The Big Push

Are we ready to achieve the ambitious targets?

Dr V.P. Singh, Professor (Oil & Gas), Great Lakes Institute of Management, Gurgaon

Power being a crucial resource for the growth of an economy, India has built a power generating capacity of 273 GW. This has enabled it to emerge as the third-largest electricity generating country in the world, with a generation of 1,208.94 TWh in 2014. However, access to power is still in a deplorable state. Around 300 million people in India, almost as much as the entire population of the US, do not have access to electricity. The per capita energy consumption reached 1,010 kWh recently. In comparison, the US has a per capita electricity consumption of more than 13,000 kWh. And China, the most populous country, has a per capita electricity consumption of 4,000 kWh. To bridge this gap in electricity consumption, a big push is needed, not just to increase generating capacity and actual generation of electricity in India, but also to enhance access to it.

One such big push has come in the form of the government's declaration to set up 175 GW of renewable energy capacity by 2022. Of this, 100 GW would be solar. However, some apprehensions regarding the country's ability to achieve this target have been raised. For instance, to just meet the solar target, a total investment of Rs 6 trillion ($94 billion) will be required. In addition, for the capacity to grow from the current 4 GW to 100 GW, we will need to add more than 13 GW every year. This has been unheard of in the global context.

Moreover, installing a wind energy capacity of 75 GW would require an investment of around Rs 3.75 trillion, and in order to fully integrate this huge amount of renewable energy into the grid, an additional investment of about Rs 2.6 trillion would be required. This amounts to an overall investment requirement of Rs 12.35 trillion. Highly innovative strategies need to be devised in each of the areas of finance, human resource, operations and technology development. Let us evaluate how relevant these apprehensions are and how can.they be overcome.

Considering a debt-equity ratio of 70:30, banks will have to finance an amount of Rs 8.65 trillion. The finance ministry convened a meeting with banks on November 23, 2015 to discuss the ways through which this funding can be achieved. The first problem that needs to be resolved is the banks' reluctance to finance renewable energy projects. Moreover, do the banks have adequate liquidity? Looking at the results of the auction of Treasury Bills – 91 days, 182 days and 364 days – during the past few months, we find that funds of the magnitude of almost half a trillion rupees are

being sucked out regularly from the economy every month for the past several months. The auctions received competitive bids that were three to four times more than the value of Treasury Bills declared during the auction. The yield to maturity is around 7.2 per cent. This indicates that the economy does have the requisite liquidity and financing Rs 8.65 trillion over a seven-year period should not be much of a problem. Solar capacity of 40 GW is to come through rooftop solar projects. The tariff of rooftop solar energy is coming out to be Rs 7 per kWh, which seems quite attractive. In addition, the government is providing a subsidy of 15 per cent for these plants to the beneficiary, which makes it even more attractive and viable. The Department of Financial Services, Ministry of Finance, has issued the following advisory to all public sector banks:

"All banks are advised to encourage home loan/home improvement loan seekers to install rooftop solar photovoltaic (PV) and include the cost of such equipment in their home loan proposals just like non-solar lighting, wiring and other such fittings."

So far, eight public sector banks have issued the necessary instructions to their branches. For financing the remaining renewable power generating capacity, considering an adequate liquidity exists in the space, the next plausible question could be about the interest rate at which this money is available. The industry has been clamouring for lower interest rates in the past. During 2013-14, the repo rates were hovering around 8 per cent. However, with an eased inflation situation, the Reserve Bank of India (RBI) has now reduced the rates to 6.75 per cent. In the future, if we are able to control food price inflation, interest rates may fall further. Therefore, the cost of capital should not be a hindrance on the supply side of money.

The cost of capital, however, may increase due to the risk associated with a project. The business models of renewable power projects are quite complex. There are different business models depending on which revenue streams are being considered, or they can even be clubbed. The revenue streams come in the form of feed-in tariffs (FiTs), generation-based incentives, renewable energy certificates (RECs) and accelerated depreciation (AD) schemes. FiTs vary from state to state. Since RECs are traded, they may bear a significant market risk.

At present, the supply of RECs far outweighs the demand. Such uncertainties in revenue create an element of risk for the project developer and thus the financier.

At present, the supply of RECs far outweighs the demand. Such uncertainties in revenue create an element of risk for the project developer and thus the financier. Moreover, these developments are relatively new and may not be comprehensively understood by many bankers. The old belief about the high intermittency experienced by renewable power generating stations, higher initial capital costs than the traditional sources of power, and the resultant higher tariff requirements, further discourage banks from financing renewable energy projects. Banks have often demanded securitisation of the revenue stream. In fact, the government is trying to address it through NTPC's floating trading arm, by bundling renewable energy with conventional power, and giving backup assurance.

Comprehensive training programmes for bankers and lenders' engineers can be a huge help in enabling the financing of renewable power projects. Once the intricacies of the revenue models for such projects are understood, the reluctance to lend and hence the cost of capital can be brought down significantly.

In fact, the requirement of a large skilled workforce will be felt in order to set up such plants. The Confederation of Indian Industry (CII), in its report "Human Resource Development Strategies for Indian Renewable Energy Sector", presented to the Ministry of New and Renewable Energy, had estimated the creation of around 1 million job opportunities through the capacities planned for renewable energy. Of this, 800,000 jobs were expected to come from wind and solar, and that too when the Jawaharlal Nehru National Solar Mission target for solar was just 20 GW.

Now that the target has been increased fivefold, one can imagine the kind of acceleration in demand for skilled labour that will take place. Some of the generic skill gaps identified in the report are planning and coordination skills in project management; erection, commissioning and grid integration of large-scale renewable projects; installation and commissioning skills; and techno-commercial marketing skills. These skill gaps can be addressed through workshops and training programmes.

As per the report, some sector-specific skill gaps that need to be addressed are design and installation of building-integrated PV systems, grid integration of megawatt-scale solar PV, troubleshooting of solar PV lantern and home lighting circuitry, design skills to match the wind speeds and capacity of turbines, installation of large-scale turbines, operations and maintenance, and failure analysis of turbine gearboxes.

Considering the number of requirements, it is high time that the industry collaborates with the chambers of commerce, professional consultants and academia and charts out a programme to conduct large-scale training programmes for providing the requisite talent in order to meet the growing needs of the renewable energy sector. ■