

Revolution or evolution?

India's wind and solar industries could get a powerful boost in 2010. The capacity limitation on wind farms eligible for subsidization was recently revoked, and a "national solar mission" has been initiated. For all the optimism, however, industry experts remain skeptical. The laws leave too many questions open.



Twenty-year-old Meenakshi Diwan is one of four women trained by the Indian state of Orissa to service solar lanterns in Tinginaput village.

Written by Andrea Röder photographed by A. Traylor-Smith/Panos Pictures/VISUM

Punctually at the turn of the year, the Indian government finally approved its solar mission, long awaited by the industry. "This is a historic step towards long-term energy security as well as ecological sustainability," said Farooq Abdullah, minister for new and renewable energy sources, when the green

light was given in late November. In a departure from the previous version of the program for expanding solar power to 20 gigawatts (GW), the final paper has postponed the target date by two years until 2022. The plan is to install 50 GW by 2030 and no less than 100 GW by 2050. At pres-

ent, India's total solar power is less than 100 megawatts (MW).

To change this situation and meet its extremely ambitious objectives, the government plans to allocate the equivalent of EUR 13 to 15 billion over the coming 30 years. The funds will initially be used



to promote roof-mounted arrays on state-owned buildings and commercial properties, the focus later being shifted mainly to large photovoltaic (PV) arrays. Off-grid panels are to add two GW, and 10,000 previously unelectrified villages are to be equipped with solar lanterns.

The one GW mark is expected to be achieved by the end of the first phase in 2013. This forecast is based exclusively on the country's own resources, but government circles say output could as well be doubled with additional international financial assistance.

No information about finance

The official paper on the solar mission doesn't give any information about the amount of international funding, however, or the form it is to take. To make matters worse, the sources from which India's own money is to be provided remains unspeci-



These lamps, supplied with solar energy, finally enable Tinginaput's children to read their school books after darkness falls.

fied, nor has it been revealed how subsidization will apply to individual cases. "The document lacks specific details on the sources of finance, which is critical to successful implementation," says Siddharth Partak, Greenpeace India's spokesman on climate and energy matters. All that's known is that some of the necessary funds will be obtained from planned taxes on fuel. As in some developing and emergent countries, fossil fuels are currently subsidized in India (new energy 5/2009).

The mission paper proposes that the Indian Renewable Energy Development Agency (IREDA) award special promotional credits to solar projects. A central office, NVVN, shall manage power exports to the grid. It's a subsidiary of the National Thermal Power Corporation, India's largest energy supplier, and is to function as an intermediary between project developers and electrical utilities. Such is to be the framework for implementing the "investor-friendly handling" promised by Minister Abdullah. Once again, the Ministry can't give any details of its planned processes.

The Indian government said it would finance the first phase from its own budget

with the equivalent of some EUR 600 million. The money is to be spent on feed-in tariffs for solar power, research projects, and other funding instruments yet to be devised. Also under discussion are the abolishment of import duties on specific solar components and the creation of uniform minimum quotas for renewable power (Renewable Purchase Obligation) in India's various states.

Besides assured finance, stable structural conditions also have a major influence on success solar mission success. But so far, only a few Indian states have defined feed-in tariffs for solar energy (new energy 4/2009). To bring the regulating authorities of the other states into line, the Central Electricity Regulatory Commission (CERC) will present tariff proposals in 2010. Initial calculations suggest that with a term of 25 years, they could be set at 13.5 rupees (EUR 20 cents) per kilowatt-hour (kWh) for electricity from solar thermal sources and 18.5 rupees/kWh (EUR 27 cents) for electricity from PV arrays. In view of anticipated reductions in the cost of manufacturing and projects, the CERC said feed-in tariffs are to be checked at regular intervals and corrected downwards accordingly.

The problem is that Delhi can't lay down binding tariffs, for each state has the right to specify its own levels of remuneration, even lower ones. It can, however, be assumed that project developers will be able to use the central government's guidelines to support their own arguments.

Solar investments worth EUR 6.5 billion

In spite of all the uncertainties, the solar mission appears to be sending out the expected signal. Such was the impression given at the Intersolar trade show recently held in India for the first time in November 2009 in cooperation with Solarcon. "I believe we are at the verge of a solar revolution," Rajiv Arya, CEO of Moser Baer Photovoltaic, stated at the accompanying conference. "But we have to make sure that the national solar mission will be implemented properly," he pointed out the discrepancy between the grand promises of politicians and the red tape of India's civil servants.

The government's targets don't in fact "sound like big figures," said the chairman of the India Semiconductor Association, Bandaru V. Naidu, who added that



Twenty-year-old Rohim Miniaka has been trained as a solar engineer in Tinginaput.

“A country like India can make this happen and the solar mission is going to give a flip to the growth of the solar industry.”

The first signs of these changes can already be seen. In Rajasthan state, which has some of the country’s highest levels of insolation, solar investments amounting to EUR 6.5 billion are expected in coming years. Naresh Pal Gangwar, CMD of the Rajasthan Renewable Energy Corporation, wrote in his 2009 annual report, more than 70 firms registered projects with his firm. They include energy giants as Reliance, Jindal Power, Moser Baer PV and GVK Power. A dozen projects have already been approved, and tariff negotiations are underway.

Azure Power is one of the first commercial PV array operators. The first half of a two MW array near Amritsar in the northern Indian state of Punjab was put into operation in December. Inderpreet Wadhwa, Azure Power’s CEO, has negotiated a fixed 25-year feed-in tariff with the government, which pays nine rupees (= EUR 13 cents) per kWh for solar power, more than twice as much as for conventional energy. However, Wadhwa says that electricity production costs for PV arrays are actually 15 to

20 rupees per kWh (= EUR 22 to 30 cents) in India at the moment. He won’t spell out exactly how he gets by on the low tariff, saying only that an expected reduction in module prices will enable him “certainly to make profit in the long run.”

Azure Power plans to expand the Punjab project to four MW in 2010 and also start on an eight-MW array in Gujarat. By 2013, PV arrays in various Indian states are to supply 100 MW of electricity to the grid. The company obtains its components from Chinese and American firms. Wadhwa points out the competitive disadvantages of his country: “The quality of PV modules manufactured in India has to become better and the prices lower.”

The central government in Delhi has also noted these points and made expanding local industry a core element of the solar mission. By 2022, India’s manufacturing capacity is to be increased from approximately 400 MW at present to four to five GW. The government also wants to invest massively in research plans and to initiate transfers of technology and knowledge with international partners. Although most PV modules are currently produced for export,

renewables minister Abdullah expects a “significant boost” for the solar industry to result from the mission, which should also strengthen the domestic supplier market.

Tax credits extended for wind industry

The Indian wind industry is also waiting for a boost. Manufacturers and project developers are still struggling with the effects of the economic crisis (new energy 4/2009). Although the subcontinent cracked the 10,000 MW mark last summer, it nevertheless fell behind annual expectations in budget year 2008-09. Ramesh Kymal, chairman of the Indian Wind Turbine Manufacturers Association (IWTMA) and managing director of Vestas Wind Technology India, had hoped for more than 2,000 MW of wind power, but only 1,800 MW could be added between April 2008 and March 2009. Things look even worse for the current fiscal year. When asked, Pankaj Saxena of the statistical office of the Ministry for New and Renewable Energy (MNRE) responded that only 662 MW were installed between April and November 2009.

The recently extended “Generation-Based Incentive” (GBI) could show a way out of the crisis. In summer of 2008, the MNRE also introduced a tax credit for every kilowatt-hour of wind electricity in addition to a feed-in tariff for PV arrays (new energy 4/2008). But only wind projects with an output of up to 49 MW could use the GBI. Seen by industry experts as a growth brake, this cap was finally done away with in mid-December. Now, wind farms with an output of up to four GW will be eligible for subsidies. The supplement paid for every kilowatt-hour fed into the public grid has been set at 0.50 rupees (EUR seven cents), and the maximum funding period is ten years.

The pre-existing model for tax write-offs on initial investments stays in effect side by side with the GBI, but project developers have to decide which of these funding options they want to use. Under the tax model, wind power generators can write off more of their investment costs - 80 percent in their first business year, while profits are exempt from tax for ten years.

V. Subramanian, secretary general of the Indian Wind Energy Association (Inwea), told new energy that while the depreciation model mainly attracts firms with an interest in short-term profits, “new companies with long-term intentions will revive the market” and “definitely be a big boost for the Indian wind industry” in 2010 thanks to the extended GBI package. ◀