

RADIANT PROSPECTS

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CONSTRUCTION OPPORTUNITIES

EVENT FOCUS-INTERSOLAR INDIA

Radiant prospects

Growing concerns of power shortage have led to a dramatic shift in reliance of solar energy from an alternative to a mainstream power resource. **Veena Kurup** reports on the trends in the sector.

The growth of solar energy from an alternative to mainstream power resource has been rapid and dynamic. A major reason behind the sector's increasing importance is the country's rising per capita electricity consumption. According to the Central Electricity Authority (CEA), India's per capita electricity consumption has reached 1010 kWh in FY14-15 as against 957 kWh in FY13-14. The country's power shortages presently is estimated to be about 11 per cent of total energy and is expected to rise by 15 per cent in the coming years. All these factors have triggered the importance for solar as a vital power resource. Therefore the government now plans to increase solar capacity targets from 20 GW by 2020 to 100 GW by 2022. It is reported the solar sector in India is expected to overtake Germany as it enters into the top five countries in the global solar market.

A recent study by AT Kearney based on the growing power requirements and solar consumption practices predicts a favourable decline in the cost on solar power. The falling rate of global prices for photovoltaic modules is one of the major factors that will result in reducing the cost of solar power generation.

Presently, the average price of solar power is at 15-17 cents per kWh, which is already the world's lowest. According to analysts the cost of solar power will be 15 per cent less when compared with the most expensive grid-connected conventional energy supply resource.

MARKET ANALYSIS

India has been ranked seventh in the world for solar photovoltaic (PV) cell production and ninth in terms of solar power generation. The sector is estimated to grow at a rate of 25 per cent year on year in the next few years. Rooftop solar has been one of the growing segments in the sector, whereas Maharashtra, Tamil Nadu and Gujarat are the leading states with close to 30 per cent of the total market capacity. While high commercial and industrial grid tariffs drive the demand for rooftop solar modules in Maharashtra, industrial consumers are highest in Tamil Nadu.

Hitesh Doshi, CMD, Waaree Energies Ltd is led to say, "States like Andhra Pradesh, Karnataka, Tamil Nadu, Telangana, Maharashtra, Gujarat, Rajasthan, Punjab and Madhya Pradesh hold a lot of promise as they have announced numerous solar projects."

Focusing on similar market is Suzar based Navitas Green Solutions Pvt Ltd, a latest entrant into the solar market. "Our focus markets currently are the NCR region, Telangana and Maharashtra. Telangana has recently allotted the largest tender of 2000 MW and Maharashtra just released its policy of 2500 MW. Moreover, various state governments have now come up with their rooftop net metering policy which is promoting decentralised generation in a big way," says Vineet Mittal, Director, Navitas Green Solutions Pvt Ltd.

Owing to the growing requirements, the Ministry of New and Renewable Energy (MNRE) aims to scale up India's operational solar power capacity to close to 20 GW by March 2017 and an estimated 10-18 GW capacity is likely to be added between April 2016 and March 2017. According to Ashish Khanna, CEO and Executive Director, Tata Power Solar, the solar power market is primarily driven by large-scale projects that are either policy driven or established by corporate for captive consumption. "We feel rooftop solar rooftop will lead towards a shift in this pattern, especially in the urban areas, where individuals and SMEs start looking at solar power as a more viable option. Net metering will also play a key role in fostering this interest, with users now having to pay for energy storage as well as the possibility of earning an additional energy generation in some states," he says.

Like any economic sector, the growing importance and rising participation of national and international players has made the solar market more competitive. The solar sector today is primarily driven by

TECHNICAL TRENDS

two prime technologies - photovoltaic and solar thermal. Furthermore, the market for PV technology is particularly driven by crystalline modules. "The PV market has increasingly gained its popularity due to its cost competitiveness when compared to solar thermal technology. Considering the market requirements, we offer all crystalline modules of PV products for our projects," says Gaurav Sood, Managing Director, Solatirect Energy India Pvt Ltd. The company in conjunction with other solar energy suppliers has played a leading role in providing alternative energy solutions around the world, especially for photovoltaic farms, and solar parks. Solatirect delivers solar power in a range of innovative ways with each offering tailored to meet the specific needs of its clients.

"The government's 100 GW target by 2022 has also triggered various trends in the solar industry and is seeing traction across various sectors. We anticipate this trend to pick up more in the next couple of years, with solar energy becoming a part of mainstream electricity generation," says Khanna. Projects like the Lotus Temple going solar, India's biggest IT hub Techsopark's solar approach, Cochin International Airport emerging as the first solar powered airport in India, Manipal University students building solar cars and educational institutions adopting solar technology are just a few examples of the increased acceptance of solar as a mainstream power resource. Considering the dynamic technical trends, TATA Power Solar offers both polycrystalline and mono crystalline

modules which are the most prominent technologies available across the world. The company also offers value engineering to its clients which help them achieve better IRRs on their investments.

The other noteworthy innovation being seen in the sector is the penetration of solar powered products - especially refrigeration and air conditioning systems. An interesting face being brought out by the industry experts on India's power consumption is the domination of HVAC (heating, ventilation and air-conditioning) systems in the electricity bills. As per the findings of the United States Agency for International Development (USAID), air-conditioning systems consumes up to 31 per cent of the total energy used in conventional commercial structures in India and 7 per cent in residential buildings. Optimising this energy usage pattern has emerged as a need of the hour.

K Ramachandran, National President, ISHRAE (Indian Society of Heating, Refrigerating and Air-conditioning Engineers) says, "Solar is a clean source of energy. If we can harness this resource efficiently it will prove to be much beneficial to address our country's power starving scenario. The experts involved in solar power generation and HVAC manufacturers need to come together to introduce such products. Solar powered machines can be used to cool the water and the technology can prove much beneficial when compared with conventional cooling systems." He further opines that such innovations can be further boosted only with government funding for more research activities.

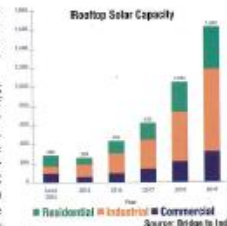
According to Khanna, the demand for solar products is already on a rise. He says, "We expect consumers to increasingly start utilising solar water pumps; this has already seen some traction in states like Rajasthan and Tamil Nadu owing to the incentives offered by the state government on this. Micro-grids are another exciting configuration to power smaller communities."

Despite all the favourable growth opportunities the solar market is still plagued with numerous concerns. Land availability has been one of the prime factors

GROWTH HICUPS

affected project execution and solar product manufacturers in India. This is expected to be even more critical for the upcoming utility based projects where huge land parcels are involved. The other issues affecting the execution of solar projects are establishing effective connectivity, evacuation facilities, water availability, building transmission line etc.

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Source: Bridge to India

From a manufacturer's perspective, one of the challenges in the Indian solar power sector is the procurement of Indian solar cells which are comparatively costlier than imported ones," opines Doshi. The other major challenge faced by the sector is in terms of raw material supply due to which there are a very few manufacturing units in India. Domestic manufacturers who import raw materials face delays at the ports for clearances and have to encounter logistical hurdles in transporting the same to the factories. To address such concerns, Waaree Energies has started to develop its own solar parks where the company identifies optimal land parcels with good irradiance and other facilities which are later offered to the clients. Such practices according to Waaree helps in setting defined timelines for projects.

Expressing similar views is Sood, who says, "The government needs to build and promote more solar parks and provide improved policies for better land acquisition. We are heading towards a competitive solar era. We are expecting the tariff rates on solar power to soon come down. Even local governing bodies like municipalities will increasingly accept solar power resources."

Improved reforms and policy frameworks hence has evolved as the need of the hour for the stakeholders involved in the solar sector to achieve India's ambitious growth targets.