

News Release

NTPC awards the contract for Asia's first integrated solar thermal power plant: Thermax and FRENELL to execute the project

Pune, India – Karlsruhe, Germany, 7th November 2016 – Thermax, an Indian energy and environment company and FRENELL, a German concentrated solar power company, (through its wholly owned subsidiary Novatec Solar Espana, S.L) have been awarded by India's state owned utility NTPC, to execute Asia's first integrated solar thermal power plant at Dadri in Uttar Pradesh, India. The project involves the integration of a concentrated solar field into the Dadri coal fired power station. The ground breaking ceremony was celebrated on Friday, 4th of November 2016. The completion of the project is scheduled for September 2017.

The solar field will use FRENELL's proprietary concentrated solar power (CSP) technology which is based on flat mirror Fresnel collector principle. On a surface of 33,000m², the solar field will feed annually 14 gigawatt hours of solar thermal energy into the water-steam cycle of a 210 MW unit of the power station. The mirrors concentrate the sunlight on absorber tubes and heat the fluid up to 250°C which are the parameters required for the power station unit. The heat generated from the solar field will heat the feed water supplied to the steam generator, allowing for lower coal consumption and thereby reducing the emission of greenhouse gases.

In a competitive tender process among three international EPC companies, the Fresnel technology won out over parabolic trough and solar tower technology and the contract has been awarded to the consortium of Thermax and FRENELL. Thermax will be acting as the EPC contractor to NTPC and is responsible for design, engineering, procurement and supply of the entire solar thermal plant and balance- of- plant equipment as well as for the integration of the solar field into the coal fired power station. FRENELL will deliver its CSP technology as subcontractor and will execute the turnkey manufacturing and construction of the solar field.

"This project is of high strategic importance for India as it introduces a new option for power generating companies to improve the efficiency of their coal fired power stations. This solution will also contribute to the national target of at least 3% solar share of total power generation by 2022," says M.S. Unnikrishnan, CEO of Thermax. "Compared to green field CSP plants, this is a cost efficient application as the existing thermal power station infrastructure can be used. The total market potential of this solution in India is estimated to be 1,700 MW and Thermax is prepared to continue the lead in offering such integrated solutions," he adds.

"We are very proud to have been selected by NTPC to deliver our CSP technology to this flagship project," says Martin Selig, CEO of FRENELL. "We share Thermax's view that there is a significant market potential for CSP brown field solutions in India. In order to further increase our cost advantage over competitors in future CSP tenders, we are planning to localize our solar field component manufacturing and supply chain in India. The required temperature for this project is 250°C. Our solar field is designed for up to 550°C. We are keen to show case in future projects our high temperature solution which is also capable to store high temperature energy for solar power generation during night time," he adds.



About FRENELL

FRENELL is a German technology company specialized in manufacturing, engineering and turnkey delivery of utility scale Concentrated Solar Power (CSP) systems. It was established through a management buyout (MBO) by the founders and managing directors of Novatec Solar to continue the lead in development of cost efficient CSP technology and its market introduction. In the course of the MBO, FRENELL has secured the ownership of Novatec's Spanish subsidiary Novatec Solar Espana, S.L., owning the reference plant PE1 as well as patents and key personnel.

FRENELL's core business includes the manufacturing and turnkey delivery of concentrated solar fields based on its proprietary CSP technology, but also CSP project developments in various target markets. FRENELL's business strategy is to form partnerships with infrastructure investment groups and EPC companies in order to realize CSP plants for the benefit of emerging countries in the sunbelt and the global climate. For more information please visit www.frenell.de.

About Thermax

Thermax Group provides integrated solutions in the areas of heating, cooling, power, water and waste management, air pollution control and chemicals in 75 countries across the world. The sustainable solutions Thermax develops for client companies are environment-friendly and enable efficient deployment of energy and water resources. For more information please visit www.thermaxglobal.com.

About NTPC

NTPC is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then it has established itself as the dominant power major with presence in the entire value chain of the power generation business. From fossil fuels it has forayed into generating electricity via hydro, nuclear and renewable energy sources.

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