

# 2.1 MW PLATFORM

POWER TO DO MORE WITH LESS

**S97 | S111**



**SUZLON**  
POWERING A GREENER TOMORROW

# THE SUZLON GROUP



 R&D Centers

 Manufacturing

 Wind Farms

Established in 1995 with the philosophy of sustainable environmental, economic, and social development at its heart, the Suzlon Group is a multinational organization delivering technologically advanced and profitable wind energy solutions for all types of wind regimes, environmental conditions and terrains, both on-shore and off-shore.

Suzlon's world-class capabilities and expertise span the wind energy value chain, from R&D to manufacturing, and

from project development to Life-cycle asset management and optimization. This technological prowess, combined with a customer centric approach focused on generating a higher return on investment, has enabled Suzlon to be ranked amongst the world's top wind turbine manufacturers.

With a global installed portfolio of ~17 GW across 18 countries in six continents, the Suzlon Group has gained the trust of the world's Leading investors in wind energy.



Suzlon has been built on the Legacy of **360°**, envisioned and incorporated by its Chairman, Tulsi R. Tanti, and upheld by every individual who comprises the organisation. Committed to this tradition, Suzlon maintains a comprehensive approach in all aspects of its operations. From establishing multi-faceted and personal relationships with diverse partners to ensuring dedication to investors, and from ensuring environmental and social sustainability to providing end-to-end, customised solutions for customers, Suzlon meets the expectations of each stakeholder without distinction. That is why the business strategies of the organisation are designed to face changing tides and persevere in its chosen direction to reach new frontiers in renewable energy.

# OPTIMIZING RESOURCES; MAXIMIZING ROI

Energy is the lifeblood of India's social and economic growth. Conventional fossil fuel based energy is neither sustainable nor eco-friendly. Clean, green, renewable and faster to set up, wind power is a cost competitive solution for India's energy security. With a proven track record of 28 GW of wind-power

installations, India ranks 5th largest in the world. Its total potential is much higher, estimated to be over 300 GW. However, the challenge in harnessing this huge opportunity is marked by typically moderate to low wind speed regimes prevailing across a quantum of potential sites available for future development.

## Evolution of 2.1 MW Platform



## WE INNOVATE, WE CREATE, WE NURTURE

Suzlon, with its profound knowledge of the Indian market and wind regimes, realized this distinctive local need. Building on its proven capabilities, resources and experience in developing and maintaining over 11,000 MW of wind turbines in India for more than 1800 customers.

Suzlon designed the path-breaking S9X : 2.1 MW

platform of wind turbines to generate higher energy at moderate to low wind speeds, meeting techno-economic viability and delivering higher returns for investors.

The Result: a solution designed to maximize energy output and ROI, thus enabling development of profitable wind power projects.

\* Conditions Apply. Data w.r.t. S88 Wind Turbine. Energy refers to estimated AEP

# The 2.1 MW Platform

## DOING MORE WITH LESS

Powered by the proven and reliable 2.1 MW asynchronous induction generator with Doubly Fed Induction Generator (DFIG), the platform features S97 and S111 wind turbines with significantly bigger rotor diameter and higher hub height to extract more energy at sites with low wind classification (IEC Class III).

The design optimization and refinement in terms of the generator, rotor blades, tower and other components deliver reliable performance and higher AEP at lower cost of energy. Supported by Suzlon's SURE suite of Total life cycle care services, the investment in 2.1 MW platform turbines yields maximum returns. Our way of Doing More With Less.

## THE S97 & S111 THE FLAGSHIP WTGS ON 2.1 MW PLATFORM

### STRONG

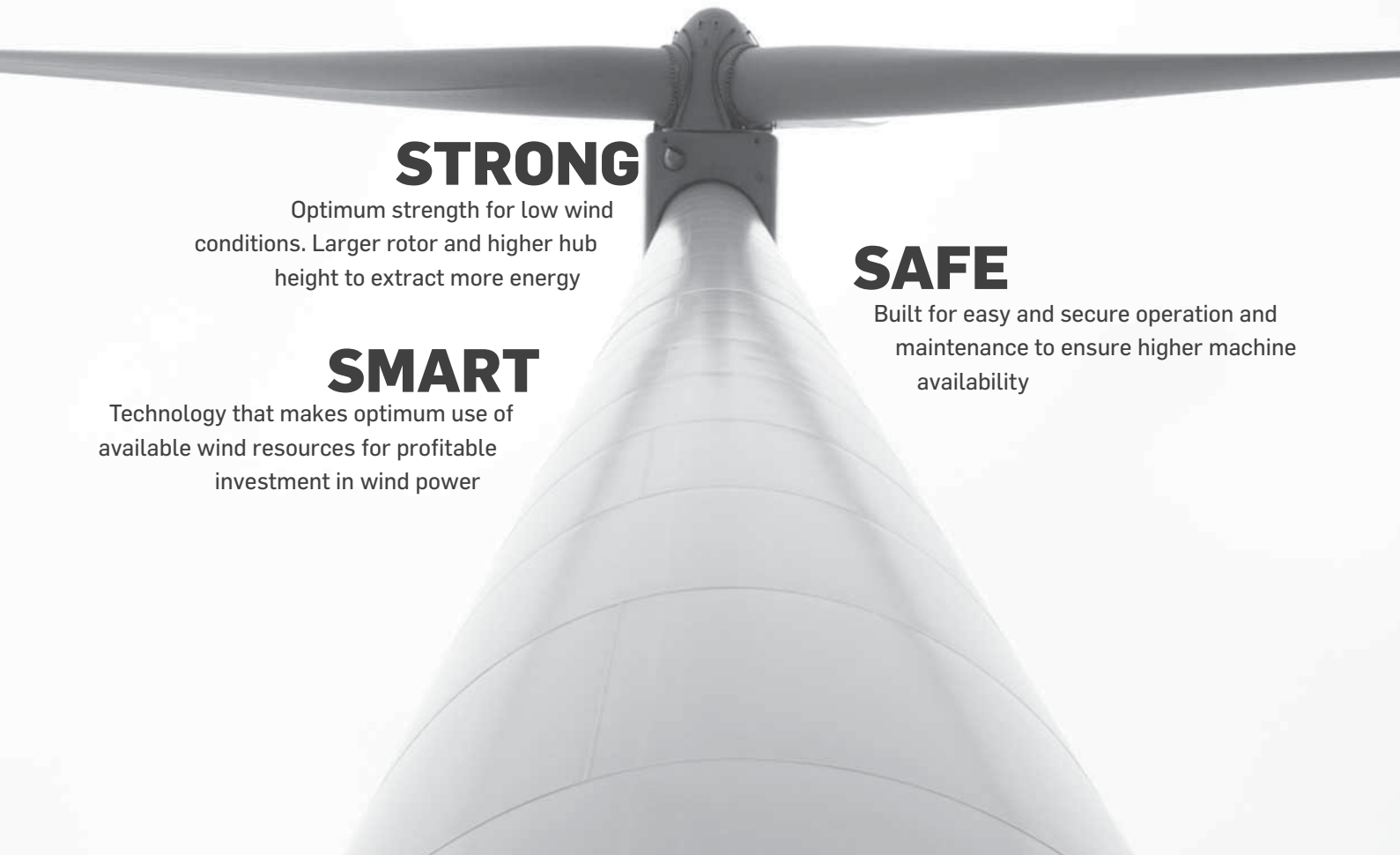
Optimum strength for low wind conditions. Larger rotor and higher hub height to extract more energy

### SMART

Technology that makes optimum use of available wind resources for profitable investment in wind power

### SAFE

Built for easy and secure operation and maintenance to ensure higher machine availability





# 120 METER HYBRID TOWER

## The Game Changer

This technology innovation is the first and the tallest of its kind in the world. It is designed to make wind power projects viable in low wind sites, especially in emerging markets like India.

Accessing higher wind speed at higher altitude increases the turbine's energy output, resulting in increased RoI for the project.

- 120 meter hybrid tower with lattice structure at the base & tubular upper
- Increased hub height yields more energy & hybrid design reduces overall weight
- A large 24 sq.m. base enhances stability & strength of the structure
- Backed by Suzlon's experience of over 15 years in the construction & maintenance of over 2000 lattice tower structures in India

### THE SMARTLY DESIGNED TRANSITION UNIT



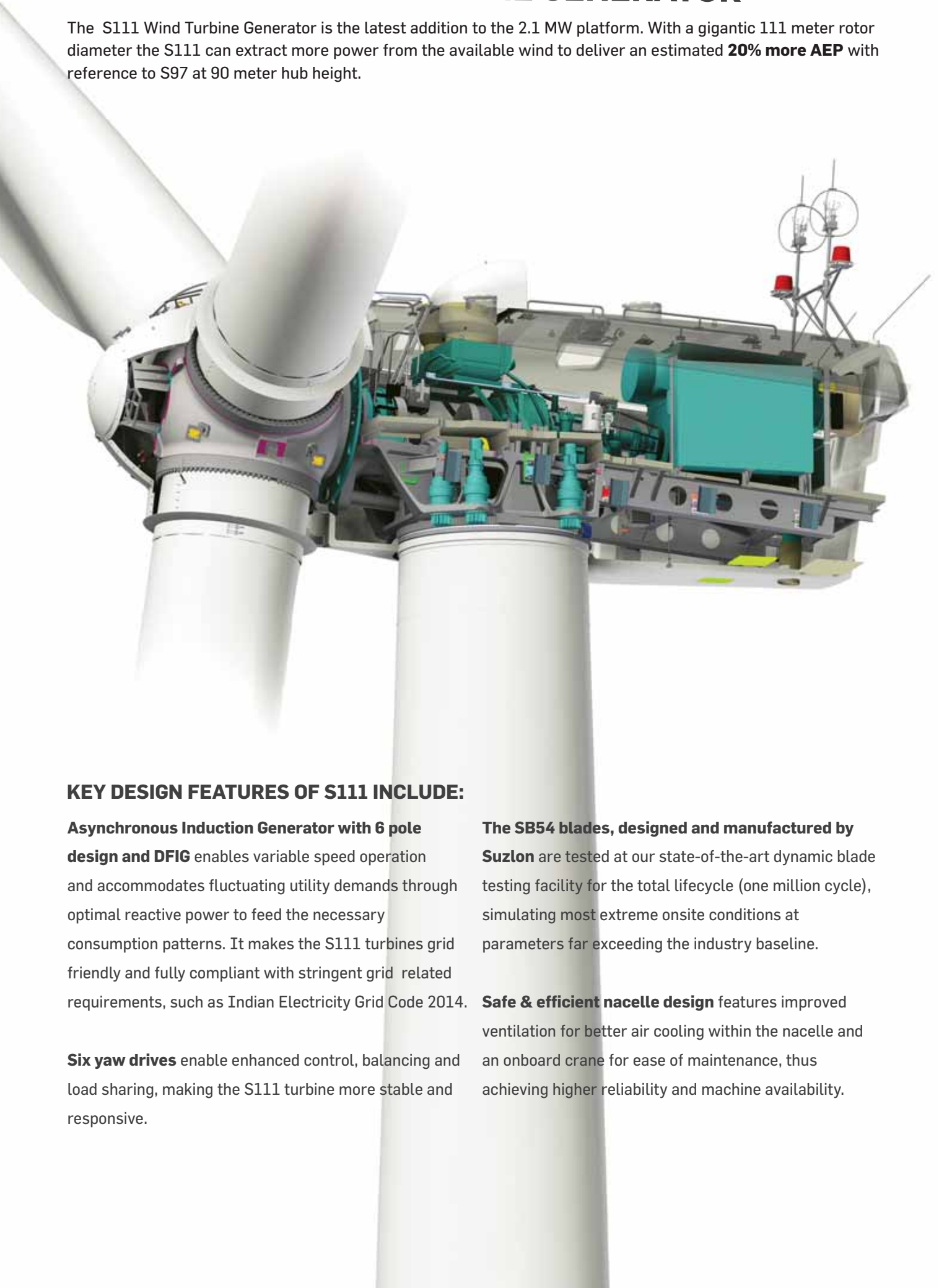
It is the key design innovation in the hybrid structure that firmly holds together the lattice and tubular sections and ensures the structure's stability.

Smartly designed to house the control panels and tidy cable trays with enough space for operator's movement



# S111 - 2.1 MW WIND TURBINE GENERATOR

The S111 Wind Turbine Generator is the latest addition to the 2.1 MW platform. With a gigantic 111 meter rotor diameter the S111 can extract more power from the available wind to deliver an estimated **20% more AEP** with reference to S97 at 90 meter hub height.



## KEY DESIGN FEATURES OF S111 INCLUDE:

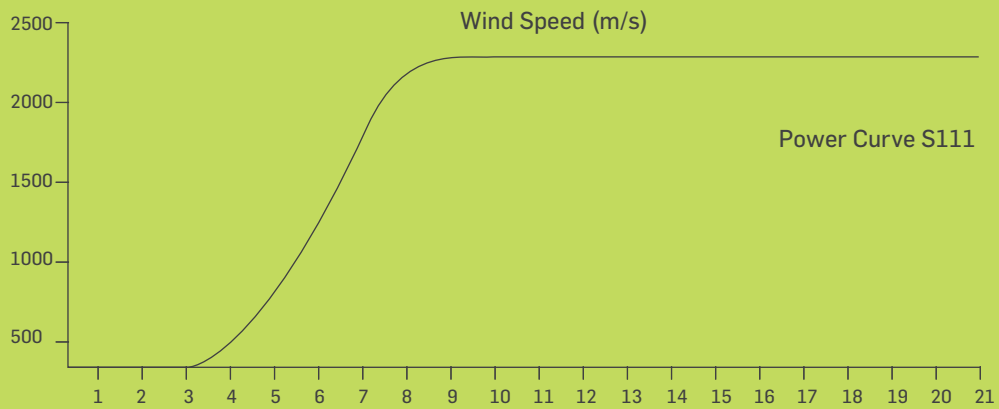
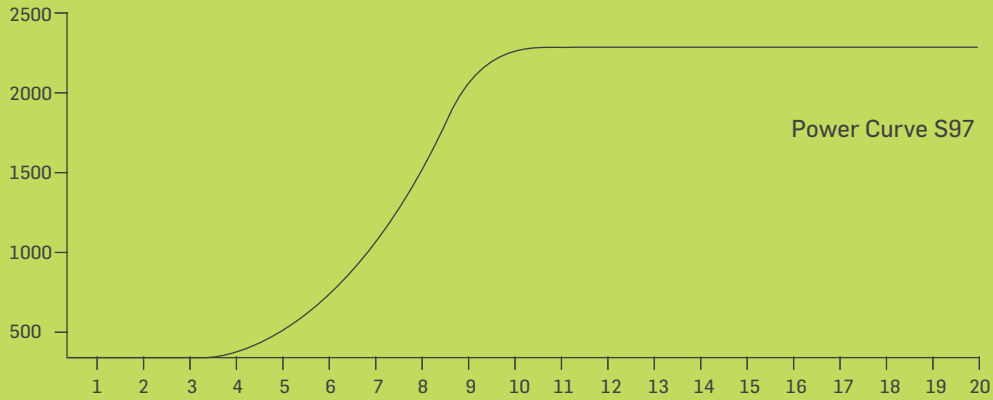
**Asynchronous Induction Generator with 6 pole design and DFIG** enables variable speed operation and accommodates fluctuating utility demands through optimal reactive power to feed the necessary consumption patterns. It makes the S111 turbines grid friendly and fully compliant with stringent grid related requirements, such as Indian Electricity Grid Code 2014.

**Six yaw drives** enable enhanced control, balancing and load sharing, making the S111 turbine more stable and responsive.

**The SB54 blades, designed and manufactured by Suzlon** are tested at our state-of-the-art dynamic blade testing facility for the total lifecycle (one million cycle), simulating most extreme onsite conditions at parameters far exceeding the industry baseline.

**Safe & efficient nacelle design** features improved ventilation for better air cooling within the nacelle and an onboard crane for ease of maintenance, thus achieving higher reliability and machine availability.





### Technical specifications

Parameter		S97	S111
Operating Data	Wind Class	IEC IIIA	IEC IIIA
	Rated Power	2,100 kW	2,100 kW
	Cut-in Wind Speed	3.5 m/s	3 m/s
	Rated Wind Speed	11 m/s	10 m/s
	Cut-out Wind Speed	20 m/s	21 m/s
Rotor	Rotor Diameter	97 m	111.8 m
	Swept Area	7,386 m <sup>2</sup>	9,817 m <sup>2</sup>
Generator	Frequency	50 / 60 Hz	50 / 60 Hz
	Type	Asynchronous 3 phase induction generator with slip rings operated with rotor circuit inverter system ( DFIG)	
Tower	Hub Heights	90 m / 120 m*	
	Type	Tubular Steel Tower / Hybrid Lattice - Tubular Tower*	
Blade	Suzlon Make	SB47	SB54

\* Hybrid tower is only available for 120 meter hub height.

# GET THE SURE POWER

**SURE**solutions

TOTAL LIFECYCLE CARE, SINCE 1995

SUZlon RELiability, (SURE) is our assurance of dependability at every stage of your investment in wind energy. These service solutions are designed to ensure optimum performance, higher yields and maximum RoI from your wind energy project.

# assetSURE

Asset Management,  
Operations, Maintenance  
& Optimization

# windSURE

Wind Resource  
Measurement & Analysis

# projectSURE

Project Management, EPC, Power  
Evacuation & BoP Management



Over the years, Suzlon has been serving the varying needs of diverse categories of customers: corporate, public sector companies and small to medium businesses looking towards wind energy investment for captive power or diversification as well as Independent Power Producers (IPP) and power utility companies looking to build large capacity portfolios. Our proven expertise, experience and capabilities across the value chain enable us to offer business models that cater to the individual customers needs.

**ESSENTIAL** – Suzlon as an OEM supplies wind turbines and associated warranty services.

**FLEXIBLE** – Apart from being an OEM, Suzlon provides customised services in the value chain, such as BoP contract management, long term asset management & optimization etc.

**TOTAL** – Suzlon offers a one-stop, end-to-end solution across the value chain, beginning with arrangement of suitable land and extending to asset management services across the life-cycle; as well as a host of other value added services.

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