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Engineering Procurement and Construction – Manufacturing – Operation & maintenance – Research & Development

COMPANY

Alstom is a global leader in the world of power generation, power transmission and rail infrastructure and sets the benchmark for innovative and environmentally friendly technologies.

Alstom builds the fastest train and the highest capacity automated metro in the world, provides turnkey integrated power plant solutions and associated services for a wide variety of energy sources, including hydro, nuclear, gas, coal and wind, and it offers a wide range of solutions for power transmission, with a focus on smart grids. The Group employs 93,000 people in around 100 countries. It had sales of over €20 billion and booked close to €24 billion in orders in 2012/13.

SERVICES

Concentrated solar power technology offers an ideal fit for both new and existing plants in the Sunbelt.

We can provide turnkey high-performance solar power plants or the equipment you need – collectors, turbines, turbogenerators and more. We also offer equipment for hybrid plants where solar is a part of the bigger picture.

When adding solar to an existing plant or when building a new standalone solar facility, concentrated solar power (CSP) delivers dispatchable power from a renewable source.

Combine this with Alstom's efficient storage systems, turbines, turbogenerators and other equipment and you get an optimised, highly efficient plant.

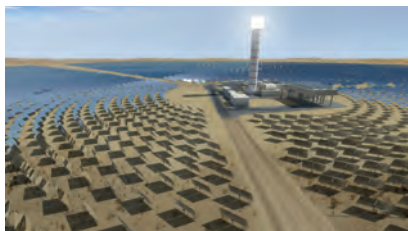
Alstom, in cooperation with Soitec, will also provide solutions for concentrated photovoltaic (CPV) power generation to the French market.

Alstom's services for CSP and CPV plants include:

- design and development
- full component supply
- power plant construction and grid connection
- operation and maintenance

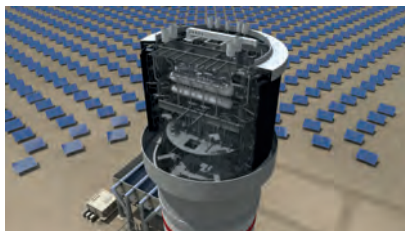
PRODUCTS

Solar plants



- CSP units of 50-250MW output, with or without thermal energy storage
- Power production up to 24h/day and 7days/week, depending on project requirements and site conditions)
- Green production share: 100%
- Dry cooling

Solar Receiver Steam Generator (SRSG)



- Highest temperature ever reached by solar plants (585°C and 170 bar)
- Largest Solar Central Receiver 250MWe (550-650MWth) Low parasitic load
- Higher operating efficiency
- Best fit for BrightSource Energy solar collector technology

Concentrated Photovoltaic (CPV)



In order to propose a complete and competitive offer, Alstom and Soitec will combine their experience in delivering turnkey power plants and in providing integrated solutions and main equipment for power generation on one hand, and concentrated photovoltaic technology, on the other hand. The agreement applies to the French market following the call for tender issued by the French Energy Regulation Commission.

REFERENCES



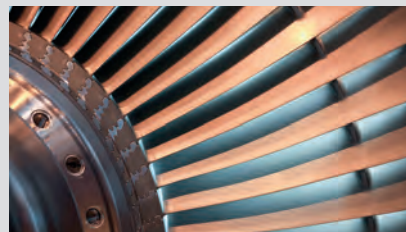
1988-1990

Steam Turbine for SEGS 06 (35MW)
Steam Turbine for SEGS 07 (35MW)
Steam Turbine for SEGS 08 (89MW)
Steam Turbine for SEGS 09 (89MW)



2007

Gas Turbine, Steam Turbine Generator for Ain Beni Mathar, Integrated Solar Combined Cycle (450MW+20MW Concentrated Solar Power)



2011

Steam Turbine for Tonopah (125MW) under execution

INTERNATIONAL PRESENCE

Alstom and BrightSource are partnering in countries, such as the Mediterranean ring, Africa, India and Australia, where solar conditions best suit BrightSource's tower technology and where Alstom has a proven track record in engineering and construction of power plants. Alstom's expertise in steam turbine technology together with its integrated plant solutions complement BrightSource's solar technology to offer highly efficient solar thermal power plants.

Alstom and Soitec, a world leader in generating and manufacturing semiconductor materials of extreme performance for the electronics and energy industries, have signed a cooperative agreement in order to provide concentrated photovoltaic power plants to the French market following the call for tender issued by the French Energy Regulation Commission in March 2013.