

AREVA in INDIA

Our activities at a glance



Energy is our future. In 2050, we will need twice as much energy as today. Energy that is more abundant, safer, more accessible, environment friendly, but always at a competitive price. For AREVA, inventing the nuclear of the future by combining it fully with renewable energies is to build a new energy model capable of meeting the tests to come.

Jaitapur EPR™ Project

The EPR™ design is based on an evolutionary approach leveraging experience from the recent, operating and proven French N4 and German KONVOI designs and includes key innovative solutions, **fruit of decades of advanced R&D programs**. The EPR™ reactor is designed to offer unique resistance to extreme hazards, such as earthquake, flooding, airplane crash, explosion or a combination of issues. The EPR™ **safety features and evolutionary design contribute to high-level of competitiveness and predictable performance**. The EPR™ also reinforces nuclear sustainability by improving containment capabilities with no long lasting consequences on the environment even in case of a severe accident. In addition, The EPR™ reactor's large size and high availability offer up to 20% savings on operation and maintenance costs and up to 15% saving on fuel costs as compared to other new-generation designs.



EPR™ reactor at Olkiluoto, Finland, April 2013 (copyright© AREVA)

Alongside contributing to the capacity addition, other main benefits reaped by having the large-size EPR™ reactor at Jaitapur will be:

1. **More electricity generated per unit of land**
2. A more **efficient use of transport and logistics infrastructure**
3. A **positive contribution to Indian society** through infrastructure improvement, such as construction of new roads, power lines, telecommunication networks, improvement of water supply, and more

Localisation

Maximum localisation of plant components' production, training of local technicians and engineers, and constant experience sharing are at the very core of AREVA's approach. AREVA has enhanced **its global supply chain through Indian local content supplies**, by supplying spent fuel canisters and casks for Back End activities in USA and France, belt conveyors and boiler package for Mines activities in Niger, drum centring units for Front End activities in France, boilers tubes for Solar project in Australia (Kogan Creek), and biomass boilers for Bioenergy activities in Thailand.

Beyond nuclear power plants construction

AREVA's **integrated model** covers every stage of the fuel cycle, reactor design and construction, as well as operating services, becoming a standard for the industry.

- AREVA became in 2009 the first foreign uranium supplier since the reopening of international nuclear trade with India, with the supply of **300 tons of natural uranium to NFC**.
- **Canberra**, AREVA nuclear measurement solutions entity, is a serious player in the Indian market, providing its services to renowned research centers such as Tata Institute of Fundamental Research (TIFR), Saha Institute of Nuclear Physics (SINP), Variable Energy Cyclotron Center (VECC).

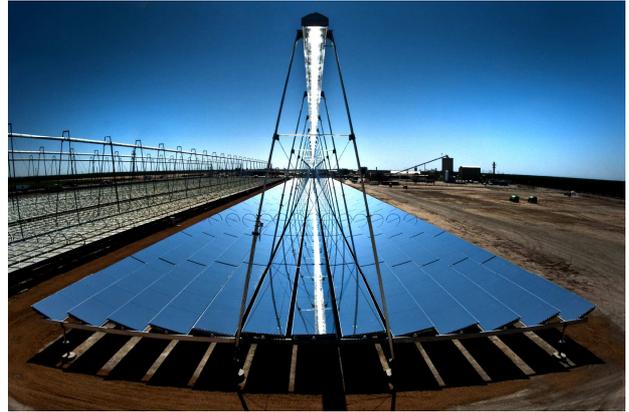
Solar – Asia’s largest solar power plant

AREVA Solar has been awarded a contract by **Reliance Power** to build a 250 MW CSP installation in India.

“The 250 MW project will be the largest solar power installation in Asia.”

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Under the contract, AREVA has reached an advanced stage in the construction of the first of two 125MWe solar thermal power plants in Dhursar, Rajasthan, using its CLFR technology and provide construction management services for the power project. The project will contribute to Jawarharlal Nehru National Solar Mission’s goal of adding 20,000 MW of solar energy by 2022.



CSP Solar Power Plant - Steam Generator (copyright© AREVA)

AREVA Solar’s **Compact Linear Fresnel Reflector (CLFR)** generates concentrated solar thermal power to produce electricity and industrial steam. These solutions are proven, competitive and respectful of the environment. **The only waste they produce is water** and they are particularly economical in terms of surface area. CLFR (Compact Linear Fresnel Reflector) technology use flat, adjustable mirrors to focus the sun’s heat onto receptors located on tubes containing water. The concentrated sunlight boils the water inside the tubes, generating saturated and superheated steam.

Bioenergy – The way forward



Satyamaharshi biomass plant in Andhra Pradesh (copyright© AREVA)

AREVA Bioenergy in India provides **biomass EPC power plants and renewable Balance of Plant solutions** for customers in **India & South East Asia**. AREVA Bioenergy offers a wide range of technological solutions, from easy-to-burn biomass (rice husk, wood chips) to cogeneration solutions for the sugar industry and waste heat recovery for industrial processes. **The capacities of these biomass plants range from 8 MWe to as large as 90 MWe.**

In addition, AREVA Bioenergy supplies biomass technologies such as **FlexBio boiler package**, aiming at burning complex and mixed biomass such as empty fruit bunch (EFB), a residue from the Palm Oil Industry. AREVA Bioenergy also recently acquired a **biomass torrefaction technology**, a unique process enabling the production of biocoal from woody biomass. We will be introducing this product in the near future.

AREVA Bioenergy has already completed execution of **5 plants totalling up to 67 MW in Asia**, including 47 MW in India. AREVA Bioenergy is currently executing orders for **two 10 MW plants in Thailand.**

AREVA Corporate Foundation

AREVA Corporate Foundation supports humanitarian and public-interest projects underpinning the Group’s **commitment to society and community**. The Foundation supports concrete, targeted and sustainable actions, especially those benefitting **children, women and students**.



In particular, in India, AREVA Corporate Foundation **has associated with five different NGOs since 2008**. It is currently supporting **Association François-Xavier Bagnoud (FXB)**, which sets up development models based on community self-help programs and sharing. Having assessed the association’s merits in detail, AREVA Corporate Foundation decided to support FXB for a period of two years (2013-2014) for **health and education programs**: after-school academic support, donation of school equipment, construction of a sustainable network gathering local health authorities, establishment of a medical branch office.

AREVA INDIA

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