

**DEMAND UNLOCKED
 NOVEMBER 2014
 RENEWABLE WATCH**

PERSPECTIVE

ANNIVERSARY ISSUE

Demand Unlocked

Equipment manufacturers look to capitalise on emerging opportunities

While a substantial manufacturing and assembly base exists for various renewable sources of energy, the country lags behind in terms of manufacturing components such as wafers and ingots in the solar segment and drives and motors in the wind power segment. One of the priority areas for the government is to promote end-to-end domestic manufacturing in the sector and to create a market for the same. Industry experts express their views on the current state of manufacturing in India, the key challenges and the upcoming opportunities...

What are the positive and negative developments that the renewable energy sector has witnessed in the past one year? How are these expected to change the course of the sector in the future?

Sujoy Ghosh

The past six months have been very encouraging for the solar sector in India. We are beginning to see early signs of a larger demand being unlocked as solar photovoltaic (PV) tariffs become more competitive, combined with fuel supply constraints in the thermal sector. Several initiatives were announced in the budget for the solar sector across both large utility-scale as well as distributed generation schemes. Further, the government's decision to not impose the proposed dumping tariffs and the recent announcements from the Ministry of New and Renewable Energy regarding the setting up of 25 solar parks demonstrated the intent to mainstream solar energy in the overall mix. Our view of



Sujoy Ghosh
 Country Head,
 First Solar, India

"The past six months have been encouraging for the solar sector. There are early signs of a larger demand being unlocked as PV tariffs become more competitive."

the long-term demand potential of solar PV in India remains unchanged.

D.V. Giri

During the year, two positive developments were the announcement of the new generation-based incentive (GBI) scheme and the re-introduction of the accelerated depreciation (AD) benefit. As far as their impact on capacity addition is concerned, it is already visible for GBI. However, not much impact is likely to be visible of the AD benefit during this financial year due to the delay in its announcement. Going by the trend, small and retail investors running profitable businesses and energy intensive industries invest in wind projects to avail of the AD benefit. Consequently, 800 MW-1,000 MW of wind capacity is likely to be added during 2015-16 under this scheme. Further, in order to make the GBI an effective mechanism, ensuring timely disbursement of funds by the Indian Renewable Energy Development Agency is essential.



D.V. Giri
 Secretary General,
 IWTMA

"The country has the technology, the developers and the financiers; the only impediment in the development of wind projects is the lack of policy clarity."

Ajay Goel

The biggest positive development that has taken place in the renewable energy sector has been the announcement of the government's Make in India initiative in which solar is likely to play a big role. The government has promised to create significant demand for Indian manufacturers under various initiatives which would help them grow.

The country is currently experiencing a slowdown in terms of capacity addition. The current demand in the renewable energy sector does not match the expectations and optimism around the sector. Therefore, manufacturers have been feeling the pinch of declining revenues and slow growth in demand. However, given the ambitious capacity addition targets of the government, the prospects for the sector seem very positive in the long run. We expect the government to work with manufacturers to help them scale up their production cap-



Ajay Goel
 Chief Executive
 Officer,
 Tata Power Solar

"We need to ramp up domestic solar equipment manufacturing, add more renewable energy in the grid and provide power to remote areas for lighting and irrigation."

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acity. The announcements made by the government during the past one year have made the outlook of various stakeholders very positive regarding the growth of the renewable energy sector.

B. Prasad Rao

Both the central and the state governments have been very active in expanding renewable power generation. Some of the key initiatives adopted by the government in this regard are the announcement of ambitious capacity addition targets for solar and wind, the reintroduction of GBI and AD for wind power developers, and the introduction of the domestic content requirement (DCR) for solar projects. These are bound to give a fillip to the domestic industry and encourage investments. In addition to the steady demand, the domestic solar PV equipment manufacturing industry requires low-cost capital and the development of other related industries for input raw material in order to achieve the capacity addition targets. Further, apart from soft loans, payment security is also required to expand the renewable energy capacity in India.

Chintan Shah

After the blip of wind installations in 2012 and 2013, the world markets rebounded. In 2014, global installations are likely to witness a growth of over 40 per cent, led by the US, Brazil, China, India, Canada, Germany, Mexico and Turkey. The policy environment in Europe and the US has

improved. Governments in the West have realised that policy and regulatory stability is a crucial factor for creating long-term job opportunities.

In the Indian context, there exists a conducive policy framework. Several incentives have been offered for the renewable sector in the union budget:

- The restoration of the AD benefit is a welcome move. This will create 20,000 new jobs annually in the wind energy space. AD will act as a stimulus for the revival of the Indian small and medium enterprise (SME) sector as it can set up captive power plants and hedge power costs for 25 years. This will ensure the global competitiveness of SMEs and thereby, the growth of exports.
- The new government has announced a series of additional measures such as doubling the clean energy cess on coal, extension of the 10-year tax holiday up to 2017 for power companies, accelerating the development of the Green Corridors project, giving corporate social responsibility status to wind energy investments and ensuring stricter compliance with renewable portfolio standards for utilities.

All these measures will boost investor confidence and fuel investments in wind energy projects, thereby ensuring a steady supply of clean energy.

Keeping in mind the country's renewable

energy potential, the current level of investor interest and the policy and regulatory scenario, what kind of capacity targets should the government aim for in the medium to long term?

Sujoy Ghosh

That's for the government to decide and it will be a function of two things – overall reforms in the distribution sector that improve the financial health of the state discoms and an acceleration in the creation of transmission corridors to evacuate renewable energy from geographies with good resources to the load centres.

D.V. Giri

The Indian wind energy segment has 22 GW of capacity spread across seven states. The plan for 2014-15 is to add more than 3,000 MW of wind capacity. Further, the government targets to add 10,000 MW during the next four to five years. To achieve this target we require:

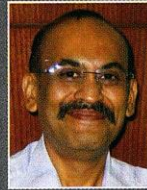
- Adequate funds for the smooth functioning of the GBI scheme as the majority of the wind independent power producers require support under this incentive to make investments in these projects attractive.
- Continuity of the AD benefit.
- To ensure secure grid linkage for wind projects, it is necessary to have dialogues with Power System Operation Corporation Limited and the Power Grid Corporation of India Limited in order to provide a reliable power evacuation network for upcoming wind energy projects.
- The development of a market-based mechanism for successful implementation of the renewable purchase obligation framework.
- Continuity of the feed-in tariff regime for wind projects, at least till the ambitious targets are achieved as the sector is not ready for competitive bidding or reverse bidding at present.
- Simplification of forest land allotment for wind projects, as some of the best wind sites are located on forest land.
- Funding for the development of infrastructure related to wind projects (like roads, substations, etc.) through the



B. Prasad Rao

CMD, Bharat Heavy Electricals Limited

"The outlook for renewables is definitely positive. With the fall in tariffs, renewables are now ready to compete with conventional sources of energy."



Chintan Shah

President, Strategic Business Development, Suzlon Energy Limited

"The wind energy market is expected to register impressive growth because the cost of energy from wind is moving towards grid parity with the help of technology."

National Clean Energy Fund at subsidised rates.

- Creation of a favourable policy framework for wind-solar hybrid projects.

Ajay Goel

The government is planning to exceed the current 20 GW target of the Jawaharlal Nehru National Solar Mission. It is planning to add 100 GW of solar capacity over the next five years. However, considering the upcoming capacity and several initiatives announced by various governments and PSU, a solar capacity addition target of 30 GW-40 GW over the next five years sounds realistic. The Indian wind energy segment had experienced a similar level of growth two to three years back. However, if the government gives a greater push to the development of solar projects, the 100 GW capacity addition target also does not seem unachievable.

B. Prasad Rao

While setting renewable energy capacity addition targets, the government should consider the development and enhancement of the domestic manufacturing industry so that sufficient equipment can be provided to developers. To start with, the government should aim at an annual capacity addition of about 2 GW-3 GW and ramp it up to 8 GW-10 GW per annum over the next five years.

What are the major upcoming market opportunities for renewable energy equipment manufacturers? Have the prospects for manufacturers improved in the past one year?

Sujoy Ghosh

The initiatives being taken by the government do have the potential to create a robust and sustained demand over the next few years as compared to the past. Therefore, the prospects have certainly improved but the cost and availability of capital would be a key aspect that has to be evaluated. The government is envisaging the demand, and planning needs to be done for allocating a pool of capital (debt) at a cost point that makes the power truly sustainable. The risk profile of

solar assets at current tariff bids needs to be assessed against the risk profiles for thermal power generation given the fuel issues, and an objective allocation of risk-reward trade-off needs to be done by financial institutions.

D.V. Giri

Wind technology in India is mature enough to produce turbines and equipment as per international standards. We have an annual wind turbine manufacturing capacity of about 950 MW spread across 19 manufacturers producing around 15 models of wind turbines (capacity ranging between 250 kW and 2.1 MW). This capacity can easily be ramped up with the availability of an effective supply chain to achieve the wind capacity addition targets.

Apart from adding new projects, India is also ready for repowering. Repowering can be done in three ways – by replacing old turbines with new ones (repower), by putting large-scale and more efficient machines in between the existing machines (intercropping) and by increasing the hub height or rotor size of the existing machines (retrofitting). Out of the 22 GW of wind capacity installed in the country, more than 8 GW is located in Tamil Nadu. Of this, more than 4 GW is over 15 years old and has been installed at the best wind sites, with first-generation machines deployed, which are not very efficient. Therefore, there is a requirement for repowering these projects and a policy should be formulated by the government to resolve issues related to power purchase agreements and tariffs. The Indian Wind Turbine Manufacturers Association (IWTMA) is working on a policy framework regarding wind repowering and is likely to submit its proposal soon to the government.

The National Institute of Wind Energy is also exploring opportunities for the setting up of offshore wind projects in the country. Currently, a study is being carried out in Gujarat and Tamil Nadu to assess their offshore wind potential. The offshore wind potential in India is still unknown. How-

ever, the ministry has started working on a policy framework regarding the same and some clarification on this front is expected in the next three to four years.

Ajay Goel

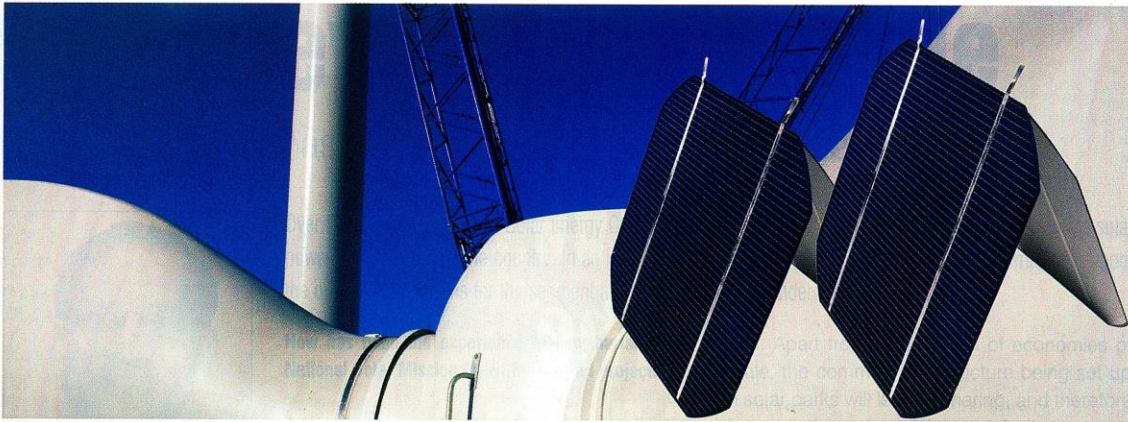
As a manufacturer, we are looking at the Indian market in a very serious way. We are targeting all three segments in the country – project development, manufacturing solar equipment and developing off-grid solutions. The country needs to ramp up its domestic solar equipment manufacturing capacity, add more renewable energy into the grid and provide power to remote areas for lighting and irrigation purposes.

B. Prasad Rao

The solar ultra mega power projects, various state schemes and several rooftop system installation initiatives, including the announcement of net metering arrangements, provide ample market opportunities in the solar segment. With the introduction of the DCR, the prospects for the domestic solar cell and module manufacturing industry have definitely brightened. These schemes will also help in demand generation for other items such as power conditioning units, structures and transformers.

Chintan Shah

The wind energy market is expected to register impressive growth. This is because the cost of energy from wind continues to move towards grid parity in most markets with the help of technology. Onshore wind has already become competitive with the conventional power on a levelised cost basis. Lower cost of energy, energy security and climate change considerations will drive the long-term growth of wind energy and renewables. Wind energy technology has matured and global majors continue to leverage their technological edge to create more robust and reliable products. This has allowed opportunities in areas that were untapped before, for example low-wind sites. We recently launched the first and tallest hybrid wind turbine generator, the S97 120 m, which has been especially



designed for low-wind sites. Globally too, we are making a foray into the markets of Southeast Asia, the Middle East and South America. These markets offer the right geographical and product mix and will add to our growth. Therefore, the opportunities are immense. Also, with offshore energy gaining momentum, there are a lot of opportunities in this sector. Suzlon, with its 100 per cent German subsidiary Senvion, is well-positioned to capitalise on this segment.

What is your outlook for renewables and what role is the sector likely to play in the overall power sector?

Sujoy Ghosh

As per the government's estimate, India would be importing almost 50 per cent of its primary energy needs (in million tonnes of oil equivalent) by 2022, including 30 per cent of coal. The energy penetration targets for renewables in the overall energy mix (9 per cent by 2017) appear to be modest and can be easily increased given the rapid pace at which technology efficiency is improving in both solar and wind.

D.V. Giri

The country has a vast onshore wind potential. As per the estimates of the Centre for Wind Energy Technology, about 100 GW of potential is available at 80 metre hub height. If the estimates of the Lawrence Berkeley National Laboratory are considered, this figure could well be

around 400 GW. This provides vast opportunities for the wind energy segment to play a major role in ensuring energy security for the country. At present, the wind power segment is totally driven by the private sector. The country has the technology, the developers and the financiers; the only impediment in the development of wind projects is the lack of policy clarity.

Ajay Goel

So far, the country has managed to add about 1 GW of solar capacity every year; in fact, this year, capacity addition is likely to reduce to 800 MW-900 MW. However, we are hoping that from the next financial year onwards the sector will hit an annual capacity addition rate of 4 GW-5 GW based on various announcements from the government. This is likely to create a market of 1.5 GW-2 GW for domestic manufacturers. The Indian solar equipment manufacturing segment, which is currently operating at partial capacity, will see greater capacity utilisation in the near future in order to meet the growing demand. This will help the country achieve a high level of energy security.

B. Prasad Rao

The outlook for renewables in the overall power sector is definitely positive. With the fall in tariffs, renewables are now ready to compete with conventional sources of energy. However, with the rising renewable energy capacity addition, one needs to look at its reliable integration into the grid,

considering its intermittent nature.

Chintan Shah

The outlook is very positive. There are many opportunities for renewable energy technologies as they contribute to global sustainability through greenhouse gas mitigation and conform with national priorities by leading to the development of local capacities and infrastructure. This increases the importance of electricity generation from renewables.

Renewable energy technologies are a crucial part of the options that are needed for achieving a secure and sustainable energy mix, together with energy efficiency and other low-carbon options. A diversified portfolio of renewable energy can provide countries with a number of benefits that are not fully internalised in the current energy market prices. These include:

- Positive environmental impact, including a reduction in greenhouse gas emissions and local pollutants.
- Energy security.
- Strategic economic development, including rural development, agricultural sector development and high-tech manufacturing.
- Energy access through distributed or off-grid solutions.

Therefore, renewable energy is expected to play a vital role in the overall development of the power sector. ■