

Sunrise at Deoghar

An explicit example of efficient use of renewable energy in grappling with serious power cuts during the blistering summer in Deoghar - residents received many hours of respite with the new 14 MW solar plant commissioned under the JNNSM of MNRE.

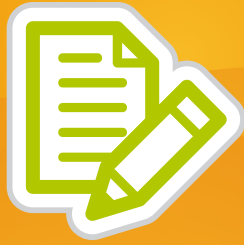
Col. Ajay Reddy



14 MW Solar Power Plant at Deoghar, Jharkhand

The increasing popularity of solar power as an alternate means of generating energy for consumption is fast gaining ground thanks to the impetus it is receiving. The fact that most parts of India enjoy more than 300 days of sunshine in a year is itself a good reason to tap this eternal source. The Ministry

of New and Renewable Energy (MNRE) particularly through its Jawaharlal Nehru National Solar Mission (JNNSM) is encouraging, both infrastructure-wise and financially with the setting up of new solar power plants in various parts of the country. This activity is a catalyst of social change because it is leading to various other



Inviting articles for Akshay Urja

The need to have a sustainable supply necessitates the exploitation of available energy sources, and among these, renewable resources are at the forefront.

It is now an established fact that RE (renewable energy) can be an integral part of sustainable development because of its inexhaustible nature and environment-friendly features. RE can play an important role in resolving the energy crisis in urban areas to a great extent. Today RE is an established sector with a variety of systems and devices available for meeting the energy demand of urban inhabitants, but there is a need to create mass awareness about their adoption.

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6 MW Premier Solar, Deoghar, Jharkand

developments as a consequence of power availability. A very good example of this is Deoghar, a small town in the state of Jharkhand, wherein a number of solar power projects are being implemented with the support of the MNRE and the Government of Jharkhand. These projects have created a unique infrastructure by concentrating a variety of solar PV technologies and equipment in one area and are ready to catapult Jharkhand as a leader in the solar energy arena. A 14 MW solar PV power plant, set up under the JNNSM's Rooftop PV and Small Solar Power Generation Programme (RPSSGP), is an excellent initiative in this direction. Seven separate developers including Eneritech Engineering, PCS Premier, KVR Constructions, Premier Solar Systems, AKR Constructions, New Era Enviro Ventures and Saimeg Infrastructure have integrated their collective might and are supporting and promoting this plant.

These companies hired Premier Solar PowerTech which commenced work in December 2011 and completed the design, procurement and construction of a 2 MW solar power plant in less than three months. Additionally, Premier commissioned another 2 MW plant of its own, quickly followed by a 2 MW plant set up by New Era, just 35 days after the commissioning of the first plant. This rapid launch was continued by Eneritech and KVR Constructions who also set up new plants.

At this time, Deoghar was undergoing a severe power



All of the 10 MW of solar power generated was distributed by the Deoghar circle by continuous switching between consumers which immensely benefited the locals.

crisis owing to the damage caused by the storm to one of its main feeders. It was a hot summer and the power shortage was severe. During this period of crisis, Deoghar drew power from these five commissioned solar plants and all 10 MW of solar power was distributed within the Deoghar circle by continuous switching between consumers.

In the first week of June 2012, just seven months after breaking ground at Deoghar, the EPC commissioned two more 2 MW plants of AKR Constructions, and Saimeg Infrastructure, completed a record-breaking fast track construction of solar power plants generating 14 MW of solar power. The EPC contractor used solar modules of thin film technology, which were imported from Schott Solar Germany and Crystalline Technology, and were indigenously manufactured at Premier Solar. The inverters, which are the heart of the plant were imported from four different inverter companies – AEG Germany, Delta Germany, Powerone China and Eltek Norway which gave the EPC contractor very high end information about the technology, competence, marketing and after sales service of each of these companies for future reference. The DC cables were imported from Lapp Germany, while, several other minor accessories were imported from other foreign countries. The galvanised steel structures were brought in from Hyderabad along with some pre-fabricated control rooms.

The power from this 14 MW plant was fed to the Baidynathpur power sub-station at 11 kV. In doing so, the developers constructed an overhead transmission line of 43 km using an aerial bunched cable, with seven cables running on a single pole over a distance of 6.5 km, for the first time in India. The design, procurement and construction of this incredible transmission line was a major task considering the fact that the line had to pass through three villages, and a part of the township of Deoghar, negotiating several 90 degree bends and 33 kV overhead transmission lines each of which needed several shutdowns.

The Baidynathpur power sub-station which is a 33/11 kV sub-station generates electric supply for a substantial portion of Deoghar town. With a peak demand close to 70 MW, the sub-station had four transformers of 5 MVA each. In order to receive power from the solar power plant, it was imperative to ensure the parallel operation of these four transformers. Since the rating of each of these four transformers was different, Premier Solar undertook the herculean task of exchanging three transformers from other sub-stations, and procuring a new 5 MVA transformer with the help of the Jharkhand State Electricity Board (JSEB). These new similar transformers were then installed at the Baidynathpur sub-station incurring a power outage of only 20 hours. The entire sub-station was modernised with remote operated breakers, C&R panels, modem monitors, parallel operation, common bus and of course cosmetic upgradations, to give the JSEB sub-station a new look and to enable it to compete with the most modern sub-stations in India.

Indeed this heralds new beginnings for the state of Jharkhand particularly in the area of solar power and more projects such as these need to be set up in the second phase of the JNNSM. 🌞

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