

Solar power in India

Waiting for the sun

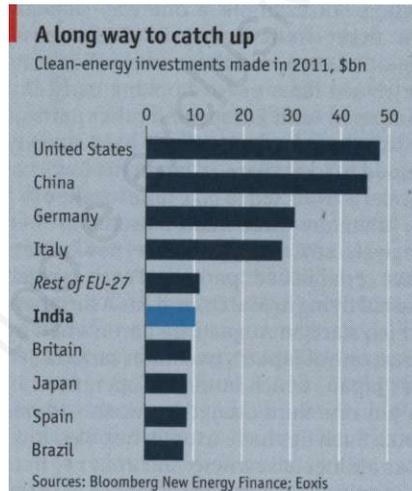
CHARANKA, GUJARAT

Is the sun the answer to India's energy problems?

ON A salt plain near the border with Pakistan lies half a billion dollars' worth of solar-energy kit paid for by firms from all over the world. A million panels stretch as far as the eye can see. Past a dishevelled brass band is a tent crammed with 5,000 people who cheer when Narendra Modi, the chief minister of Gujarat, declares the solar park open: "I pray, sun god, that today Gujarat will show the way to the rest of the world for solar energy."

Despite the uncomfortable cult of personality around Mr Modi, Gujarat is an easy place to do business. And solar power would appear to be an obvious winner for India. The country has plenty of sun and flat, idle land. India is energy-hungry, but electricity supply is sporadic. Costly diesel generators are popular. Solar power could replace them. And solar parks, which look like giant Lego kits, are easier to build than conventional power plants. The new park, in a place called Charanka, has just over 200 megawatts (MW) of capacity running, making it the biggest site in India. It took 16 months to build. No one builds nuclear power stations nearly that fast.

Two other factors make an Indian solar boom seem possible. Conventional energy generation, which in India means burning cheap but dirty local coal, is a mess. Power stations charge local electricity boards 3-4 rupees (\$0.06-0.08) per kilowatt hour. The state coal monopoly is unable to dig up enough of the black stuff, forcing power firms to buy pricier imported coal. Hopes that India might find abundant natural gas off its coast have been dashed. Many observers think the price of conven-



tional power will have to rise to 5-6 rupees.

Meanwhile, the cost of solar equipment has fallen by a third since 2010, reckons Alan Rosling of Kiran Energy, a solar firm backed by American private equity. Cheaper solar and pricier conventional power have persuaded many that solar will soon be competitive without subsidies. V. Saibaba, the boss of Lanco Solar, a firm that makes and operates solar parks, says that by 2016 Indian solar will match the price of conventional electricity.

That should mean a building boom. Sunil Gupta of Standard Chartered, a bank, reckons India's share of new global solar installations will rise from 1% this year to 5% by 2015. India's central government has set a target for 20,000MW of installed solar generation by 2022, from under

1,000MW today. That would still represent a miserly 5% or less of total power-generation capacity in India, and cost perhaps \$30 billion-40 billion to build—a fraction of the investment in new coal-fired plants. So plenty of folk think the official target will be smashed. D.J. Pandian, a civil servant in charge of energy policy in Gujarat, believes his state alone will easily reach 10,000MW of capacity in a decade.

But not everyone agrees. "Half of these plants won't be here in ten years," says a German boss at the new solar park—bad news, since the contracts are for 25 years. Too many firms have cut corners, he reckons. A Chinese executive raises his eyebrows at India's plans to force solar firms to buy some equipment locally. "The supply chain and economies of scale are not there," he says. An American manager scoffs: "We've all been coming to India for years and they'll never get there...They don't have the infrastructure." The difficulty of getting plugged into the grid and a shortage of water to clean panels are common worries.

Solar faces two other problems. First, Gujarat's state government has guaranteed high prices of 15 rupees for the first 12 years of operation to solar producers, which should mean they make money. But at the national level there is a separate system. It relies on "reverse auctions" in which those solar producers who commit to producing power at the lowest cost win the right to operate. In the second national solar auction, of 350MW, in December, the winning firms committed themselves to selling solar power for as little as 7.5 rupees.

Many people doubt that it is possible to make money at these prices. An Indian engineer says the auction was "a farce" and that it is impossible to build a solid plant and operate it for less than 10 rupees. Firms bidding below, say, 8.5 rupees must assume that technology will improve (likely), equipment prices will keep falling (perhaps, but some manufacturers are losing money), or that they can make their sums work by borrowing cheap dollars rather than dear rupees (a foolish risk).

Second, if prices do not fall steeply, there may be little appetite for solar power. The grid is rickety. Many states' distribution firms (the generators' main customers) are financial zombies. Today the cost of solar subsidies is hidden-pooled with the overall generation bill in states such as Gujarat or, for projects under the national scheme, buried in the finances of a big state-owned conventional power firm.

Such bureaucratic subterfuge works on a small scale. But if the bill for solar swells, it is not hard to imagine the kind of public backlash against subsidies that has hit cash-strapped Europe. India's politicians may then start to ignore contracts. To solve India's energy problems, solar firms must deliver blindingly low prices. •