Energía

Solúcar, the Solar Business Unit's holding company, plans to construct, over the next eight years, a Solar Complex in the Sanlúcar la Mayor area (Seville). The rated output of this complex of solar, thermoelectric and photovoltaic facilities will be 302 MW. Trust is thereby being put in the potential of solar energy for electricity production purposes while contributing to sustainable development and the preservation of the environment and natural resources. Furthermore, Andalusia will become a worldwide reference as it will be the pioneer area for the development and construction of these types of plants.



Solúcar's main activities focus on the promotion of projects and the obtaining of permits and financing, the turnkey construction of plants with monitoring of the contracted works and operation of the plants once they are in production.

In 2005, Solúcar continued its consolidation in the development field of solar energy related products, and maintained its national and international leadership as a provider of solar plant specific services and components.

The year's most notable references include:

The works related with the development of direct saturated steam generation technologies in parabolic-cylinder concentrator absorber tubes and in tower and heliostat power plant receivers.





The development of photovoltaic concentration technologies ranging from values of less than 2X up to limits in excess of 1,000X.

The promotion of solar applications within the framework of the Aznalcollar TH project, as a commercial demonstration of the parabolic dish technology, and the development of a new concentration dish.

The works related with the construction of the Sevilla PV, 1.2 MW low-concentration, and the PS10, 11 MW tower thermoelectric, power plants.

The activities related with the promotion of the PS20, Aznalcollar-20 and the 50 MW Solnova one to Solnova five solar thermal power plants, which are included in the strategic framework of the 302 MW to be built in the Sanlúcar la Mayor area of Seville.

In addition, the Copero photovoltaic projects are being launched jointly with Emasesa, the Seville water company, with a total of 300 kW to be installed.

Sanlúcar Solar. Project PS10

On June 28, 2004, the foundation stone of the PS10 plant was laid and throughout 2005 work continued on the construction and installation of the different plant components. The facilities are located on the Casa Quemada estate, in the municipal district of Sanlúcar la Mayor, Seville.

The 11 MW nominal capacity PS10 plant is being promoted by Sanlúcar Solar, S.A. with 100% Abengoa participation, and has been designed to produce 23 GWh per year, sufficient energy to supply a population of 10,000, under the Special Regime for electricity production.

PS10 comprises a large field of heliostats, mobile mirrors that reflect and concentrate the solar radiation they capture on the receiver on top of a 115 meter tower. Thus, 624 units, each with a 120 m² reflective surface, provide the receiver, a cavity with a water-cooled energy interchange surface area of approximately 200 m², with the thermal energy required to produce steam. This is forwarded to the turbine where it expands to generate, with the necessary connection to an alternator, electricity.





This project represents the launching, following several years of research and development by Abengoa, of the electricity harnessing technology for the renewable solar resource known as tower and heliostat field technology. The main contribution of the PS10 project to the development of this technology lies in it being the first tower solar thermal power plant in the world that will produce electricity in a stable and commercial manner.



Fotovoltaica Solar Sevilla. Project Sevilla PV

The company Fotovoltaica Solar Sevilla, S.A., in which Abengoa has an 80% interest and the IDEA the remaining 20%, is constructing the 1.2 MW Sevilla PV photovoltaic solar power plant. The plant, which utilizes the concepts of low concentration (1.5X and 2.2X) and twin-axis sun tracking, will produce around 2.4 GWh per year of electricity, which will be evacuated to the electricity network, as a production facility adhered to the Special Regime.

The Sevilla PV plant has 168 tracking devices with an opening of almost 100 m² that combine, in almost equal parts, the capturing area of the photovoltaic modules and the mirrors. This facility is located on the Casa Quemada estate in the municipal district of Sanlúcar la Mayor (Seville).

By year-end 2005, the engineering works, the purchase of the project's most important supplies such as the photovoltaic modules, invertors, mirrors and trackers and the on-site installation of all the equipment up to their connection to the network, had been completed.





Solar Processes. Project PS20

Following completion of the necessary permit obtaining stage, construction is scheduled to commence on the facility in 2006. The plant will be built on the Casa Quemada estate in the municipal district of Sanlúcar la Mayor, Seville.

The 20 MW nominal capacity PS20 plant is being promoted by Solar Processes S.A. with 100% Abengoa interest. The technology chosen for this facility is the same as for the PS10 plant, that is to say, tower and heliostat field with saturated steam generated in the solar receiver.

This project represents a continuity in the launching of tower and heliostat field projects following the experience gained with the PS10 project.

Underlying Companies

Specific-purpose companies that assume direct proprietorship, financing and management of each project, and are responsible for, firstly, awarding the turnkey construction contract and subsequently, operation of the plants. At present, in addition to the companies established for the PS10, Sevilla PV and PS20 plants, those for the Aznalcollar Solar and Copero Solar projects and five companies for the Solnova Electricidad one to five projects have been established.

Plataforma Solar Sanlúcar la Mayor

In October 2005, a decision was taken to establish the new company Plataforma Solar Sanlúcar la Mayor (PSSM) that will continue the development of the R&D&I projects that are currently being carried out by Solúcar. In addition, the new company will launch new lines of technological research and development focused on constant cost reductions and improving the efficiencies of the plants scheduled for construction under Solúcar's strategy plan.

The aim of PSSM over the next five years is to position itself as a world reference in the promotion and diffusion of technologies related to thermoelectric, photovoltaic and hydrogen solar energy, by leading the advances made in innovation derived from Abengoa's solar plant construction plan. All these activities will be carried out in constant pursuit of diversification as a source of sustainable development, the constant enhancement of processes and the transfer to and implementation of the most advanced technologies in the projects, within a framework of a shared corporate culture, values and identity that encourage the concern for innovation and the pursuit of new business opportunities.

Its mission will be to proportion technology, innovation and technological transference in the thermoelectric, medium and high concentration and hydrogen solar energy production fields, and to carry out training and diffusion activities related with these technologies.



