

ROOFTOP REVOLUTION

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ENVIRONMENT ENERGY

Renew. RECHARGE

INDIA'S RENEWABLE ENERGY TARGET

1,00,000 MW

By 2022

INSTALLED SOLAR CAPACITY

6763 MW

(AS OF Mar 31, 16)

ADDITIONAL 20,000 MW IS BEING TENDERED / UNDER CONSTRUCTION

APPROXIMATELY 2,000 MW OF THIS THROUGH SOLAR PARKS

ROOFTOP SOLAR INSTALLED CAPACITY

275 MW

PUNJAB REVENUE MINISTER BIKRAM MAITHIA, CENTRE, AT THE WORLD'S LARGEST ROOFTOP SOLAR POWER PLANT IN DERA BEAS, AMRITSAR

Rooftop REVOLUTION

Six months after the prime minister announced India's ambitious renewable energy targets, the country is heading towards a cost-effective, sustainable, clean energy regime

By Prachi Bhuchar

There is Nevada in the US, and then there is Dera Beas, Punjab. Two corners of the world, two diverse landscapes, yet both have vast tracts of land that look the same, have the same purpose. Nevada has emerged as one of the top states for solar in America and in May this year, Punjab installed the world's single largest rooftop solar panel at Dera Beas, giving India's solar mission a much-needed push. Row after row of black, glossy solar panels shimmer as they look to the sun, generating good, clean energy—touted by many experts as the answer to India's energy problems. Rural electrification remains one of Prime Minister Narendra Modi's pet projects, but one of the things hampering it is India's massive energy bill (unclean energy at that), given its traditional dependence on coal, oil and gas. Over 300 million people still have no access to electricity, which is why solar power is being seen as a viable, long-term source of clean energy.

The PM's tribute to the sun, the surya namaskar, was recorded globally in December 2015 at the Paris Climate Summit, where he announced an alliance of 120 countries who came together to form the International Solar Alliance (ISA). "Solar is the sunrise of new hope, not just for clean energy but for villages and homes still in darkness, for mornings and evenings filled with a clear view of the glory of the sun," the PM said in Paris.

India announced an ambitious target of getting 100 gigawatts from different resources of renewable energy by 2022 (as of April 30, 2016, India's total installed renewable capacity was 42.8 GW).

In the months since Paris, we have witnessed a greater push for solar within the country, as more and more players get involved. Says Tarun Kapoor, joint secretary, ministry of new and renewable energy (MNRE), "The main push that has come for solar is through the revision in tariff policy as this will help convince distribution companies to buy. The current tariff is around Rs 4.50-4.70 per unit, which is comparable with coal, and the biggest plus is that this tariff is not subject to market fluctuations, but will in fact remain fixed for the next 25 years, boosting investor confidence." Arvind Khanna, executive director and CEO, Tata Power Solar, though, seems a bit more circumspect. "Over-aggressive bidding and low entry barriers are allowing players with limited solar

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KEY CHALLENGES

EXPANSION OF SOLAR IN ROOFTOP AND RESIDENTIAL PROJECTS

NEED FOR SUPPORTIVE POLICIES FOR MANUFACTURING QUALITY PANELS

FUNDING FOR ALL TYPES OF PROJECTS IN THE RENEWABLES GROWTH PLAN

CHANGE IN USE OF LOW-QUALITY PANELS IMPORTED FROM CHINA

SCALABLE USE OF TECHNOLOGY FOR BETTER STORAGE

INDIA ONE SOLAR THERMAL POWER PROJECT AT TALHETI, RAJASTHAN

PM MODI AT THE LAUNCH OF THE INTERNATIONAL SOLAR ALLIANCE ON THE OPENING DAY OF THE COP21 CLIMATE SUMMIT AT LE BOURGEEF, PARIS LATE LAST YEAR

experience to enter the segment. This not only exposes them to losses in projects and investments but is also creating a negative sentiment in the lending community, impacting the entire solar projects industry. While competition is important, the track record and the technical credibility of new developers should be thoroughly ascertained by the authorities."

Getting investors to believe in the power of solar has been a big challenge, given the diminishing tariffs which made the solar energy business seem quite volatile. While finance is slowly opening up—the World Bank approved a loan of \$625 million to facilitate rooftop solar power projects in India in early May and there's talk of an additional funding worth \$120 million—this will primarily be available to the industrial/commercial sectors, to which the state does not offer any capital subsidies.

Given that the solar industry in India is still in a fledgling stage, there are many challenges ahead if it is to be a viable energy option and also a profitable business in the long run. Says Dr Arunabha Ghosh, CEO, Council on Energy, Environment, and Water (CEEW), "We definitely need a deeper market and more involvement from the private equity market in this sector which will pave the way for large institutional investors to put their money in these projects. The government also needs to expand the scope of solar and focus on rooftop solar and residential projects for this to be successful on a truly large scale."

In addition to the investment issues, poor grid connectivity, expensive storage of the energy and lack of skilled personnel to man these projects are just some of the challenges India faces. Shishir S. Gurud, director, Energy Environment Tech Development, TERI, sums it up, "Creating a stable THE FLEDGLING SOLAR INDUSTRY HAS TO OVERCOME MANY CHALLENGES BEFORE IT CAN BECOME A VIABLE PROFITABLE ENERGY OPTION

market, providing ample financing avenues, especially for small and medium systems, including rooftop solar systems and, more importantly, skilled manpower for installation and commissioning are a few of the key roadblocks. Many states have come out with policies and regulations for promoting solar projects but the lack of low-cost finance, especially for residential rooftop programmes, is a major roadblock."

On issues linked to storage, experts like Ghosh point out that India is still 2-3 years away from technological advances that will resolve it. Currently, storage of solar power is expensive and grid connectivity sporadic, making solar a viable energy alternative only in some parts of the country. According to Gyanesh Chaudhary, MD, Vikram Solar, "Studies indicate that India-made solar cells are less efficient than imported cells. We need to avoid any environment that could make it difficult for domestic module ecosystems to sustain themselves, especially because 60 per cent of project costs is attributed to modules."

The quality of PV (photovoltaic) cells that produce electricity directly) modules used in solar plants will define India's solar dream in the long run. Investors, financiers and lenders stand to gain the most from PV systems but also carry the risk if modules fail to perform. Needless to say, these modules need to be of the highest international standards, which is currently not the case.

Manufacturers of solar components and panels have also been wary of sticking their necks out, given that it is still a nascent industry. Says Vinod Mittal, vice-chairman, Welspun Solarpower, "The proposed GST regime on renewable energy projects could affect India's renewable energy prospects. GST seeks to bring uniformity in taxation policies across sectors under the national and state jurisdiction. This would nullify any subsidies granted to the emerging renewable energy sector. Export estimates say its enactment will result in a 20 per cent increase in costs of setting up renewable energy projects."

There is also the issue of several states being uncooperative, especially when it comes to the leasing of land for the projects. Experts suggest that the Centre work closely with state governments to generate land banks for upcoming projects. Despite these apparent stumbling blocks, India is the perfect ground for a solar revolution, given that it has approximately 2.97 million square kilometres of tropical and subtropical land and gets an average of 250-300 clear, sunny days annually. It is expected that by the end of 2016, it will be the world's fourth largest solar player following the US, France and China.

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