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US wind energy investors look to India for future growth

The Indian wind power industry is expecting to lure US investors in 2013 as US production tax incentives disappear. We look at the significant opportunities and challenges alongside some of this market's potential solutions.

A series of hurdles

India's wind power industry has had a tough start to the year, slowed down by financial and technical challenges, including the suspension of the Generation-Based Incentive (GBI), which paid wind farms a 500-rupee subsidy for every megawatt-hour of electricity fed into the grid.

"The withdrawal of fiscal incentives in the form of Accelerated Depreciation and the expiry of the GBI scheme has negatively impacted growth. In addition, payment delays by the utilities, rising debt costs, lower than expected tariff increases, and problems related to land acquisition have been primary concerns for the IPP players,"Mahesh Makhija, Director of Business Development-Renewables at CLP India, tells Wind Energy Update. A subsidiary of Hong Kong-based CLP Holdings, CLP India has a total wind power portfolio of 1,027 MW in India and another 266MW of wind farms under construction.

Dr. Gomathinayagam, executive director of the Centre for Wind Energy Technology in India, agreeably states that "a possible dip in the business could have occurred, owing to changes in accelerated depreciation for investments in wind farms; land acquisitions and permissions; weak grid conditions; power evacuation issues in terms of capacity additions and capacity update of existing lines; payment of power sold in time by user utilities; and finally the effective forecasting, scheduling and demand side management with storage/spinning reserves."

Poor evacuation infrastructure

The development of wind power generation in India has been fairly unplanned so far, which has led to power evacuation and infrastructure bottlenecks. To utilize wind energy effectively, planning of evacuation infrastructure should go hand-in-hand with identification and approval of the resource. The implementation of smart grid technology and investment in power storage are also crucial to counter off-peak power generation and improve power quality.

"As soon as the Centre for Wind Energy Technology identifies or approves a wind zone, planning around evacuation must be undertaken by the evacuation utilities. Quite often, wind power projects tend to be located in remote areas where grid network is poor and this necessitates investment into evacuation network which developers are generally willing to undertake," notes Makhija.

However, there is no effective cost recovery mechanism in place for this part of development, he stresses. "The transmission utilities and the regulators must recognize the efforts and investment

involved in developing the evacuation infrastructure and provide for suitable cost recovery mechanism in the tariff."

Realistic financial solutions

Despite these upheavals, industry players say the changes in subsidies won't affect wind power investments. On the contrary, the economics of Indian wind developments are luring investors away from markets, such as the US, where the end of production tax credit for wind-power utilities could result in a 75% slump in new installations next year, based on forecasts by Navigant's BTM Consult.

Moreover, the cost of wind energy has dropped below the price of coal-fired energy in parts of India for the first time, as improved turbines produce more electricity from lower wind speeds and rising fossil-fuel prices boost wind power competitiveness. The shifts means new wind farms will be able to survive without state subsidies, ultimately creating an independent market that will attract potential investors.

"Renewable energy development globally has been riding on the incentive and policy bandwagon of governments, from the focus on international offset markets dimension to the advent of national carbon markets. The mixed signals (in India) have created uncertainty in the investors mindset/developers mindset," explains Vinay Rao, director at Kenergy Wind Power & Infrastructure and chairman at Environment Energy Emission Xchange E3X.

According to Dr. Gomathinayagam, efforts are on-going by the Government of India using the Renewable Regulatory Fund (RRF- mechanism) to bring discipline regarding pumping in the grid and ensuring national integrated grid operations for all regions of India. "There is a move to utilize the clean energy fund (generated using a coal burning cess) for creating the grid infrastructure," he says.

When it comes to accessing finance, renewable power projects in India are finding it difficult to raise capital from common sources, such as traditional lenders and banks, as non-conventional power projects are still not considered a priority sector in the country. "The lack of understanding of the industry makes lenders more cautious, which makes borrowing costlier. There is a need for 'project finance principals', as non-recourse based lending is not available for most. Therefore, we need capacity in addition to financing for clean energy projects," notes Rao.

If financing is a complex process, what will drive local and foreign developers to invest in India's wind power projects? According to Dr. Gomathinayagam, the Clean Development Mechanism (http://envfor.nic.in/cc/cdm.htm), Renewable Energy Certificates (REC) (https://www.recregistryindia.in/), and the fact that independent power producers have the right to trade power under open access, will all trigger investments.

Buyouts and partnerships

The industry has already witnessed a number of remarkable mergers and acquisitions over the summer, proving that the local wind energy market is as active as ever. In June, Indian wind powerhouse Suzlon – the world's fifth largest wind turbine maker – sold its Chinese subsidiary Suzlon Energy Tianjin to China Power New Energy Development Company for $60m, a move that is expected to open up opportunities

for more work in India. In the same month, Morgan Stanley Infrastructure Partners spent $210.1m for a controlling interest in Indian wind project developer Continuum Wind Energy.

In July, Reliance Group partnered with Chinese turbine maker China Ming Yang Wind Power Group to develop up to 2,500MW of clean energy projects in India and other South Asian countries. July also saw Suzlon sign an equipment sale deal with ReNew Power Ventures to supply 48 of its turbines for ReNew's 300MW projects in India, while independent wind farm developer Greenko signed a deal with General Electric to buy at least 450MW of turbines over the next three years.

Finally, Orient Green Power sold its stake in its Sri Lankan wind energy project, Powergen Lanka, to focus on the domestic market, where it will expand wind energy capacity to over 450MW from the present 330MW in Tamil Nadu, Andra Pradesh and Gujarat.

Low-wind speed destination

In the past few years, India has built sufficient know-how in developing MW-scale turbines on its own, as evident from the 16,000MW of wind power installations across the country. "We don't think India needs to import turbines or equipment to meet domestic requirements. With the increasing demand, leading international turbine manufacturers like Vestas, Gamesa and GE, have set up manufacturing facilities in India. We need to provide more incentives to those companies to enable them to not only meet the domestic requirement, but also supply the turbines to other Asian countries from their manufacturing facilities in India," explains Makhija.

Dr. Gomathinayagam similarly points out that India has "a strong local supply chain with probably part of components being facilitated by international players with OEM and or IPR rights". This, according to him, is a result of the current policies that need type-certified wind turbine generators manufactured in India, in factories with ISO-quality systems and with a strong base of EPC players.

However, "about 80% of the wind turbine technology available nowadays are designed for high speed wind, and therefore, the adoption of low-wind speed technology, such as direct drive and permanent magnet motors, is quite low, says Rao.

India is a low wind-speed destination, and to produce wind power in a commercially feasible manner, manufacturers will need to bring in the latest technology capable of harnessing the low wind speeds prevailing. Researchers at Lawrence Berkeley National Labs recently reported that smaller, lower wind regime turbines make India's undeveloped potential far greater than previously estimated.

Wind power installations in India reached just over 16,000MW in 2011, mainly spread across Tamil Nadu, Gujarat, Maharashtra, Karnataka, and Rajasthan, and the country's annual market is expected to reach 5GW by 2015. Out of $10.3bn spent on renewable energy last year, $4.6bn went towards wind energy investments, which indicates an unstoppable growth in India's wind power market.

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