

Suzlon eyes low-wind turbines

Bags 150 MW orders from two States so far; developing new turbine

Y V PHANI RAJ
HYDERABAD

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— DUNCAN KOERBEL

CHIEF TECHNOLOGY OFFICER,
SUZLON ENERGY



GREEN POWER: It is developing advanced wind farm management technology to further optimise the performance of the wind farms.

Renewable energy solutions company Suzlon Energy, specialised in aerodynamic technology, has set its eyes on lowering the levelised cost of energy (LCoE) by 20 per cent in the next five years with new turbines. It plans to roll out more efficient turbines that will make previously unviable sites viable and increase plant load factor besides stabilising the grid in India.

The company is developing advanced wind farm management technology to further optimise the performance of the wind farms. It is aiming to develop the ability to tailor not only the individual turbine's performance with smart pitch control, but also to optimise the downstream wake-effect of all turbines in the park from any wind angle.

Through digitisation of OMS services with improved IT, it believes it can better harness the power of its data so that systems such as SCADA can be further leveraged. This will improve transparency to its customers and increase generation through remotely applied algorithms. It envisions gigawatt size projects through digitisation. In line with the innovations happening at the company, it has recently developed S111 120m wind turbine, which is seen as a trend setter.

Duncan Koerbel, chief technology officer (CTO), Suzlon Energy told *Telangan Today*, "The S111 120m wind turbine is a unique all steel tower which combines of lattice and tubular structure with an innovative transition piece to join the two sections. This hybrid structure allows the turbine to reach at a height of 120 me-

ters more efficiently from a cost and weight perspective than an all tubular or all lattice configuration."

The turbine is the latest addition to the 2.1 MW platform and features the time tested Doubly Fed Induction Generator (DFIG) technology. With a swept area of 9,852 m², S111 120m is designed to optimally harness wind resources at higher altitudes making low wind sites viable.

Innovation

On the innovation that has gone into making this turbine, he explains, "When we go to higher hub heights, the wind velocity and the stability of the wind increases and due to this we can harness more energy."

Bigger towers always face logistics issue and it becomes difficult to mobilise

from manufacturing site to the wind farms. "Our engineers worked out for a solution to address the Indian market requirement on how to go for higher heights and how to reduce the cost and minimise logistics cost. A majority part of the tower consists of lattice tower which gets assembled at the sites. This makes easier for the logistics and installation as compared to the tubular tower. Tubular tower at 120 meter is not only more expensive but also logistics difficult due to higher weights," he added.

The LCOE of the turbine goes down by at least 5 per cent, which in turn brings competitive edge in the market and increases more energy. The S111 blade is Suzlon's third generation air foil developed by its R&D centres. Located at centres

in Germany, Netherlands, India and Denmark, the company is working to continue to improve the performance of all aspects of the turbines and drive down costs of aerodynamic products particularly rotors which generate more energy.

Production and R&D

Suzlon opened three new rotor blade manufacturing facilities in Gujarat, Madhya Pradesh and Andhra Pradesh. These are specially designed to cater to our S111 series and next gen products. The blades will utilise carbon fibre in key areas. This reduces the weight of the blade and allows it to design even more aggressive airfoils that generate more lift and less drag in the outboard portions. Combined with smarter pitch control

systems these technologies enable larger, more efficient rotors thereby capturing more wind. The company has over 400 engineers in its technology team around the world and spends close to 5 per cent of its annual revenue on R&D in which a large portion goes toward new product development.

The turbine is specially designed for the low wind sites in India. Its R&D efforts have resulted in new products such as the S97 120 and S111 120 meter hybrid towers. The towers require one third less concrete for their foundations and are easier to transport to the site. The S97-120 m has given 35 per cent PLF and the S111-120 m crossed around 42 per cent PLF. The S111 is available in a 60 Hz configuration as well for use in international markets.