

ABENGOA

KaXu Solar One

KaXu Solar One is a 100 MW (net) utility-scale solar thermal electric power (STE) plant built by Abengoa near the town of Pofadder, in the Northern Cape Province. This plant has a thermal storage system with molten salt with capacity for 2.5 hours.

STE is a technology that uses mirrors to concentrate the thermal energy of the sun to drive a conventional steam turbine.

In a parabolic trough plant, a set of parabolic-shaped mirrors is set on a structure so they can track the movement of the sun and concentrate solar radiation onto a receiving tube. Inside the tube, a heat-absorbing fluid flows and reaches high temperatures. This fluid transfers the thermal energy into steam that is driven by a turbine to generate electricity.



Factsheet

KaXu Solar One benefits the entire country by:

- Making over 7.8 Billion ZAR direct and indirect investment
- 5.9 Billion ZAR tax payable in 22 year period
- Creating a supply chain with 1.2 Billion ZAR in component and services, 28.5% local content
- Job creation peaking at over 1,000 construction jobs
- Creating 80 full-time, high-paying jobs for plant operation.
- Providing clean, sustainable power for approximately 80,000 households in South Africa
- Preventing the emission of 300,000 tons of CO₂ annually
- Increasing South Africa's electricity generation reliability by energy source diversification



Project details

Plant size: 100 MW output

Abengoa has signed an agreement with Eskom to purchase all electricity produced.

Solar field covers 1 km² with approximately 1,200 mirrored parabolic trough collectors.

Collectors are about 25 feet wide, 500 feet long, and 10 feet high.

Collectors concentrate the sun's energy onto receiver tubes that contain heat transfer fluid.

Electricity is generated with conventional steam turbines.

Thermal storage will provide up to 2.5 hours of dispatchable energy to be used after sunset or if cloudy.

Approximately 1/4 water consumption compared to any other plant of its kind



Components: Mirrors, collector assembly; perimeter fence/grading, pond; thermal storage foundation; steel tanks; substation/transmission lines; IT controls; feed water vessels; pump motors; heat transfer fluid and pumps; pressure heaters; thermal storage equipment; receiver tubes; ball joint assemblies; water treatment equipment; collector foundations; cooling/condensing system; night HTF pumps; hydraulic drives.



Who is Abengoa?

Abengoa (MCE: ABG.B/P SM /NASDAQ:ABGB) applies innovative technology solutions for sustainability in the energy and environment sectors, generating electricity from renewable resources, converting biomass into biofuels and producing drinking water from sea water.

Abengoa's solar business develops and applies proprietary STE and PV solar energy technologies to foster sustainable development and energy independence.

Abengoa continuously improves product manufacturing and installation through rigorous research and development and is one of the world's pioneers in the construction of commercial STE and PV solar plants through technological advances and financial investments.

Abengoa has a total of 30 STE and PV plants around the world, including the first two STE tower plants in commercial operation. Abengoa has a total installed capacity of 1,603 MW, 260 MW under construction in South Africa and Chile and 210 MW in preconstruction.

