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Innovative Solutions for Sustainability



Sustainable growth, Building the green economy

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Our Mission

Abengoa is an international company that applies **innovative technology solutions** for **sustainability** in the energy and environment sectors, generating electricity from the sun, producing biofuels, desalinating sea water and recycling industrial waste.



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Technology development as driven of sustainable growth in Energy and Environment



Concentrating solar power
Abengoa has the only two commercial tower plants worldwide, and it is developing the largest trough plant in the world. **Abengoa Solar is clearly one of the main players worldwide in this field.**

The smart grids that Abengoa develops through Telvent optimize energetic consumption. **Telvent is one of the international leaders in this kind of technology.**





Biomass as energetic source
Abengoa Bioenergy has developed **pioneering R&D projects in this field**, ready to be converted in industrial projects. The biggest pilot plants of cellulosic ethanol

Through Hynergreen Abengoa develops hydrogen reformers, **being one of the world leaders in this kind of technology.**





Desalination and integral water cycle
Befesa is a **world leader in desalination and water treatment**, with unique technological capacities, including the integration of renewable energy

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- 100 M€ invested in R&D in 2010, ca. 2.5% of sales
- >900 people in R&D&i
- >80 R&D projects initiated every year
- Collaborations with reputed research centers such as NREL (US), DLR (Germany) and CIEMAT (Spain)
- Grants received, mainly from US Department of Energy and European Commission

- World pioneer in CSP solar technologies

- World leader in development of 2nd generation (biomass) bioethanol

- Advances in hydrogen, energy efficiency and other incipient renewable energies

- 9th Spanish company by R&D investment, according to the European Commission ⁽¹⁾

(1) 2010 Report

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Solúcar Platform



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

Leader in power generation plants from solar energy, with a plan to develop hundreds of MW of clean energy in coming years

- Largest under construction plant in the world, USA (Solana, 280 MW)
- Largest under construction plant in Arab Emirates (Shams-1, 100 MW)
- First and second commercial CSP Tower in the world in operation (PS10, 11 MW and PS20 20 MW).
- First hybrid technology plant in the world in Argelia (ISCC, 150 MW)
- Leader in multi-technology promotion (CSP: tower, Dish Stirling and CCP ; PV: conventional silicon, Thin Film, LCPV y HCPV).
- Leader in multi-technology R&D, participating in five projects with the DoE (final investment more than 15M\$), and a project with the CENIT (investment: 22 M€).



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The diagram illustrates the components of a solar tower system:

- Heliofield:** A field of heliostads (mirrors) that track the sun's position.
- Parabolic Mirrors:** The heliostads are parabolic in shape to focus sunlight.
- Direct Normal Radiation (DNR):** The direct sunlight hitting the heliostads.
- Reflected Normal Radiation:** The sunlight reflected from the heliostads towards the receiver.
- Central Receiver:** A tower-mounted receiver that collects the concentrated solar radiation.
- Receiver Frame:** The structure supporting the receiver.
- Reflector:** The heliostad reflecting light onto the receiver.

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The Sustainability plan for Andalucía will consist in:

- ❖ Build 2000 MW in new plants with pioneer technology in the market
- ❖ Accelerate the construction of plants already planned
- ❖ Promote solar research and development in Andalucía
- ❖ Create auxiliary industry to provide key elements

- ✓ Electricity for 1,000,000 homes
- ✓ 1,200,000 tons of CO₂ savings
- ✓ Creation of more than 13,000 new jobs

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2720 MW CSP pending to be constructed in Andalucía

MW CSP Andalucía

Category	MW
Priorized	3418
Operation	131
Contruction	567
Pendings	2720

Own source

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R&D in the Solúcar Platform

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Innovation Network in Andalucía

Logos of partner organizations: c+t=a², IDAE Instituto para la Diversificación y Ahorro de la Energía, CSIC, CTAER ANDALUCÍA, UNIVERSIDAD DE SEVILLA, FZSA, and Agencia de Innovación y Desarrollo de Andalucía IDEA CONSEJERÍA DE ECONOMÍA, INNOVACIÓN Y CIENCIA.

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Thank you