



Is India renewables on the right track?

WHILE THERE remains continued excitement around India and potential for renewables development, 2013 has been a “lacklustre” year for the country’s renewables industry generally.

INDIA HAS long been one of the leading global users of renewable energy. Indeed the Indian Ministry of New and Renewable Energy (MNRE) recently confirmed that while wind power still dominates with 19.8GW installed by the end of September, grid-connected solar capacity in the country had passed the 2GW point.

Solar woes

But this is not as impressive as some had earlier hoped: “It has been a quiet year for the Indian solar sector, with installations at 900MW so far this year and final numbers [projected] to be similar to last year,” said Raj Prabhu, CEO and co-founder of Mercom Capital Group, in his latest market briefing, published in November. “With 420MW of concentrated solar power (CSP) projects missing commissioning dates, India is not likely to

register any significant year-over-year installation growth for 2013, even as the global solar market is expected to grow ~20%.”

The guidelines and requests for selection (RfS) have finally been published for Phase II Batch I under the JNNSM programme (or Jawaharlal Nehru National Solar Mission (JNNSM), for 750MW of PV projects. However, India has decided to include domestic content requirements for half (375MW) of PV projects whereby solar cells and modules used must be made in India — which Prabhu describes as “an unnecessary risk that raises uncertainty with minimal reward”. He states: “It may be enough to cause a trade dispute but not enough to help domestic manufacturers.”

According to the proposed time line, these 750MW of JNNSM Phase II projects will not be commissioned until at least May 2015. Therefore,

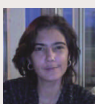
projects under Indian state schemes are where the action will be in 2014, Prabhu notes.

The challenges the Indian economy faces this year also affected the solar industry, he states. “This year the market has seen high inflation, an ~8 per cent rise in module prices and a ~15 per cent rupee depreciation, all of which contributed to overall project costs. At the same time, reverse auctions in India continue to defy odds and go in the opposite direction with record low bidding, especially in states that have an L1 type bidding mechanism (lowest bid must be matched by all) in place. Current economic conditions, solar irradiance and off-taker creditworthiness do not look to be reflected in these bids. With bids fluctuating almost 50 per cent over the year when comparing state-to-state, it is imperative to have deep insight and market intelligence to be successful in this environment.”

Mercom notes that India is entering election season with state elections in Chhattisgarh, Madhya Pradesh, Mizoram, Rajasthan and Delhi due in December. According to the guidelines by the Election Commission of India, non-agricultural land transactions cannot be approved by the government during election season without the approval of the Chief Electoral Officer. “This will delay any solar projects that are in the middle of land acquisitions by a few months,” the firm noted. “With some states yet to sign PPAs and upcoming state and general elections, our preliminary estimates are tentatively at 1750MW of solar installations in India for 2014.”

Significantly, this is higher than forecasts for the wind power market (see chart). “Although the projected [solar] installation growth looks impressive, it includes 420MW of CSP projects that did not get installed in 2013,” Mercom noted.

Solar power project developers are worried, according to Mercom. With bids so low in some states, they are not sure they can make profit. “All the developers we spoke with agree that margins are razor thin,” Prabhu reports. “Most bids do not take solar irradiation, inflation, currency



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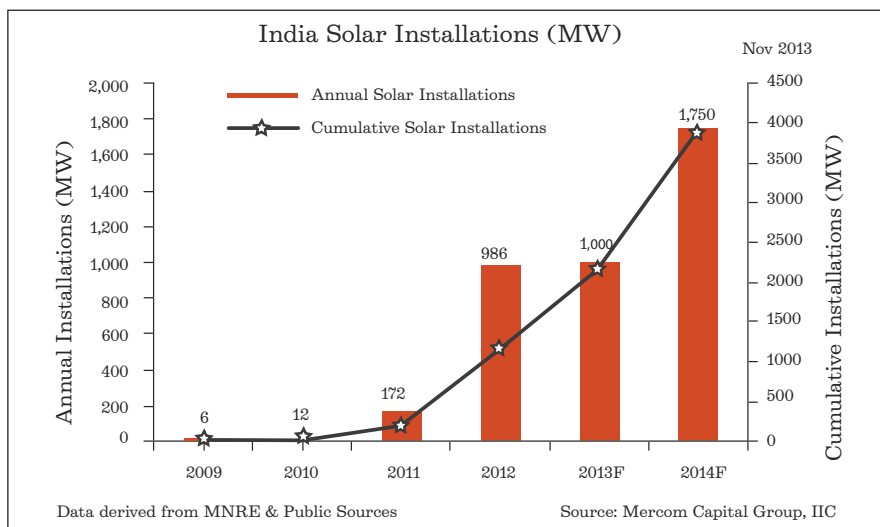
depreciation, and off-taker credit-worthiness into account. A tariff of Rs.6.50 (~\$0.11) in one state is not the same as a Rs.6.50 (~\$0.11) tariff in another.”

India’s government has introduced the viability gap funding (VGF) mechanism to try to combat the problem, with the 750MW of JNNSM Phase II Batch I projects to be auctioned under the scheme. Under VGF, developers will sign a PPA for 25 years to sell power at a fixed tariff of Rs.5.45/kWh (~\$0.09/kWh). In the case of accelerated depreciation, the tariff will be reduced by 10 per cent to Rs.4.75/kWh (~\$0.08/kWh). The maximum limit for VGF is 30 per cent of the project cost, or Rs.2.5 crore/MW (~\$416,667/MW), whichever is lower.

There have also been some mechanisms added to ensure project performance. According to Mercom, a minimum capacity utilization factor (CUF) of 17 per cent over a year has been set. Projects have to maintain a CUF within -15 percent and +10 percent of their declared value until the end of 10 years from Commercial Operations Date, subject to the CUF remaining over a minimum of 15 and within -20 percent and +10 per cent thereafter until the end of the PPA duration of 25 years.

“Another major change in the guideline compared to the draft proposal is the payment schedule which has not been welcomed by developers.” The VGF payment will be released in tranches: 50 per cent on successful commissioning of the full capacity of the project, and the rest progressively over the following 5 years (10% each year), subject to the project meeting generation requirements (CUF) within a specified range per the policy guidelines.

Mercom says the project developers it speaks to say VGF shouldn’t have been necessary as the current model was working. Developers are hoping to see a correction phase where bids go up in line with current market conditions. “However, concerns remain that too many inexperienced firms are bidding recklessly,” Prabhu said. “This is typical in most of the infrastructure projects in India. The message from developers is to keep it simple and



India solar installations (projected).

Utility-scale solar projects in India		Capacity (MW)
Operational and under development. Updated on 8 November, 2013		
In-operations		
Solar PV		2,024
Solar thermal		56
Total		2,080
Under development		
Solar PV		2,535
Solar thermal		445
Total		2,980

Utility-scale projects in India.

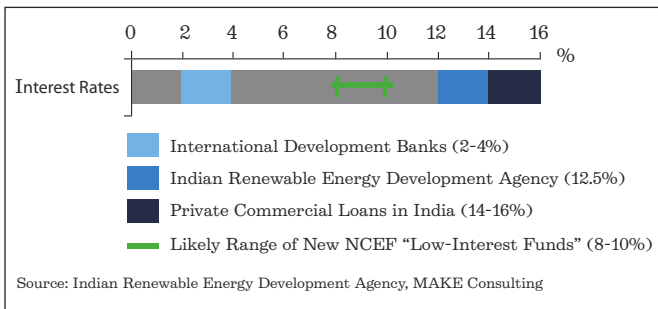
Source: Mercom Capital Group, IIC

All India solar PV installations by policy type		MW
Policy type		
Gujarat solar policy		856.8
JNNSM – Phase I Batch II		330
REC mechanism		170.5
Madhya Pradesh solar policy		142
JNNSM – Phase I Batch I		140
Maharashtra solar policy		125
JNNSM – rooftop projects		93.3
JNNSM - Migration Scheme		48
Rajasthan solar policy		40
MNRE – Demonstration Programme		20.9
Karnataka solar policy		19
NTPC Bundling Scheme projects		10
Others		9.9
Andhra Pradesh solar policy		5
Total installed capacity		2,010.1

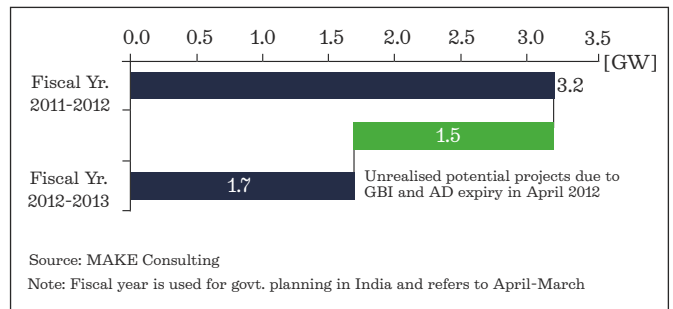
India solar PV installations by type.

Source: Mercom Capital Group, IIC as on Nov 08, 2013

Market



Project finance interest rates in India.



Projects lost to GBI/AD.

consistent; there is no need to experiment if something is working. There needs to be strict enforcement of rules already implemented instead of bad behaviour being rewarded.”

Observers say the disbursement of VGF is too complicated while the five-year reimbursement period compared to immediate payment after completion for other infrastructure projects has not gone down well. As Prabhu explains: “While some developers said they would bid for projects both with and without domestic content requirements (DCR), their concern was that financing will be challenging with a five-year VGF payment period. This may work for large companies with large balance sheets, but less so for developers looking for non-recourse financing.”

Considering the planning commission has already acknowledged problems with the VGF and the public-private partnership model and is working on a draft bill to fix some of these issues, Prabhu adds: “it is baffling as to why they would continue to experiment with a model that is obviously problematic, especially in a new sector like solar.”

While solar power project developers in India are worried, manufacturers in the sector are “surprisingly” upbeat, Prabhu adds. Manufacturers “feel that demand has improved, and

hope for continued domestic content requirements.” He says in Mercom’s conversations with manufacturers (representing close to 50 per cent of the solar manufacturing capacity in India), “capacity utilisation rates were quoted in the 70-100 per cent range, which is completely at odds with the ~25 per cent utilisation rates quoted in the media in an effort to get help from the government”.

The average selling prices quoted were in the \$0.65-0.70/W (~Rs.39-42/W) range. Some local manufacturers have also started manufacturing modules for Chinese companies, which then get shipped to Europe. “Price pressure remains the single biggest challenge for local manufacturers.”

Wind worries

For India’s wind power sector too, fortunes are mixed. As industry analyst **Make Consulting** points out, on the upside, the **Generation-Based Incentive (GBI)** support mechanism for wind power, withdrawn back in April 2012, has been formally reinstated with minor changes, while additional measures announced such as low interest financing from the **National Clean Energy Fund (NCEF)** and a new national offshore wind authority, announced by the MNRE on August 16, indicate the government’s intention to give more support to wind.

However, “challenges remain” for the wind energy sector, stresses the firm.

The reinstated GBI will provide Rs.0.5 (US\$0.008)/kWhr, unchanged from the previous GBI. However, the total subsidy a wind power plant can claim has increased to Rs.10 million (US\$160,000)/MW, up from INR6.2 million (US\$100,000)/MW in the previous GBI.

The duration of the new GBI will cover wind power plants built between 2012 and 2017, meaning that wind projects installed in 2012 will be eligible to register under the new scheme. While positive news, Make Consulting says the level of reinstated GBI support “is insufficient to meet the Indian government’s wind power installation target of 3GW/year”.

While the rates of the NCEF financing have yet to be confirmed (even though the plan was first announced back in February), Make says the prospect of loans is good news for Indian asset owners. “The financing gap left by the GBI withdrawal [in 2012] left asset owners to look at financing from international development banks, which is not preferred due to the lengthy approval procedures.”

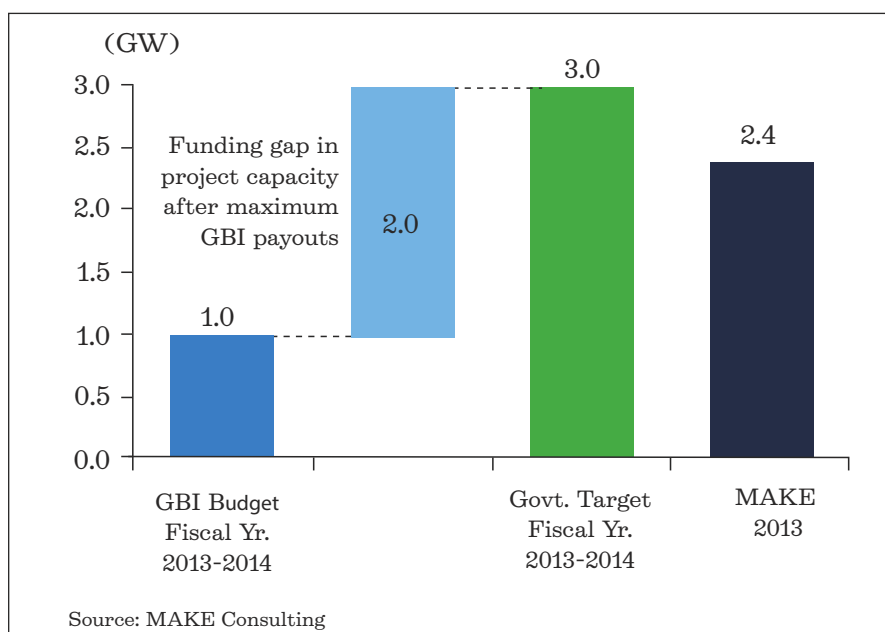
The decision to offer low interest loans from NCEF was because consumers still pay a high price for renewable energy because of the high cost of project financing, it notes.

Another problem for the industry is that the reinstatement of accelerated depreciation (AD), which was also withdrawn in April 2012, remains undecided. It is under discussion and industry members insist that without AD the market for small and medium sized projects will continue to suffer problems in terms of economic

	Old GBI	New GBI
Value	INR0.5 (USD0.008)/kWhr	INR0.5 (USD0.008)/kWhr
MW cap	INR6.2 million (USD100,000)	INR10 million (USD160,000)
Duration	2009-2012	2012-2017

Generation Based Incentive (GBI) comparison.

Source: Ministry of Finance, MAKE Consulting



Shortfall to meet Government target.

viability. The **India Wind Power Association (IWPA)** is one of the organisations lobbying the government to reinstate AD because small and medium-sized enterprises, which

India's government plans to invite bids by March 2014 to develop up to 1GW of renewables plants in Sambhar, Rajasthan. It will be the first phase of a planned 4GW project in the state which itself is one of five "ultra-mega renewable parks" with a combined capacity of 18GW planned for development within the next decade. Tarun Kapoor, joint secretary at the **Ministry of New and Renewable Energy**, announced the project plan at the **Intersolar India 2013 Conference and Exhibition**, which took place in Mumbai this past November.

As well as Rajasthan, parks are slated for Gujarat and the Ladakh region of Jammu and Kashmir, according to Kapoor. "The main objective is to bring down the price of solar power," he said. "We want to bring it to about Rs.5.5 (8.6 cents) a kilowatt-hour so that it's competitive with any other source of power." The new **Solar Energy Corporation of India** will be the sole buyer of electricity from the projects.

typically include foundry and textile factories (which have been key customer drivers for the wind sector), have used the AD incentive to install captive wind power plants, taking advantage of its lower cost compared to conventional electricity available on the grid as well as being assured electricity supply.

Make Consulting is doubtful that AD will be reintroduced in the short term "due to the political uncertainty surrounding it, combined with the trend of independent power producers as a growing class of investors which favour GBI".

Make says: "With India's GDP growth slowing down from 5% in 2012 compared to 6.2% in 2011, continuing a decline for almost three years, the Ministry of Finance could still be hesitant to allow asset owners to write-off taxes equivalent to 80 per cent of the upfront cost of a project."

The list of potential obstacles goes on. An "underdeveloped grid and transportation infrastructure, poor financial health of utilities and new forecasting requirements are significant barriers to growth," Make Consulting warns.

Indeed, overall "high financing rates, underdeveloped grid, acquiring land for projects and also getting permission to move nacelles, towers and

blades through poor transportation infrastructure, continue to be significant challenges," it stresses. "Delays in signing PPAs with several power distributors (most of which are state-owned, in poor financial health and/or lack the funds to pay for power) can be traced to political complications which prevented most states from raising their electricity tariffs for the last 7-10 years." As a result of this, as of September, there were 470MW of commission-ready wind turbines standing idle, says the Indian Wind IPP Association.

A more recent complication, Make Consulting notes, is the demand by India's **Central Electricity Regulatory Authority** that all wind projects above 10MW in capacity forecast their generation for the next day on a quarterly-hour basis or face penalty fines to be paid by state utilities. "This move could prove technically challenging given the state of the local grid and current technology of Indian turbines. As such, it is opposed by local operators and is currently being challenged in the Courts."

Within this context, Make Consulting is cautious about the outlook for India's wind energy market. "With the removal of GBI and AD in 2012, it is estimated that as much as 1.5GW of potential projects were unrealised.

The removal of these incentive schemes have set back government plans to add 15GW of new installations from 2012-2017. The government has not changed this ambitious target. Make Consulting believes the target will remain a challenge, given the limited budget allocated to GBI reinstatement. With the Indian Cabinet having allocated only Rs.8 billion (US\$130 million) for the GBI scheme in the 2013-2014 budget and assuming the maximum cap of Rs.10 million (US\$160K)/MW allowed in the new GBI, the new GBI would only support 1GW of new installations.

This suggests that additional financial support will still be necessary if the Indian government is to meet its target."

Further information:
www.mercomecapital.com
www.make-consulting.com