Solar energy in India: the revolution in motion

By Sébastien Farcis

The Indian company ACME opened in 2016 this solar farm with a capacity of 50 MW of electricity, 140 km from Bangalore (south). © RFI / Sébastien Farcis

India is the third largest greenhouse gas emitter in the world. And these emissions are expected to increase sharply in the coming years as the country generates two-thirds of its electricity from coal and more than 300 million people are not yet connected. New Delhi has, however, promised a drastic change: multiplying by 25, in seven years, its capacity of production of solar energy and making it the second source of the country. A crazy bet that could be achievable thanks to the fall of the cost of this green energy.

The bumpy road winds its way through the desert plain, and on each side the majestic horned cows advance painfully into the heat of the early afternoon, in search of a few vegetables. The red and arid land of southern Andhra Pradesh, 140 km north of Bangalore, in southern India, knows only "a few days of rain a year," its inhabitants tell us. Insufficient for agriculture, but ideal for

another crop: that of the energy of the sun. On the outskirts of the hamlet of Hindupur there is a dark blue sea, stretching as far as the eye can see in this wilderness: 345,000 solar panels were installed in April 2016 by the Indian company ACME, one of the two largest Producers of photovoltaic energy in the country.

Lots of electricity, low maintenance

The 50-megawatt (MW) plant provides green energy for about thirty kilometers to illuminate 100,000 rural homes. "It took us just three months to mount all these panels," says Dinesh Reddy, the 28-year-old manager of the plant, with a proud smile. The longest is to import the equipment upstream, because they have to come from China." Only fifteen employees ensure full-time operation of this silent power plant, which produces electricity from 6 am to 6 pm. Most of the work involves identifying voltage drops through a central screen, changing faulty cables if necessary and, three times per month, washing all of these thin-layer panels to remove dust that reduces their performance. Finally, about fifty local farmers are regularly engaged to cut the grasses that grow from the ground so watered, and that create shade on the modules.

India doubles its solar power capacity every year

At the COP21, the Paris Climate Summit in December 2015, India had made an incredible promise to reduce its greenhouse gas emissions: multiplying by 25, in seven years, its capacity to produce energy Solar power, to reach 100 GW installed. The country is now launching a frenzied race to achieve this goal: last September, the Adani multinational opened the largest solar power plant in the world, with a capacity of 648 MW in Tamil Nadu (south). Eight months of work. India has doubled its capacity in one year - reaching 10 GW by the beginning of 2017 - and is expected to double it by the end of the year.

The country-continent now ranks 7th worldwide in terms of photovoltaic generation capacity, ahead of France, and is one of the fastest growing markets in the world. It must be said that its needs are crystal clear: more than 300 million people do not have access to electricity, and about two-thirds of its electricity comes from coal, a polluting source of energy and mostly imported. India is already the third largest greenhouse gas emitter in the world and if it is to meet its COP 21 commitments (40% renewable in its energy mix in 2030), it must make a drastic change.

The authorities have thus granted significant tax reductions to installers of solar panels and launched a reverse auction system, whereby the power stations are awarded to companies that are committed to producing the cheapest energy. The sector, finally, benefits from the incredible fall of 25% in one year, the price of panels, which make up about 60% of the cost of a farm. As a result, during the last bid on February 10, ACME won one of the contracts, guaranteeing to generate this solar energy for a record price of 2.97 rupees / KWh (4 euro cents), a fall of 24% in one year. What makes this photovoltaic the cheapest source in some Indian states.

Urgent modernization of the network

"In Western countries, the growth of renewable energies has been fueled by public subsidies, and when they have stopped, this expansion has stopped," explains Vinay Rustagi, director of the renewable energy consulting firm, Bridge To India. In India, solar is financially attractive, which will provide it with more sustainable growth." Prices could fall further as Adani is about to open the first solar plant in India, capable of supplying 1.2 GW a year.

Moreover, the desert lands that house solar panels: urban residences are beginning to settle on their roofs, to partially replace the expensive diesel generators used during regular power outages. The photovoltaic energy is then three times cheaper than this polluting energy and almost at the same price as the current supplied by the conventional network. This system is even more interesting for industries, which pay for electricity at a higher price, and for whom solar is cheaper than network energy.

However, this green growth requires an urgent reinforcement of the network, because renewable energy is by nature unstable - a sudden cloud cover can drastically reduce production - and it is necessary to modernize the old transmission lines so that they can adapt to these sudden falls. Otherwise, the third Asian economy could revive the colossal July 2012 power outage, the biggest in history, which had plunged more than 300 million Indians into the dark for two days following an overload of the network.

In Gurgaon (suburb of New Delhi) installed, in 2016, solar panels on the roofs of its 8 towers. They provide about 8% of its electricity needs. © RFI / Sébastien Farcis

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For more details, please contact –

Vijeta Chaudhary
Manager – Marketing & Communications
Phone: +91-124-7117000
E-mail: vijeta.chaudhary@acme.in
Website: www.acme.in