

## Solar Energy plans leap frog; Target spiked five times to one lakh MW in next seven years

<b>FEATURE</b>
<b>SOLAR ENERGY</b>

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Just when a Swiss pilot 's solar powered aircraft mesmerised the world by setting a record of longest solo flight without a drop of fuel, India's solar energy ambitious plans are set to leap frog. The Centre has revised cumulative targets under National Solar Mission from 20,000 MW by 2021-22 to 1,00,000 MW- a quantum jump.

After launching of signature initiatives 'Smart city,' 'Digital India' and 'Make in India,' massive efforts are underway to tap the untapped renewable energy resources-mainly solar power. Official sources said the Ministry of new and renewable energy (MNRE) currently pushing solar city programme to reduce dependence on fossil fuel based energy has selected 50 cities to be developed as solar centres. Of these, 44 cities have already prepared master plans. Stakeholder committees have been formed in all the 50 selected cities. The programme entails that the selected cities will have to ensure desired level of generation from renewable energy resources .

India's huge and vibrant market of 1.25 billion people has triggered interest among foreign players. Union Minister for Power and Renewable Energy Piyush Goyal, on completion of one year in office, said that steps were afoot to accomplish Prime Minister Narendra Modi's aim of ensuring 24x7 power to all and RE sector would play a major role. At least a dozen nations have signed MoUs to work with India in the development of renewable energy in past few years. During his recent visit to France, Mr Modi laid thrust on India's vision towards solar energy. French companies are working in the solar sector here and they aim at contributing in a big way. President Francois Hollande has already conveyed France's commitment to develop clean energy here.

If the goals set for the solar energy are realised, the country will surpass Germany which is a global leader in solar power generation by producing three times higher energy from the discipline. Though technology is getting cheaper , experts feel that the sector might be a game changer so the government should revisit its policy of financing of projects. They feel that at present India RE projects are financed for 10-12 years with an annual interest rate of 12-13 per cent while in Europe and US, the projects are funded for 17-18 years with an interest rate of 4-5 per cent.

To make 100 GW ( giga watt )solar energy target a reality, an ambitious scheme of creating sector skills has been launched recently under which 1,00,000-“Surya Mitras” will be trained to help achieve scaled up objectives and service the arena . Experts feel that the RE sector will create one

million jobs by 2022 as the government has scaled up the target which includes 100 GW from the solar sector and 60 GW from the wind energy by 2022. Various states are coming up with their own plans of regulatory norms and other policies. Almost every day, states are coming up with solar plant announcements as well as commencements.

The world's largest solar project is going to be set up in Rewa, which will have 750 MW capacity plant spread over 1,500 hectares of land. Similarly, M Chinnaswamy stadium in Karnataka has emerged as yet another hallmark of grid connected solar roof top system, now luring others to follow suit. It has now 400KW of net metered rooftops power plant. About two dozen states have notified net metering policy, laced with incentives to promote the rooftop solar plants connected with grid. The net metering is the process through which discoms will generate bills to solar power plant owners as per consumption and credit will be given to the consumer if contribution to the grid is higher than the consumption.

In some areas in the national capital, the phenomenon is catching up, say experts, contesting the perception that solar power is back up in case of regular breakdowns, outage and insist that it is going to be hassle free power. Plagued by outages, increasing power tariffs, corruption in power companies, the aam aadmi is evincing keen interest in solar power – technology which was costly a few years back. Even in remote places kiosks selling solar panels can be spotted. Small LED bulbs are emerging another attraction among consumers.

A retired central government employee, Harish Chandra Bhardwaj, appeared upbeat by spotting such kiosks near his village Samadha in Mofussil Unnao in Uttar Pradesh. "Solar power is becoming lucrative among poor people who buy some panels to harness the energy to recharge their mobiles and one or two lights in the house," he asserts admitting cost is to be brought down.

In upscale colonies, RWAs now mull over installation of common solar powered system instead of going for big gen sets. At a number of public meetings, the Prime Minister recently put his government's approval to step up of solar power capacity target under the Jawaharlal Nehru National Solar Mission (JNNSM) by five times. The target will principally comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects. With this ambitious target, India will become one of the largest Green Energy producers in the world, surpassing several developed countries.

The total investment in setting up 100 GW will be around Rs. 6,00,000 crore. In the first phase, the Government is providing Rs. 15,050 crore as capital subsidy to promote solar capacity addition, official sources say. This capital subsidy will be provided for Rooftop Solar projects in various cities and towns, for Viability Gap Funding (VGF) based projects to be developed through the Solar Energy Corporation of India (SECI) and for decentralised generation through small solar projects.

Official sources said the Ministry of New and Renewable Energy (MNRE) intends to achieve the aim of 1,00,000 MW with targets under the three schemes of 19,200 MW. Apart from this, solar power projects with investment of about Rs. 90,000 crore would be developed using Bundling mechanism with thermal power. Further investment will come from large Public Sector Undertakings and Independent Power Producers (IPPs). State Governments have also come out with State specific solar policies to promote solar capacity addition.

JNNSM was launched in 2009 with a target for Grid Connected Solar Projects of 20,000 MW by 2022. In the last two to three years, the sector has witnessed rapid development with installed solar capacity increasing rapidly from 18 MW to about 3800 MW during 2010-15. The price of solar energy has come down significantly from Rs 17.90 per unit in 2010 to under Rs 7 per unit, thereby reducing the need of VGF/ GBI (Generation based incentive) per MW of solar power.

With technology advancement and market competition, Green Power is expected to reach grid parity by 2017-18. These developments would enable India to achieve its present target of 20,000 MW. But considering its international commitment towards green and climate friendly growth trajectory, New Delhi has taken this path-breaking decision. Sources said steps are afoot to approach bilateral and international donors as also the Green Climate Fund to achieve this target. Solar power can contribute to the long term energy security of India, and reduce dependence on fossil fuels that put a strain on foreign reserves and the ecology as well. The solar manufacturing sector will get a boost with this long term trajectory of solar capacity addition.

This will help in creation of technology hubs for manufacturing. The increased manufacturing capacity and installation are expected to pave way for direct and indirect employment opportunities in both the skilled and unskilled sector. The new solar target of 100 GW is expected to abate over 170 million tonnes of CO<sub>2</sub> over its life cycle. This Solar Scale-up Plan has a target of 40 GW through Decentralised Solar Power Generation in the form of Grid Connected Rooftop Projects.

While Decentralised Generation will stabilise the grid, it will minimise investment on power evacuation. To facilitate such a massive target, the Prime Minister's Office has been pushing various Ministries to initiate supporting interventions, including incorporating changes in land use regulations and tenancy laws to facilitate aggregation and leasing of land by farmers/ developers for solar projects; identification of large chunks of land for solar projects and identification of large government complexes/ buildings for rooftop projects. Other steps include clear survey of wastelands and identification of transmission/ road infrastructure using satellite technology for locating solar parks; development of power transmission network/Green Energy Corridor; setting up of exclusive parks for domestic manufacturing of solar PV modules.

These interventions also aim at provision of roof top solar and 10 percent renewable energy

as mandatory reform under the new scheme of Ministry of Urban Development; amendments in building bye-laws for mandatory provision of roof top solar for new construction or higher FAR and considering infrastructure status for solar projects.

These also envisage raising tax free solar bonds; providing long tenor loans; making roof top solar a part of housing loan by banks/ NHB and extending IIFCL credit facility to such projects by the Department of Financial Services; suitable amendments to the Electricity Act for strong enforcement of Renewable Purchase Obligation (RPO) and for providing Renewable Generation Obligation (RGO); incorporating measures in Integrated Power Development Scheme (IPDS) for encouraging distribution companies and making net-metering compulsory.

Official sources said upto December last year,17 Solar Parks of aggregate capacity of 12759 MW were planned to be set up in 12 States and a grant of Rs 172.50 crore has been released to Solar Energy Corporation of India (SECI) towards development of solar parks. Further, proposal for release of Rs 80 crore have been initiated.

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