

Spreading sunshine

Tata BP Solar is helping drive a solar-powered revolution that is complementing the Indian power sector by providing a low-carbon alternative for an energy-starved India

With the Indian summer upon us and cities and towns across the country grappling with insufficient power supply from the nation's conventional thermal and hydro plants, it's clear that the solution to India's power woes must include unconventional power sources such as solar energy. Seen as the energy of the future, solar energy is clean and green and with the inherent potential to bridge the vast gap between consumption and generation of power in India. This is the area where Tata BP Solar is working to provide off-grid solutions to industries, rural bank branches as well as hundreds of villages that are yet to be touched by the national power grid. It is also ready to provide grid-connected solar power solutions made possible by recent policy changes in India.

Tata BP Solar, a joint venture between Tata Power and BP Solar, has spent the last 25 years steadily building capacities in production of solar photovoltaic cells, modules and products as well as solar water heaters. The Government of India has recently announced the Jawaharlal Nehru National Solar Mission

as part of the National Action Plan on Climate Change and Tata BP Solar is well positioned to contribute to the success of this national endeavour. The mission aims to make India a world power in the use of solar energy with a target of generating 20,000MW of solar power by 2022. Says K Subramanya, CEO, Tata BP Solar, "The National Solar Mission targets are achievable if the mission receives adequate political leadership and policy direction. All the ingredients, in terms of demand and supply, technical know-how and industrial base, necessary for the expansion of the solar energy market in India are available; what is needed is a policy backed by budgetary support to grow the market till it reaches critical mass and attains commercial sustainability."

Grid connect

With the right policy push, the mission can drive a 100-fold growth from the current installed solar power base of less than 200MW, with new solar plants adding the much-needed megawatts to the national grid. "The actual take-off in grid-connected solar power plants will





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K Subramanya

happen after the policy guidelines are finalised and announced. We are ready to serve the Indian market in all seriousness,” says Mr Subramanya.

The connect is already happening. A 3-MW solar power plant in Mulshi, Maharashtra and a 1-MW plant in Delhi clearly demonstrate the exciting possibilities of going solar. The Mulshi plant, the company’s first megawatt scale grid-connected solar plant, is by far the most ambitious project undertaken by the company. Located at the Mulshi dam site near Pune, the plant’s output will be integrated with Tata Power’s grid. The ultra-modern plant demonstrates the extent of Tata BP Solar’s technological and engineering expertise, and Tata Power’s commitment to reducing its carbon footprint by increasing the use of renewable energy sources.

Says Mr Subramanya, “Our engineers have designed some of the leading grid-connected plants in Europe. And we supply solar panels for a large number of grid-connected solar power plants in Europe and America through BP Solar. Now that the Indian grid-connected market is opening up, we are all set to serve this market with the same professional standards that we apply in international markets.”

The 1-MW power plant in Delhi is another case in point. North Delhi Power (NDPL), a subsidiary of Tata Power, has a store at Keshavpuram in Delhi where Tata BP Solar has installed solar panels on the roof. The power generated is added to the NDPL grid to augment its power availability and share peak loads. This plant showcases the use of technology to synchronise solar power with the grid, with facilities such as remote monitoring and SCADA (Supervisory Control and Data Administration).

Replacing diesel

Diesel displacement projects are another emerging area for Tata BP Solar. The Indian government is promoting the use of solar energy in place of diesel because about 70 per cent of the fuel is imported. About 15-20 per cent of India’s diesel requirements is used for captive power generation applications; this is where Tata BP Solar works with banks, railways, telecom companies, etc to provide solar solutions that replace diesel use.

The telecom industry, for instance, is extremely

dependent on diesel because telecom towers are often located in remote areas where grid electricity is either unavailable or unreliable. Solar-powered towers are now catching on quickly; the reason: the high one-time cost is offset by the zero fuel cost and the solar installation pays for itself within two to three years. Tata BP Solar has installed solar panels for Airtel, Nokia, Reliance, Siemens, Tata Teleservices and Vodafone among others.

The banking sector is another area where power is needed in remote areas so that rural branches can remain connected to the central banking system. Here, specialised systems with storage batteries have been designed where the solar power kicks in as soon as the grid power becomes unavailable. The company has electrified 400 to 500 bank branches across several banks, including Bank of Baroda, Bank of India and rural co-operative banks such as the Karnataka Vikas Grameen Bank. Mr Subramanya says, “It is an operational issue for them because every bank is now mandated to get into core banking solutions, which means that they have to remain connected to the central banking system. They need assured power; therefore they are turning to solar energy.”

Tata BP Solar has also done pioneering work in diesel displacement for major oil and gas companies like Gas Authority of India (Gail), Bharat Petroleum Corporation and Indian Oil. Fuel-carrying pipelines need to have changeover and monitoring stations located at every 30km. These stations require a certain amount of power to run the SCADA system for monitoring pressure, flow, operations, etc of all the control devices, valves and other electrical equipment. “These remote stations have been using diesel gensets and other different kinds of energy producing devices. For instance, Gail was using gas and running a turbine from that, a form of power that is unsafe and expensive. Now the operation runs completely on solar power with a diesel genset on standby in case of a rainy day,” says Mr Subramanya.



State-of-the-art screen printing technology used in the manufacture of solar cells

Green buildings

Yet another strong success area for Tata BP Solar is building integrated photovoltaic (BIPV) systems that are used to create 'green' buildings. The company uses an innovative and specially developed technology to sandwich solar cells into glass panels. Integration of these solar panels in buildings not only generates solar energy, it also improves the aesthetics and acoustics of the building. Mr Subramanya says, "We have been in BIPV systems all along, but this area is acquiring more importance and focus because of the government's enabling policies and support."

Tata BP Solar has the distinction of executing India's largest BIPV installation — the Samudra Institute of Maritime Studies at Lonavala, near Pune. A project for Tata Consultancy Services in Bhubaneswar that generates electricity of around 30KW has been deployed recently. A similar project for the Jamshedpur office of Tata Consulting Engineers is underway.

The blast from the sun

Green buildings are just one way of utilising the latent potential of solar energy (more energy hits the

earth from the sun in one hour than the world uses in a year). Tata BP Solar's on-to-grid strategy aims to harness this infinite solar energy more effectively to make it the preferred source of energy for India. An energy revolution indeed seems to be in the making, with the national solar mission promising to bring solar energy from the fringes towards the centre of India's energy planning, a move that will not only help India solve part of its crippling energy deficit but also mark a shift towards low carbon energy. As Mr Subramanya puts it, "Given India's huge power shortage and the abundance of solar radiation here, this is an excellent move. Now it's only a question of time before solar energy finds its rightful place in the energy mix of the country."

Solar solutions are also the foundation on which the company has developed its ambitious plans for the future. It wants to become a global benchmark in the next three years, and also plans to scale up its solar cell manufacturing unit to 180MW. With the aim of impacting the Indian energy sector in as big a way as possible, Tata BP Solar is set on its path of riding the wind from the sun. ●

Vibha Rao

Focus on rural electrification



From the dim light of oil lamps to the bright future of solar lamps

"Rural electrification is our core expertise, our bread and butter business," says K Subramanya, CEO, Tata BP Solar. The company's biggest success story in this area is the electrification of 350 villages in Chhattisgarh with solar power.

These remote villages had not been touched by conventional grid power due to lack of technical and economic viability. Solar power was an ideal solution that provided a

decentralised source of power generation at the village level and served the basic lighting needs of the villagers. The Tata BP Solar team has been working in close collaboration with the state government and the Chhattisgarh State Renewable Development Agency (CREDA), since 2003-04 to set up village level solar power plants.

The company has also implemented rural electrification in villages in Uttar Pradesh (UP), Assam and Haryana. In UP and Haryana, Tata BP Solar sells solar home lighting systems directly to rural customers without any government support or financial subsidies.

For those who do need support, the company has tied up with a few leading regional rural banks such as Aryavart Gramin Bank of Lucknow, Prathama Bank of Moradabad, Gomti Kashi Bank of Allahabad, Gurgaon Grameen Bank, etc to facilitate the provision of bank loans to the villagers. In the last three years, Tata BP Solar has sold nearly 80,000 solar home lighting systems in UP alone.