



Dispatchable High-Efficiency Solar Power

Abengoa counts on its **own solar thermal technology** and is a world leader in this sector, where it has developed, designed, built and/or operated solar thermal plants in four continents, with a total capacity of 1.9 GW, representing approximately 30% of capacity worldwide. In addition, the company is currently participating in 52% of solar thermal capacity under construction.

Thanks to the know-how accumulated throughout all its years of experience, Abengoa has designed and promoted a new generation of renewable energy power plants where the **low cost of photovoltaic energy (PV)**, the **dispatchability of solar thermal energy (CSP) with thermal storage (TES)** and the **fast response of batteries (BESS)** converge into a single installation. These are solar hybrid technology or **Smart Solar Plants** which Abengoa has developed and optimized achieving a significant reduction in the cost of power thanks to the commitment of the company with the continuous progress in R+D+i.

Smart Solar Plants allow to integrate emerging **energy storage technologies, electric batteries and molten salts** into different configurations that are specifically designed for each project.

Abengoa's **hybrid technology** allows to reduce both the cost of the generated power and CO₂ emissions in new power plants and when applied for the decarbonization of conventional thermal power stations. The Cerro Dominador solar power plant, property of EIG Global Energy Partners, that Abengoa is currently constructing in the Atacama Desert and which will produce 110 MW 24 hours per day using hybrid technology (CSP / PV / TES / BESS), is a clear example of both applications. Another example is the project that is being developed in collaboration with Toshiba for the decarbonization of the Australian market using hybrid solutions (CSP / PV / TES / heater / BESS).

In addition, hybrid power plants allow new applications of solar thermal energy in the field of **process heat production** through the design of solutions adapted to the needs of strategic sectors such as mining and chemical and petrochemical industries.

Abengoa counts with a worldwide reference testing platform that allows to validate and consolidate its technological developments prior to their commercial implementation, which provides differentiation and reliability in all its solutions.

Abengoa is an international company that applies innovative technology solutions for sustainability in the **infrastructures, energy and water** sectors. It has over 75 years of experience in **engineering and construction**, being specialists in the execution of complex "turnkey" projects or engineering, supply and construction projects (**Engineering, Procurement and Construction**) for third parties in four fundamental areas: **energy, water, services and transmission and infrastructure**.

Abengoa has extensive experience in the **power generation** sector thanks to the development of **open and combined cycle and cogeneration technologies, wind farms, and solar thermal, photovoltaic, waste to energy and biomass power plants**.

This experience provides the company with a **high capacity of design and hybridization** among power generation technologies, that allows it to offer the optimal solution to its clients.

One solution, multiple applications (generation, decarbonization, process steam)

One solution, multiple demand profiles (peaker, base-load...)

30% of the worldwide installed solar thermal energy capacity already under operation

Combination of the low cost of photovoltaic energy (PV), with the dispatchability of solar thermal energy with storage (CSP) and the fast response of batteries

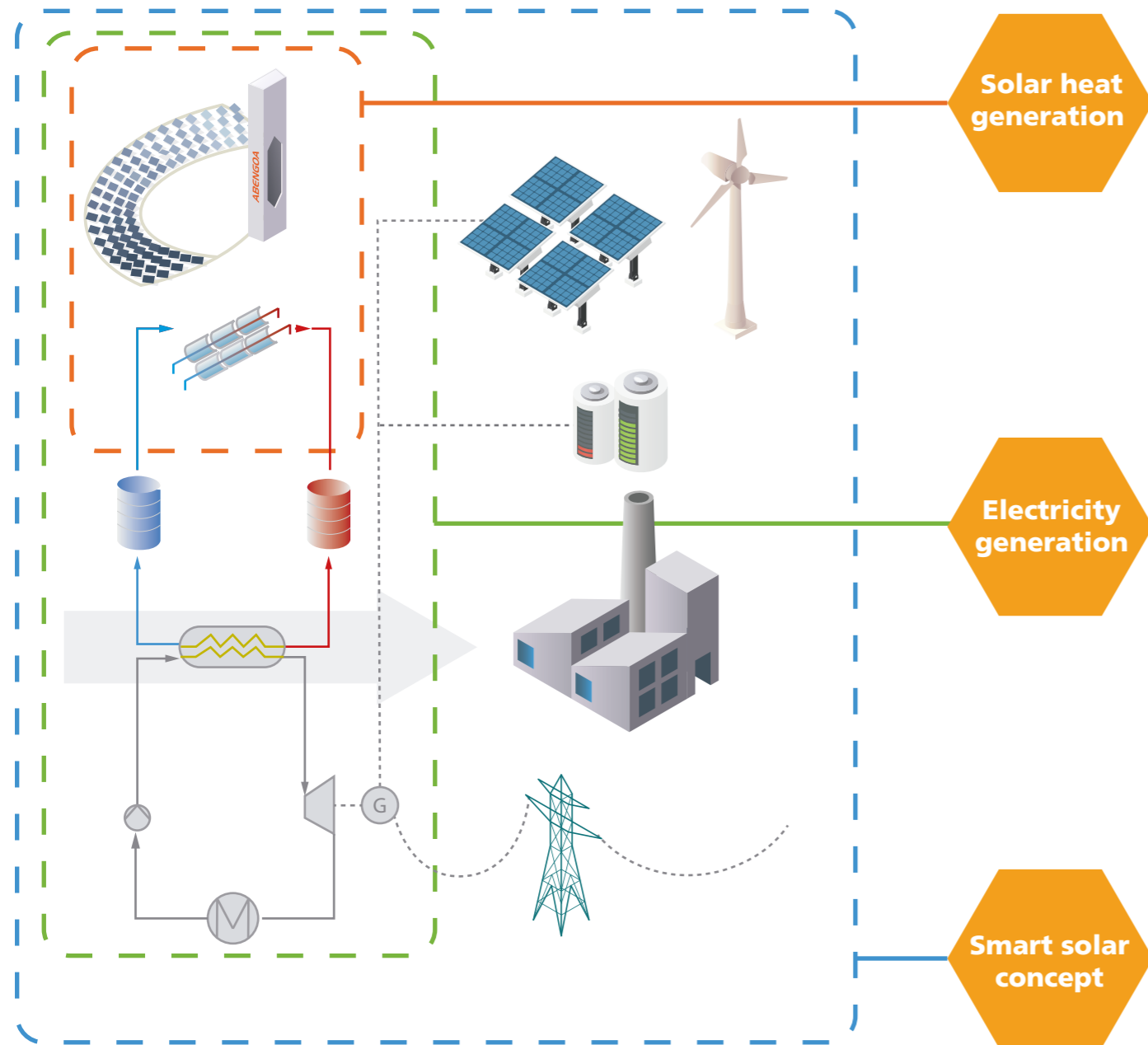


Solar Thermal Energy Hybridization Solutions

www.abengoa.com/energy

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Energy solutions currently provided by **CSP technology**



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