

IDENTIFYING THE SKILL GAP CHALLENGE FACING THE WIND INDUSTRY

Wind power accounts for nearly 65% of the total renewable energy capacity in India. With over 25 GW of capacity already operational at the end of 2015,ⁱ India is the world's fourth largest wind power producer.ⁱⁱ The wind energy market in India is much more mature than the solar PV market, with the first wind power programme being adopted as early as 1984. It is also important to note that the wind energy market in India is fairly concentrated, with much of the capacity being deployed by large developers such as Vestas India, Suzlon Energy, Gamesa Wind Turbines, Inox Wind, etc.

As India prepares to scale up its wind energy capacity to 60GW by 2022, the government has approved a National Offshore Wind Energy Policy, to set up offshore wind projects and carry out research and development activities in waters in or adjacent to the country up to a seaward distance of 200 nautical miles.ⁱⁱⁱ All offshore wind capacity deployed will contribute to the country's 60GW wind target. While no projects have been commissioned under this policy so far, the first tendering of projects is likely to happen within the first quarter of 2016.

Despite the rapid advancements and the relative maturity of the wind energy sector in India, data availability and collection continue to pose a serious challenge to the analysis of the sector. Using the same survey instrument to assess the key skills required in solar PV and wind projects, data collection from respondents in the wind sector was much more difficult due to lack of responsiveness. The findings of our analysis below are based on responses from six wind developers, accounting for 63% of the total wind capacity currently deployed. Respondents ranged from wind power producers, equipment manufacturers (wind turbine, tower, nacelle and hubs), engineering, procurement and construction (EPC) companies and turnkey solution providers, with several respondents often carrying out multiple functions.

Wind companies identified the key skills required for each phase of deployment, including manufacturing. These have been summarized in the following table.

i. <http://mnre.gov.in/mission-and-vision-2/achievements/>

ii. <http://www.wwindea.org/hyr2015/>

iii. <http://pib.nic.in/newsite/PrintRelease.aspx?relid=126754>



PRIORITY SKILLS FOR WIND SECTOR

Business Development

- Tracking market, policies and opportunities
- Site selection and leasing
- Government approvals, permits and drafting bids

Design and Pre Construction

- Project design and engineering
- Project management
- Geographical wind resource assessment

Construction and Commissioning

- Quality control
- Project management
- Installation of nacelle, blade and tower

Operations and Maintenance

- Performance data monitoring
- Technical management for grid integration
- Equipment maintenance

Manufacturing

- Research and product development
- Manufacturing engineering
- Quality control

Respondents suggested that most of the skills required for each phase could be gained through technical diplomas or vocational training and did not require any advanced technical trainings, with the exception of the construction and commissioning phase where some highly skilled workforce is required. It was interesting to note that most respondents considered the skill level required in the manufacturing phase to be minimal. Given that the education level required for most phases was relatively low, respondents also did not face difficulty in hiring for any phase, least of all for manufacturing and business development, where hiring was reportedly fairly easy. However, respondents believe that trainings could support the sector as a whole and increase the availability of total available workforce.

While the educational level of the workforce required is not high, the workforce for all phases of deployment and manufacturing, except business development, requires training. While the respondents did not place much value on certification, the need for training was unanimously agreed upon. This could be a result of the current shortage of relevant training programs. Several training channels are available, from in-house trainings to highly technical trainings at IITs and NITs. Respondents suggest that in-house trainings and previous experience are the most preferred training channels for the business development phase. For the workforce employed in the design and pre commissioning

phase, as well as the construction and commissioning phase, trainings at IITs and NITs, as well as technical trainings carried out at the National Institute for Wind Energy are the most preferred training channels. The operations and maintenance phase prefers the workforce to be trained at IITs or NITs or through MNRE training programmes. It is only for the manufacturing phase that vocational and in-house trainings are the main mode of training the workforce. These findings were reinforced by the respondents indicating that with the exception of manufacturing, for all other phases of deployment they preferred to hire mid or senior level professionals.

Nearly all the companies carry out in house trainings for their workforce and also regarded on the job training of learning by doing, as an important means of skilling their workforce. While respondents do not necessarily have trouble hiring, the sector as a whole is challenged by an unavailability of skilled people. Additionally, the wind sector is also constrained by the lack of transferability of skills. The skills required in the wind industry are highly specialised and thus movement between industries is limited, making the total available skilled workforce to the wind sector limited. Wind sector employers believed that the shortage of skilled workforce could be attributed to existing trainings not meeting industry needs, the poor quality of training programmes, and the lack of enough suitable training institutes.

A majority of the workforce employed in the wind industry has received trainings from vocational training institutes, educational universities such as IITs and NITs or industry training programmes. The trainings administered by the National Institute of Wind Energy were reported to be less popular, with its training quality rated lower than that of educational universities and vocational training institutes. The training quality of vocational institutes was ranked the best.

The analysis of the wind sector skills requirement and availability clearly indicates that the given the maturity of the sector, companies have developed in-house training programmes which provide a bulk of the skilling for each phase of deployment, due to the absence of enough cost effective and relevant training programmes. The manufacturing sector however benefits significantly from the vocational trainings that provide the necessary skills required for that phase. As the sector prepares to scale up both manufacturing and the installed wind capacity, trainings will play an important role in streamlining operations and accelerate the pace of future development.