Indian Wind Power

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windergy INDIA 2017
WIND POWER FOREVER

IWTMA INDIAN WIND TURBINE MANUFACTURERS ASSOCIATION & GWEC GLOBAL WIND ENERGY COUNCIL

announce

WINDERGY INDIA 2017

Conference: 26th and 27th April 2017,
Exhibition: 25th, 26th and 27th April 2017
at The Ashok, New Delhi

Rural Economy and Corporate Social Responsibility Special

IWTMA INDIAN WIND TURBINE MANUFACTURERS ASSOCIATION

Expertise offered to Wind & Solar Energy Stakeholders

Research & Development

- Supports multi institutional research on wind energy
- Performance testing of Small Wind Turbines / Aerogenerators
- Empanelment of Small Wind Turbine manufacturers
- Acoustic Noise measurement
- Study of wind-solar-diesel hybrid system

Wind Resource Assessment

- Site condition assessments for wind monitoring & wind farm development and field visits
- Procurement, installation and commissioning of met mast of 50m to 120 m height
- Providing measurement campaign management, assisting clients in the Installation and monitoring of meteorological masts, LIDAR and SODAR stations
- Data collection, management, quality control and wind energy resource reporting
- Analysis of Data with sophisticated software tools and techniques
- Long-Term Trend Data Analysis (NCEP/NCAR/MERRA)
- Turbine array layout design, optimization, field Micro siting and Produce bankable P50 P75, and P90 yield predictions.
- Investment Grade wind energy resource assessment reports (gross/net Predictions, uncertainty analyses, etc.)
- Analysis of existing wind farm operations
- Technical due diligence in complying with international standards.
- Power curve demonstration guarantee test
- Preparation of Tender document for development of wind farm
- Helping the evaluation of tender as one of the tender evaluation committee members.
- DPRs (Detailed Project Reports) preparation through State of art software tool for wind farm developers

Testing Services

- As per Internationally accepted procedures and stipulations for
- Power Performance measurements
- Power Quality measurements
- Yaw efficiency test
- Load measurements
- Safety and function tests
- User defined measurements
- The services are not limited by type or size of the Wind Turbines
- The services are certified as per the requirements of ISO 9001: 2008 and accredited as per the requirements of ISO/IEC 17025 : 2005

Certification Services

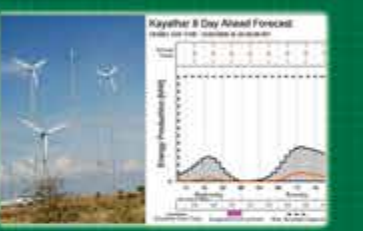
- Accord type approval / type certification to wind turbines in accordance with Indian Type Certification Scheme [TAPS - 2000 (amended)]. Type Certification Services are certified as per ISO 9001 : 2008
- Preparation of Indian standards on wind turbines
- Issue the Revised List of Models and Manufacturers (RLMM) of wind turbines periodically
- Issue the recommendation for grid synchronization to facilitate installation of prototype wind turbines

Training

- Capable of providing
- Wind / Solar Resource Measurement & Analysis
- Wind Resource Modelling Techniques
- Wind Speed Statistics / Solar irradiation and Energy Calculations
- Micro-siting and Layout of wind / solar farms
- Design and Safety requirements as per standards
- Wind Turbine / Solar Technology
- O & M practices

Solar Radiation Resource Assessment

- Direct Normal (DNI), Diffused Horizontal (DHI) & Global Horizontal (GHI) irradiation measurements
- Data quality checking
- Calibration Laboratory for solar
- Solar resource data delivery
- Solar Map preparation
- Preparation and vetting of feasibility, DPR of Solar projects



NATIONAL INSTITUTE OF WIND ENERGY

Formerly "Centre for Wind Energy Technology"

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IWTMA
INDIAN WIND TURBINE MANUFACTURERS ASSOCIATION

Indian Wind Power

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Volume: 2 Issue: 5 December 2016 - January 2017

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Indian Wind Turbine Manufacturers Association

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From the Desk of the Chairman - IWTMA

Dear Readers,

Greetings from IWTMA!

Two major events, which occurred during November 2016 need mentioning to the readers. The smog in Delhi had a major impact on the pollution levels and the pollution levels got worse after Diwali. The burning of the fields after the harvest in Punjab & Haryana seems to have also added to this situation. The fact of the matter is that the pollution is the enemy to the mankind and renewable energy can play a major role to combat the situation.

The Hon'ble Prime Minister took a major decision of demonetising the currency notes of ₹ 500 and ₹ 1000. The overall objective of containing the black money and counterfeit currency is a welcome step. The process of implementation is being strengthened by the Government on daily basis. It has been seen that wind energy projects which are set up in rural areas have cash requirement to be paid to small vendors and labourers for their contribution in execution of the wind power projects and non availability of adequate cash may have some impact on the timely execution of wind power projects already in process. In this regard, IWTMA has requested the Ministry of New and Renewable Energy to consider extension of Generation Based Incentive (GBI) by an additional period of 2 months i.e., post 31 March 2017.

The Association is pleased to welcome Shri Rajeev Kapoor, IAS as the Secretary, Ministry of New and Renewable Energy (MNRE), Government of India. We look forward to his direction and industry interaction.

The Government plans for 1 GW wind installations through Competitive Bidding which is taking shape and the Pre-bid meeting which took place on 29th November 2016 will pave the way for the actual bid. The industry hopes that the lessons all of us learn from the bid will help a new chapter in the price discovery mechanism. We certainly hope that the other incentives and various programmes will continue till the ultimate target of 60 GW by 2022 is reached.

The Finance Ministry has announced four slabs of GST rates and the industry is making a representation for Zero Rating or Concessional Rating as any other slab will push cost of the project as the final product of wind turbine does not carry any duty.

All of us know wind power project come up in the rural areas of India and over the years OEM's and wind developers have been carrying out welfare measures in the areas of health, hygiene, primary education, infrastructure etc. The Corporate Social Responsibility (CSR) has been practised by the industry for many years as wind projects are not just mere power projects but intertwines with rural economy and rural employment.

To quote Norman Macewan "We make a living by what we get but we make a life by what we give".

This issue showcases CSR work done by the wind power sector. There are eight articles on this subject in this issue.

As we are now ready to ring out 2016, I take this opportunity to wish all our readers a Merry Christmas and a Bright and Prosperous 2017.

Happy reading,

With Regards,

Sarvesh Kumar
Chairman

Rural Development and CSR at ReGen Powertech

M. Thirumal
Plant Head, ReGen Powertech Private Limited, Tada, Andhra Pradesh

ReGen Powertech, Tada Plant was inaugurated on 21st March 2008 by the then Chief Minister of Andhra Pradesh Mr. Rajasekar Reddy and the first generator was rolled out on 30th June 2008. ReGen is a team of 1,500 professionals with extensive experience in wind and other relevant industry, have the capacity to produce 600 WECs annually (900 MW).

From the beginning, ReGen is involved in many Corporate Social Responsibility (CSR) activities relating to rural economy and socio-economic development of the people near its plant. It is organising mega medical camps, food distribution for flood affected people, encouraging and assisting the students studying in schools and many other activities. As an environmental friendly company, ReGen has created the green environment in and around the factory premises and has planted around 4000 plants by the involvement of our own employees. In total we stand for the environment and want to provide a sustainable environment for the future generation. The socio-economic conditions of the people have improved in the areas around the factory and also at the places where the wind mills have been installed.

Supporting Education

We have taken up many education supporting activities at the schools near our Tada Plant. The schools covered are Chinna Mambattu ZP High School and Primary Schools located in Chinna Mambattu, Peda Mambattu and NM Kandriga. As a part of CSR activities, we are encouraging the students studying in the school. We are distributing uniforms and stationery kits consisting of school bags, note books, study materials, etc. to high school & primary school students. The Best Student awards (First, Second & Third) have also been instituted by us for 10th class and Best Teacher cash prize award for securing 100% pass in 10th class subject wise. Nutrition supplements as milk and biscuits are distributed to primary schools daily and 10th class students during study hours before final examination. Computer science classes are also conducted for the students. ReGen Employees encourages the students and motivate them to study well and score well in examinations. The happy faces of the school children give us the immense pleasure in serving them for their educational improvements.

Medical Camp

Medical Camp programs leave a significant impact in terms of providing better health care to the marginalized sections of the society. We are

organising the Medical Camps regularly in the area. Recently, we have organized a Mega Medical Camp at Tada on 15th October 2016, under the Corporate Social Responsibility program. Doctors from Saveetha Medical College & Hospitals and Rajan Eye Care Hospitals from Chennai have participated in the camp through Rotary Club of Guindy, Chennai. The patients were diagnosed accordingly in various categories as Orthopaedic, Ophthalmology, Dental, Gynaecology, General Medicine, ENT & Cardiology. 503 villagers from 10 nearby villages got benefited from the camp. Quality foods were given for all the patients. 142 patients were screened under ophthalmology, in that 42 patients were recommended for cataract operations in 3 batches and ReGen took care of transporting the patients to the eye hospital.

Categories of Beneficiaries at the Health Camp

Sl.	Category	Beneficiaries
1	Orthopaedic	50
2	Ophthalmology	142
3	Dental	50
4	Gynaecology	33
5	General	211
6	ENT	5
7	Cardiology	12
	Total	**503**

ReGen Powertech is also in process of constructing a Dispensary inside factory premises for general public. The foundation stone for the same has already been laid. During and after the camp ReGen Powertech is also taking care of providing spectacles, medicines & periodical health monitoring to patients according to their requirements.

ReGen Powertech also has an ambulance for providing better health care in the surrounding areas. It is available at factory and goes to surrounding villages for door step treatment with one doctor and a nurse and medicines are also provided. In case of the emergency, it is also sent to all on request.

Flood Relief Camp

ReGen Powertech has taken many initiatives for the betterment of people around Mambattu Village, Sullurepet and Tada regions. During the recent flood in the month of November 2015 many people in the above region were affected. Even through Government has arranged temporary shelter; they were in need of food and other necessities. While understanding the severity of situation by knowing the press news given by the Hon'ble Chief Minister of Andhra Pradesh, our management immediately alarmed us to extend the maximum support for flood affected people. Accordingly, we liaised with the RDO, MRO and VRO's of Tada Mandal and as per their choice we supplied food for 3 days (Break-fast, Lunch & Dinner) i.e. on 17, 18, and 21 November 2015.

As soon as the information was received, vegetables and rice were brought; and cooked in Tada Plant Canteen, packed in hygienic packets and taken in different vehicles for distribution. Food packets were distributed in different location such as Government Schools and common places. In total 3,100 food packets were distributed for 8 times in 3 days, covering 8 locations.

A medical camp was also arranged and 1300 people were provided basic medical facilities during the 2 days of flood trauma. The needs of the affected people were looked into and fulfilled with attention.

RRB ENERGY 25 Years SILVER JUBILEE

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keeping life alive through innovation

25 years of scintillating crusade in the wind-harvesting sector has given RRB Energy a status par excellence and made it a force to reckon with in the wind harvesting sector. They are also set to bring about the much-needed change in how we perceive & consume energy for a greener tomorrow. Their pioneering in-house R&D leads the market from the front & bolsters their credibility in the global market. A true awakening beckons, and they are paving way for it.

For future of wind harvesting, contact

Telephone: 91-11-40552222,
Website: www.rrbenergy.com
E-mail: pawanshakthi@rrbenergy.com

Tree Plantation

The environment preservation is of the foremost importance at ReGen Powertech. On 17th July 2015, ReGen employees planted 1500 saplings which were received from the Ministry of Forest, Government of Andhra Pradesh. These saplings have added more green cover to our Tada Plant environment and improved the quality of air which we breathe. These saplings are regularly watered and nourished by the Tada employees without affecting the work activities. Every year tree plantation program is organised by us during World Environment Day. The green face of Tada Plant have encouraged our employees physically and mentally improved their bright thoughts.

On 25th November 2015, the employees have also taken pledge to take care of the sapling which they have planted. This pledge was given by the Government of Andhra Pradesh. After taking pledge, the employees also planted 60 plants in the plant premises.

ReGen Management always stands for the neighbourhood people in villages and committed to the society to serve on their best possible ways for the people. The ReGen's commitment to the society to improve health, education, quality drinking water and basic amenities for the villagers near the factory is the continuous process.

Theme of the Next Issue

The theme of the next issue of Indian Wind Power is "Forgings and Heavy Castings Special".

We invite relevant articles to the theme. We solicit your cooperation.

Editor

Key Highlights – Indian Wind Industry Analytical Scorecard - FY 2016-17 (H1)

Nitin V Raikar, Suzlon Energy Limited, Mumbai (rnitin@suzlon.com)

Key Pointers - India

- Commissioned capacity addition of 1315.43 MW in H1 FY 2016-17 as against 947.25 MW in H1 FY 2015-16
- This represents an increase of 38.86% for the corresponding period in last fiscal
- This capacity addition translates to an investment of ~ 1.31 billion USD
- Cumulative wind power capacity in India surpasses 28 GW mark and stood at ~28.11 GW as on 30.09.2016
- Cumulative wind capacity constituted ~62% of India's total Grid Interactive Renewable Energy capacity
- Cumulative wind capacity constituted ~9.16% of India's total installed power capacity from all energy sources
- Cumulative Grid Interactive wind power installations would translate to (on per annum basis):
  - Emission offset of ~60.06 million tonnes
  - Coal savings of ~45.49 million tonnes
  - Tentatively power ~15 million number of Households

Key Pointers – States

- Andhra Pradesh leads in capacity addition by commissioning 434.90 MW in H1 followed by Gujarat (278.60 MW), Karnataka (235.30 MW), MP (147.50 MW), Rajasthan (129.40 MW), Tamilnadu (68.73 MW) & Telangana (21 MW)
- Installations in 7 windy states with nil capacity additions in the states of Maharashtra & Kerala

State-wise capacity addition for H1 FY 2016-17 with forecasted capacity addition in H2 FY 2016-17

State	H1 FY 2016-17 (MW)	Forecast: H2 FY 2016-17 (MW)
Andhra Pradesh	434.90	~1600.00
Gujarat	278.60	~700.00
Karnataka	235.30	~600.00
Madhya Pradesh	147.50	~80.00
Rajasthan	129.40	~50.00
Tamilnadu	68.73	~75.00
Maharashtra	-	~50.00
Telangana	21.00	-
Kerala	-	-
Total	1315.43	3155.00

Key Pointers – Original Equipment Manufacturers (OEM)

- Total no. of Original Equipment Manufacturers (OEMs) who added capacity: 11
- The top 6 OEMs (who added capacity exceeding 100 MW each) constituted ~98% of the total installed capacity
  - Gamesa Renewable Pvt Limited
  - Suzlon Energy Limited
  - Inox Wind Limited
  - ReGen Powertech Pvt Limited
  - GE India Industrial Pvt Limited
  - Vestas India Pvt Limited
- Top OEMs who have a cumulative installation base exceeding 1000 MW or 1GW in India –
  - Suzlon Energy Limited - +9.8 GW
  - Wind World (India) Limited + 4.8 GW
  - Gamesa Renewable Pvt Limited + 3.2 GW
  - Vestas Wind +3.0 GW (including Vestas turbines of RRB Energy)
  - ReGen Powertech Pvt Limited +1.9 GW
  - Inox Wind Limited +1.7 GW

Key Pointers – Product & Technology

- A total of 692 WTGs of different make and type were installed and commissioned
- Average turbine size increases to 1.90MW from 1.71MW in the preceding FY 2015-16

- ReGen Powertech successfully proto commissions its new product – 2.0MW rated capacity
- Gamesa debuts its G97 114 RD with serial scale commissioning in this fiscal
- Classification by Drive train topology

Drive Train Topologies Share for FY 2016-17 (H1)		
Drive Train Topology	**% of total MW installed**	**% of total no. of WTGs installed**
Geared Drive Train	92.20%	89.89%
Direct Drive Train	7.80%	10.11%

Key Pointers – Investor Class Segmentation

Investor Class Segmentation for FY 2016-17 (H1)		
Investor Class	**MW**	**% of total MW installed**
Independent Power Producers (IPPs)	814.60	61.93
Public Sector Units (PSUs)	277.00	21.06
Corporate + Retail Investors	187.83	14.28
Utilities (State & Private)	36.00	2.74
Total	**1315.43**	

Key Pointers – State-wise Cumulative Capacity addition as of 30th Sept. 2016

Figures in MW

Cumulative Capacity Additions in Key Wind States of India up-to H1 FY 2016-17			
State	**Capacity additions up - to Mar 2016 (MNRE)**	**Capacity additions H1 FY 2016-17**	**Total Cumulative Capacity**
Tamilnadu	7595.14	68.73	7663.87
Maharashtra	4670.65	0.00	4670.65
Gujarat	4035.44	278.60	4314.04
Rajasthan	4015.04	129.40	4144.44
Karnataka	2907.20	235.30	3142.50
Madhya Pradesh	2079.24	147.50	2226.74
Andhra Pradesh	1369.79	434.90	1804.69
Kerala	44.35	0.00	44.35
Telangana	77.70	21.00	98.7
Others	3.05	-	1.3
Total	**26797.43**	**1315.43**	**28112.86**

Policy Updates – H1 FY 2015-16

- MOP announces draft amendments to Captive and Group Captive Regulations
- MOP announces exemption of inter-state transmission charges for wind and solar projects for 25 years from respective commissioning for projects awarded through competitive bidding process
- Government of Gujarat announces Wind Power Policy dated 02 Aug 2016
- Ministry of New and Renewable Energy (MNRE) has sanctioned a scheme for setting up 1000 MW CTU connected wind power project
- Ministry of New & Renewable Energy announces Draft Guidelines for Development of Onshore Wind Power Projects
- TNERC had notified a new amendment in the RPO regulation regarding RPO percentages wherein it fixed 11.50% minimum total RPO for non-solar (read wind) for the FY 2016-17
- MERC announces Wind Tariff order for FY 2016-17

Disclaimer

1. The information contained herein has been compiled and collated from grassroots MI sources but its accuracy and completeness are not warranted, nor are the opinions or analysis which are based upon it
2. However the data is fairly accurate and is based on extensive reconciliation with relevant industry stakeholders
3. The statistical data if presented or published by the relevant government agencies in due course of time, shall prevail in all eventualities
4. The compilation makes minimal references to the names of OEMs and attempts to portray the generic industry scenario
5. This compilation has been compiled in the personal capacity and shall not be construed as the views of the company/organization employing the author

Researched, collated and compiled by Nitin Raikar
(rnitin@suzlon.com)

Making a Meaningful Difference: A Way of Life at SKF India

Shrikant Savangikar, Director – Business Excellence, Quality and Sustainability, SKF India Ltd, Pune

For SKF, Community care is about concentrated effort for real change.

SKF India Ltd, being an astute and socially responsible organization, and considers community care as an integral part of its 'SKF Care' philosophy. Community care for SKF is not just a buzz word but involves activities with clear objectives that deliver tangible social outcomes making a meaningful difference to the lives of recipients.

SKF has opted for a defined set of programs with quality and depth and concentrated effort to bring in real change.

SKF's flagship CSR initiatives include SKF sports education program, and YES (Youth Empowerment at SKF). Shrikant Savangikar, Director – Business Excellence, Quality and Sustainability of SKF India Ltd expresses, "Care is an integral part of SKF philosophy, hence, is vital to our strategic intent. SKF Care is embedded into everything that we do. Our well designed programs, aim to bring meaningful change in the lives of recipients, enabling them to improve their quality of living."

SKF India launched YES, its flagship vocational skill development program for unprivileged promising youth in the year 2013 by setting up two centres in Pune (with Don Bosco Technical Institute as Implementation partner) and Bengaluru (with Sambhav Foundation as implementation partner). Company has plans to set up five more centres in the next five years, preparing 5000 skilled youth for jobs in the automotive service market.

The program encompasses exhaustive training of vehicle maintenance, servicing skills and knowledge. It prepares students to work at various automotive OEMs, dealer service networks and workshops as well as for entrepreneurship. The course includes e-learning, communication skills, personality development, customer interaction, front desk management and financial literacy too.

SKF India Sports Education Program initiated in the year 2005 in Pune is another flagship CSR program of SKF India. The program strives to provide unprivileged children from nearby areas the opportunity for holistic growth through football as a medium. In 2013, the academy was extended to SKF Ahmedabad. SKF Sports Education Program is recognized by the local Municipal Authorities enabling SKF to reach out to the schools and thus the selecting the probable players.

SKF India sends its football team to the prestigious Gothia Cup Tournament in Sweden every year as a part of SKF's "Meet the World" campaign. Year 2015 was a landmark year as the girls' football team from the program made its maiden debut in the tournament.

SKF Sports Education Program not only focuses on professional sports training but also facilitates career guidance, counselling, aptitude test, and personality development and study techniques. Parenting and counselling workshops too are held for parents/ guardians of the children.

With two YES centres up and running, three more are planned in Haridwar, Guwahati and Ahmedabad, cities where SKF is present, the goal is to train 5000 youngsters in five years.

Snippets on Wind Power

Google to Switch to Green Energy Entirely In 2017

Google consumed as much energy as the city of San Francisco. It said that all of its data centres around the world will be entirely powered with renewable energy sources sometime next year. Google gets electricity from a power company, which operates an energy grid supplied by hydroelectric dams, natural gas, coal and wind power. Over the last decade, Google has made deals with renewable producers, guaranteeing to buy the energy they produce with their wind turbines and solar cells. With those guarantees, companies can obtain bank financing to build more turbines.

Govt to Complete Process for Awarding 1,000 MW Wind Projects by Dec. 2016

MNRE expects to complete the process under international competitive bidding for awarding 1,000 MW wind power projects worth around Rs 6,000 crore by December-end. "The nodal agency Solar Energy Corporation of India (SECI) has already floated Request for Selection (RFS) document for selection of bidders under the scheme for awarding 1,000 MW of wind power projects," a senior official said.

The government has not kept any reserve price and left it to the market to decide the rate. At present, wind power price ranges between Rs 3.9 per unit (lowest in Tamil Nadu) and Rs 5.5 per unit in other states."

PTC India Ltd. will sign PPA with wind projects at bidded tariff and back-to-back Power Sale Agreement (PSA) with buying entities at a pooled price of the total bids selected. The term of PPA and PSA will be 25 years. Bidder can bid for a minimum capacity of 50 MW and maximum up to 250 MW. The selected bidder is required to injected wind power at ISTS interconnection point. Bidder is allowed to install 5 per cent of additional rated capacity that will compensate auxiliary consumption and system losses up to interconnection point.

Source: http://www.moneycontrol.com, Nov 3, 2016

Make the most out of your maintenance resources

Given the operating conditions a wind turbine faces over a typical 20-year service life, maintenance problems aren't a question of "if," but "when".

When inevitable maintenance problems occur, farms are faced with the prospect of exorbitant crane mobilization costs, lost energy production and soaring costs per kilowatt-hour. And to make matters worse, spare parts for wind turbines are very difficult to come by in this rapidly expanding industry.

SKF can help.

By enabling operators to monitor and track deteriorating component conditions in real-time, SKF solutions enable maintenance decisions to be based on actual machine conditions, rather than arbitrary maintenance schedules.

WindCon

Remote diagnostics centre

System24

WindLub

Remanufacturing of slewing bearings

Hybrid & INSOCOAT bearings

For these and more solutions,
visit www.skf.com/wind or contact:

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The Power of Knowledge Engineering

Suzlon Foundation's CSR Approach for Sustainable Development

Dr. Jasmine Sofia Gogia, General Manager, Suzlon Foundation

Suzlon group with its vision of "Powering a Greener Tomorrow" founded Suzlon Foundation (SF), an autonomous body responsible for ensuring integration of sustainability across all its business operations. Sustainable Development is at the core of Suzlon Foundation's CSR outreach. CSR at Suzlon Foundation is about going beyond legal compliance and holding itself accountable to higher ethical standards aligned with its values. It is about sustaining the planet, people and profit.

Suzlon Foundation's CSR programs are categorized under Transformative (transforming internal practices), Responsive (offsetting impact of business and responding to stakeholder needs) and Proactive (going beyond business boundaries to contribute to the overall sustainability of the planet).

Strategic Pillars of Suzlon's CSR Approach

Engage, Empower and Sustain are the strategic pillars of Suzlon's CSR approach.

Engage

Engagement with our stakeholder is the foremost priority. We believe that change is possible only when all stakeholders are involved in the process for change. We proactively engage them in all initiatives with a view to raise awareness on issues and to create a conscious, conducive spirit for furthering sustainability. Our stakeholders include senior and middle management, general employees, communities, government and other agencies, customers, civil society members and other corporate foundations.

Empower

We do not have charity approach but believe in empowering communities so that they become capable of taking decisions related to their development issues. We develop partnerships and collaborations with various agencies to enhance our outreach and impact. The communities are our most important partners in development programs. We organize the communities into groups and build their capacities. Internally, we work with employees to increase awareness on various environmental and social issues and help them become responsible citizens.

Sustain

Creating ownership for the development programs is very crucial for their sustainability. We insist that the community must have stake in the program – either by way of cash contribution or by donating labour and facilitating the program initiatives. Since the people participate in the initiatives right from planning stage, the ownership is easily created. Our ultimate objective is to hand over the development projects completely to the Community based Organizations (CBOs). However, the capacity building input from Suzlon continues till the CBOs mature and are equipped to handle the management themselves.

Suzlon Foundation's CSR Programs

Suzlon has a multi-pronged approach to CSR implementation which is categorized in three components.

Transformative

All programs designed towards promoting responsible citizenship – at corporate as well as individual level – are transformative CSR programs. Integrating CSR perspective in business functions, cultivating responsible behavior among employees are important aspects of Transformative CSR. At corporate level, conjunctive land use is a most important example of transformative CSR. Patches of land around wind turbines are identified and given to community groups to cultivate either crops or fodder. This avoids the land becoming barren and helps communities in earning a livelihood. Helping the business to cultivate amicable relationship with the villagers by involving the employees in village development programs is another such attempt. Suzlon Foundation believes that business should be seen by local people as an opportunity and not a threat to their livelihood.

The atmosphere of mutual trust among business and the community reduces the occurrence of altercations. At employee level, activities to enhance environmental and social awareness are organized. Employee giving (cash contributions) and employee volunteering (time contribution) are part of these activities. It also involves engaging with customers to encourage responsible wind-farm neighbourhood development around their individually owned wind turbines

Responsive

Suzlon Foundation has developed a sustainability framework which forms the basis of its responsive programs. All programs which respond to the neighbourhood needs and offset the socio-environmental impact of the business, if any, are Responsive CSR Programs.

Proactive

All programs that have outcomes beyond the business boundaries and contribute to the sustainability of the planet are Proactive CSR Programs. Proactive programs include initiatives such as disaster response, international cooperation for internships amongst others.

Five Capitals of Sustainable Development

Suzlon's CSR framework is built around five capitals of sustainable development – Financial, Natural, Social, Human and Physical. Suzlon believes that these resources, called capitals, affect the business and are in turn affected by it. Hence, for overall sustainability, balanced growth of these five capitals is essential. All programs of Suzlon Foundation are designed to enhance these capitals.

1. **Natural Capital (Environment):** Suzlon undertakes various programs to conserve soil, water and air. The objective is to rejuvenate and conserve the natural resources. The initiatives have resulted in 65,749 CuM water conserved, 1.21 million trees planted during 2008-2010, 83,803 kg solid waste recycled, 170 tonnes grass grown.

2. **Financial Capital (Livelihood):** Initiatives are focused on enhancing livelihoods of disadvantaged communities through projects for encouraging self-help, capacity building, livestock development services and micro-credit support. Through this, Suzlon has extended technical guidance, material inputs, and credit facilities to farmers, cattle breeders & entrepreneurs. Till date, preventive health care has been given to 1,46,000 animals. In microfinance, 179 micro enterprises have been developed, savings of the villagers reached 20 million and credit over Rs 30 million.

3. **Social Capital (Empowerment):** The programs under this framework have been successful in bringing communities together. Over 3,074 community based organizations have been strengthened.

4. **Human Capital (Education & Health):** Suzlon initiatives under this focus on providing quality education, developing skills and improving health of the local communities. E-learning education software has been installed in 54 rural schools. Free cataract surgeries of 134 patients amounted to savings of ₹ 16.57 lakhs for the villagers. Suzlon has reached out to 1,381 schools and 135,192 students to facilitate better learning opportunities.

5. **Physical Capital (Civic Amenities):** Initiatives are designed to improve availability and access to amenities and services essential for any community to realize its potential; e.g. sanitation, electricity, housing, transportation, insurance and public distribution systems. So far, over 115,000 families enjoy better civic amenities through our programs.

Suzlon Foundation Impact and Outcome Pan-India, Across 8 States and 2 Union Territories

Maximum Outreach during 2010 April to 2016 September									
State	Villages Reached	Families Reached	Schools Reached	Students Reached	Hectares Land Treated for Soil and Water Conservation	Community Cased Organizations Working With	Trees Planted	Animals Treated/ Vaccinated	Solar Lights Installed
Andhra Pradesh	14	10,156	4	1,832	9	50	60,700	4,000	-
Gujarat	127	24,621	216	7,699	57	220	8,371	11,055	14
Karnataka	72	33,430	658	14,353	84	1,065	82,228	10,931	21
Maharashtra	302	28,055	88	14,651	22	1,020	27,676	1,100	-
Madhya Pradesh	46	8,510	8	937	315	163	34,472	8,577	114
Rajasthan	94	5,572	22	3,050	761	151	23,092	1,54,320	1,709
Tamil Nadu	298	57,917	234	83,288	2,138	109	3,46,719	3,082	729
Daman	15	683	3	152	-	46	3,176	1,410	-
Pondicherry	120	14,328	148	10,297	263	250	80,578	21	31
Total	1,072	1,83,308	1,387	1,36,323	3,649	3,074	6,67,012	1,94,496	2,692

The CSR programs are designed in such a way that they remain self-sustain. Suzlon foundation continues to touch the lives of people around Suzlon's project sites with the unique CSR model that it employs.

Snippets on Wind Power

India to Launch Clean Energy Equity Fund of up to $2 Billion

The Indian government and three state-run firms are said to be jointly setting up an equity fund of up to $2 billion for renewable energy companies to tap into to help New Delhi meet its clean energy goals. Private and public companies will be able to dip into an initial amount of more than $1 billion starting next fiscal year. India's government hopes the Clean Energy Equity Fund (CEEF) will attract pension and insurance funds from Canada and Europe. Around $600 million of the initial pool will come from the National Investment and Infrastructure Fund, under the finance ministry, and the rest from state entities NTPCBSE 0.45 % Ltd, Rural Electrification Corp and the Indian Renewable Energy Development Agency. Government notification is yet to come.

Source: Economic Times Nov. 6, 2016

Wind News

IWTMA, Messe Husum sign MOU along with IGEP

IWTMA and Messe Husum along with Indo German Export Promotion Council (IGEP) have joined hands for supporting renewable energy and promoting sustainable environment. The two bodies who have been associated with encouraging and producing the renewable resources signed a Memorandum of Understanding (MOU) to strengthen their co-operation for supporting this development. The main objective for both IWTMA and Messe Husum is to support the strengthening of business relations between Indian and German companies and to facilitate the transfer of state-of-the-art technologies. In addition, systematic market research will be carried out to identify products which can be manufactured in India at internationally competitive conditions in line with the 'Make in India' concept.

Source: Power Watch, 26.11.2016

LM Wind Power: We Care

Hemkant Limaye, Commercial Director, LM Wind Power, Bengaluru

At LM Wind Power, corporate social responsibility starts with people. Our colleagues worldwide are strong forces for good in their local communities, and they are often highly engaged in a wide range of activities including charity donations, support for education, disaster relief and collaborations on community development projects with NGOs.

Our colleagues in India are no exception – in fact, they are often considered the sustainability leaders within LM Wind Power. Their passion for creating more sustainable communities constantly inspires the entire company to take community outreach to the next level. This work has also received international recognition, with LM Wind Power India nominated for Denmark's prestigious CSR Award in both 2013 and 2014, shortlisted among 26 applicants representing large Danish companies operating abroad.

As the world's leading supplier of wind turbine blades, LM Wind Power has always worked hard to carefully balance profitable growth, integrity and caring for people as well as for the environment. This is our commitment and we are constantly raising our game and ambitions. In 2010, we joined the UN Global Compact as a signal of our commitment to running the business in a sustainable way.

We are justifiably proud of our long track record in contributing clean, renewable energy to the world, but we want to do more and our colleagues in India are leading the way. Here are just a few of the many ways LM Wind Power India contributed to local communities and empowered people this year.

Clean Drinking Water for Needy Children

As part their ongoing sustainability focus, volunteers from LM Wind Power's Technology Center India (TCI) frequently visit Rainbow Home in Bangalore: a home for more than 70 girls, from five to 16 years old. These children are either orphans or come from an underprivileged background, so the home provides shelter, food and all their basic necessities.

To emphasize the need for clean drinking water, TCI provided Rainbow Home with a water purifier, which has reverse osmosis technology, a six-stage purification process and a water storage capacity of 50 liters. For the formal handover of the water purifier and other basic necessities, volunteers visited Rainbow Home in July, as a small way of making a difference for the children. The volunteers created awareness among the kids of the importance of drinking clean water and also saving water. They conducted fun activities and provided some refreshments for the children. The head of Rainbow Home informally told the TCI team that due to the newly-installed purifier, the children have now started drinking more water.

Shared Shalu Thadathazhath, Team Leader at the Test & Validation Center India, "I was both happy and sad seeing all those children and it also helped me realize that 'small gestures can make a big difference for those in need.' You really start appreciating the little things in life when you see people who don't have them."

Tribute to International Women's Day

The women at TCI believe "Empowering Women is Empowering Humanity." To put this into action, on March 8 they decided to celebrate International Women's Day by making a difference. Throughout the day, women from TCI conducted programs to inspire the girls at Rainbow Home to aim high in life and also create awareness about personal health and hygiene. They voluntarily donated stationary, toiletries and essential daily use products, and they led indoor games and songs to entertain the children.

The teams in LM Wind Power's plants also recognized International Women's Day. Celebrations in the Dabaspet plant began the moment our female colleagues arrived in the morning. Dressed in traditional attire, each woman was individually greeted with a bouquet of roses. Activities then

continued throughout the day - a chocolate cake in their honor, lunch together in the canteen, musical chairs and other activities. In an open forum, many colleagues shared their thoughts about the significance of International Women's Day, recognizing the sincerity and hard work of our female colleagues.

At the Vadodara plant, the program for the day started with the welcome speech by HR Senior Manager Poonam Mishra, where she reflected on the history of International Women's Day, the current scenario and the way forward in making the world free from gender inequalities. All female employees were greeted with a flower bouquet to acknowledge their contribution in LM Wind Power. All employees participated in additional talks throughout the day on gender diversity, gender equality, women empowerment and welfare services for women, followed by cake and tree planting at the factory site.

Doing our Bit to Battle against Breast Cancer

"Think Pink" was the theme throughout the month of October at TCI. Imbibing the value of LM Wind Power, 'Work as One Team', all women employees at TCI efficiently planned and enthusiastically participated to raise awareness of breast cancer.

The ladies at TCI took their "Think Pink" campaign throughout their entire office building, which houses more than 30 large companies like Google, GE, E&Y and Twitter. The initiative aimed to create a basic awareness of breast cancer among all the employees in the building, regardless of whether they work for LM Wind Power or not. The TCI team also donated medical aid for cancer patients to Karunashraya Cancer Hospice. All employees also participated in a cancer awareness session conducted by a doctor.

Jitendra Bijlani, Technology Center India Director, expressed, "It is so important to have awareness for breast cancer, its detection, its treatment and need for a permanent cure - and this need for awareness equally applies to males. I congratulate the ladies at TCI for taking the lead in conducting awareness and spearheading this at our Bangalore premises amidst other major companies."

Diwali celebrations bring Light

TCI celebrated the true essence of "Festival of Lights – Diwali" this year, by illuminating big smiles on the faces of needy children. A group of 13 LM Wind Power volunteers visited Rainbow Home to handover new clothes and celebrate the day with the children. These girls generally wear used clothes collected by donation and receive one set of new clothes in a year.

LM Wind Power volunteers enjoyed providing snacks, entertaining and playing with the children, which created an aura of festivity. Spreading happiness and smiles among the little children was every volunteer's motive, and the excitement, happiness and gratitude from the faces of children were priceless.

Shantanova Bora, Analyst, Quality TCI, expressed, "This was my first experience as an LM Wind Power volunteer and I had an opportunity to spend some time with children at Rainbow Home. After my visit, I realized that 'seeing a person smile, and to know you contributed something to that smile, gives ultimate joy and internal satisfaction.' This visit has definitely changed my thought process in a positive way. There were moments that touched my heart, and I am happy to see that these children are safe."

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salesindia.mws@bonfiglioli.com • www.bonfiglioli.com

Bonfiglioli
Forever Forward

Corporate Social Responsibility Activities at AkzoNobel

Murugeshselvan S, Marketing Manager – Marine & Protective Coatings
Akzo Nobel India Limited, Bangalore

As a responsible corporate, AkzoNobel is committed to conduct our business in a socially and environmentally responsible way for the benefit of all our stakeholders, be it shareholders, consumers, employees, or the community at large. Whenever possible, we try to make a positive difference to the world around us.

AkzoNobel Painting Academy (Vocational Skill Training Project)

In synergy with Govt. of India's flagship program 'Skill India', AkzoNobel have initiated skill training in painting to promote employability among youth. In this regard AkzoNobel has partnered ICICI Skill Foundation as well as opened up AkzoNobel Paint Academy in Delhi, Kolkata, Mohali and Bengaluru which offers skill training in decorative paints and Vehicle Refinish. In the last one year over 600 youths have been trained and employed with leading companies through both the programs.

Healthcare

a. **Support to Children affected with Cancer**

AkzoNobel has partnered with St. Jude's to provide hygienic accommodation and treatment to children suffering from cancer. Tata Memorial Hospital has partnered St. Jude's to ensure the best possible treatment is imparted to the children.

b. **Community Healthcare Project**

We support various healthcare projects that attempt to make a visible and measurable impact towards improving healthcare systems for the community. AkzoNobel's healthcare programs provide community health clinics, sensitisation on mother and child health, nutrition, school health programs, life skill education for adolescents.

Education Projects

a. **Parivartan Project:** We have been supporting and investing in education of more than 10,000 children across seven states of India. The flagship education project of AkzoNobel is 'Parivartan' which is being In this project we offer non-formal education to out of school children to bring them back to the school and remedial education to under privilege children to improve their grades and stop them from dropping out of school. We pay separate attention in promoting girls education and

b. **Road Safety:** AkzoNobel has joined hands with Govt. of Punjab to conduct comprehensive road safety awareness program among 10,000 school children in 34 Govt. schools in Mohali. In this project students are sensitised and educated about road safety, safe behaviour and traffic rules.

c. **Early Childhood Education:** AkzoNobel in partnership with State Govt's has established Model Aanganwadi's. As a part of the initiative we have refurbished the Anganwadi buildings (provided basic facilities like drinking water, working toilets, repaired and coloured the building to make it child friendly), have trained the teachers, created innovative teaching models and have also created tools to monitor the child's health and education development.

Wind News

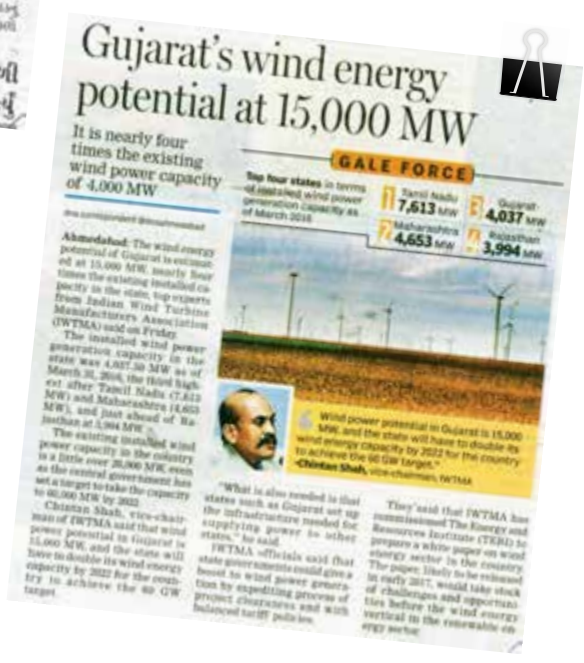
૨૦૨૨ સુધીમાં ૬૦ ગિગાવોટ પવન ઊર્જા ઉમેરવાનું સરકારનું લક્ષ્ય

વર્ષ ૨૦૨૨ સુધીમાં ૬૦ ગીગાવોટ પવન ઉર્જાનો લક્ષ્યાંક

આઈડબલ્યુટીએમએ અને ટેરીએ સાથે મળી પવન ઉર્જા ક્ષેત્ર પર શ્વેતપત્ર તૈયાર કર્યું

Tailwind for Foreign Turbine Makers

Panel that vetted models disbanded; cos now have to send specifications to MNRE



Gujarat's wind energy potential at 15,000 MW

It is nearly four times the existing wind power capacity of 4,000 MW

GALE FORCE

Top four states in terms of installed wind power generation capacity as of March 2016

Tamil Nadu 7,613 MW
Gujarat 4,037 MW
Maharashtra 4,653 MW
Rajasthan 3,994 MW

"Wind power potential in Gujarat is 15,000 MW, and the state will have to double its wind energy capacity by 2022 for the country to achieve the 60 GW target."
-Chintan Shah, vice-chairman, IWTMA


GIGA WOW
Gamesa
Gamesa India cements its No.1* position by adding 1GW in 1 year.
Thank you for making it happen.

We at Gamesa are celebrating our proudest moment, which wouldn't have been possible without your support. Thank you for propelling Gamesa to the top of the Indian wind energy industry, yet again. We have also achieved our fastest 1GW of installations in just one financial year – 2015-16. This milestone brings us a step closer to achieving India's renewable energy targets. We thank you once again for your steadfast support and look forward to many more years of success together.

Gamesa Renewable Pvt. Ltd., No. 334, The Futura Tech Park, Block-B, Rajiv Gandhi Salai, Sholinganallur, Chennai - 600 119
Call us at 044 39242424 | Web: www.gamesacorp.com

*Source: IWTMA

Corporate Social Responsibility (CSR) - The ZF Way

"Help others without any reason and give without the expectation of receiving anything in return" – Roy T Bennett

Deepak Pohekar, Executive Director
ZF Windpower Coimbatore Pvt Ltd., Annur Road, Coimbatore 641 659

At ZF Wind Power Coimbatore Pvt Ltd (ZFWPC), we aim at giving back to the society and supporting the community with a focus on the areas near our factory.

A plethora of development initiatives and support were facilitated by ZF Coimbatore in the past 9 years.

To give you a brief glimpse of our CSR journey...

Provision of Employment Opportunities to the Local Community

Services which require unskilled labour like housekeeping, factory premises upkeep, gardening & landscaping are being outsourced to contractors who hire local villagers thus providing huge employment opportunities. 70 people from the local villages work for ZFWPC as on date.

25% of our cab requirements are hired through the services of a local entrepreneur who in turn employs local residents as his drivers.

Tree Plantation

A barren land during 2008 is now a beautifully landscaped mini eco-system. Yes the factory premises of ZFWPC is now a land of flora and fauna. Rare species of birds are a normal sight every day for an employee at ZFWPC. Year on year the number of trees and area of green cover is increased by tree plantation drives. The plant now proudly grows 3,000 trees and plants of 30 different species.

Before **After**

Support to Local Panchayat Schools

Children are our future. How else better to contribute to the society than by empowering and supporting the development of the children in the surrounding areas. A number of support initiatives are identified and implemented every year to support education, infrastructure and extra-curricular to the Panchayat Union primary and middle schools in the locality of ZFWPC.

Infrastructure development, furniture donation, educational support & other initiatives to uplift the learning experience of the local school children include –

- We have constructed a Library room and equipped it with books and study materials along with a computer.

- Furniture such as book shelves, tables, benches, chairs & stools to aid better classroom atmosphere.

- Desktop computers donated to enhance the digital learning of the school children.

➢ Donation of utilities such as hot and cold water dispensers, mid-day meal cooking and serving utensils.


➢ Constructing a concrete corridor to prevent dust pollution inside the classroom.

➢ To support the development of the body inaddition to the mind, donation of Sports utilities such as tennikoit rings, skipping ropes, volley ball, football, base drum, dumbbells, shuttle, rackets and corks, etc.

➢ Life skill sessions imparted on topics such as 5S, Understanding goals & Healthy living.


Healthcare, Women Empowerment & Rural Upliftment

➢ A 'women to women' dialogue session hosting successful women from rural and downtrodden background was conducted partnering with an NGO and gift hampers comprising items like clothes and medicines to support their basic needs were distributed to a group of 100 women as part of Women's' day celebrations.

➢ Health camps for our contract employees, support to pulse polio camps.



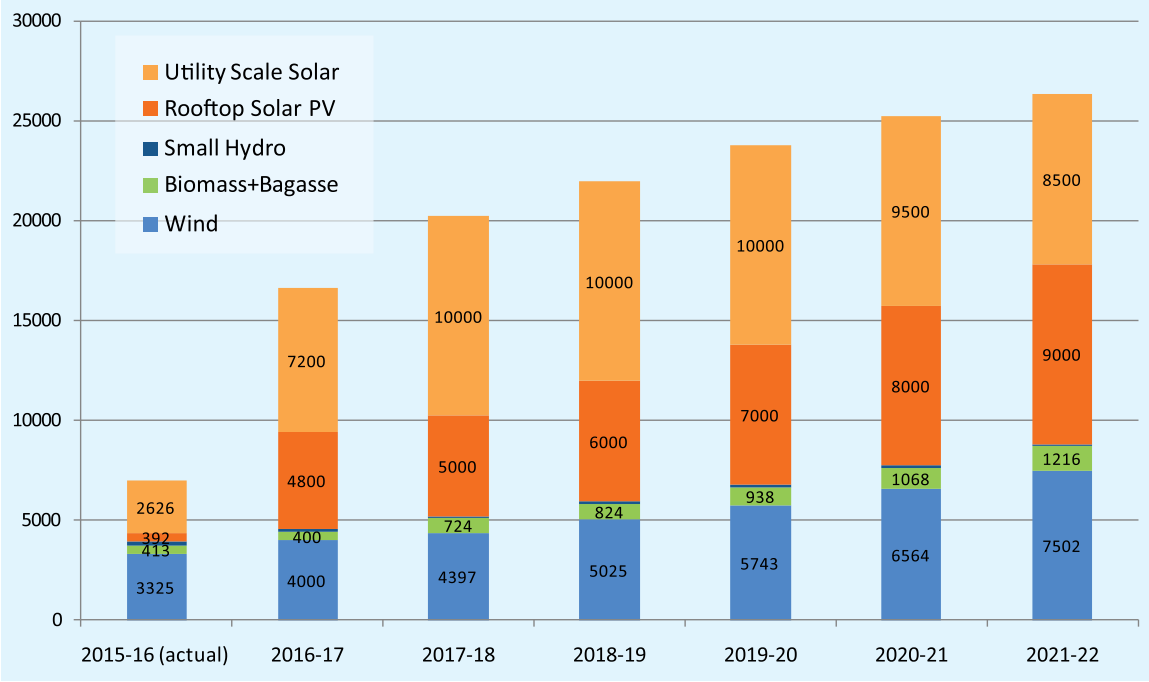

➢ Support to Anaikatty Rural Community College –

- Anaikatty Rural Community College (ARCC) is located at Anaikatty. This was established to impart training on various skills for school and college dropout from the nearby tribal hamlets.
- ZF has supported ARCC with 7 Desktops and 3 Laptops of which the Desktops are used for imparting training to students on cell phone repair & maintenance, basic computer applications and MS PowerPoint presentations & laptops are being used by the staff to provide vocational training.
- Along with this a literacy campaign was held and the children were provided with stationery kits.


ZF's journey towards the Corporate Social Responsibility (CSR) will continue with utmost passion.

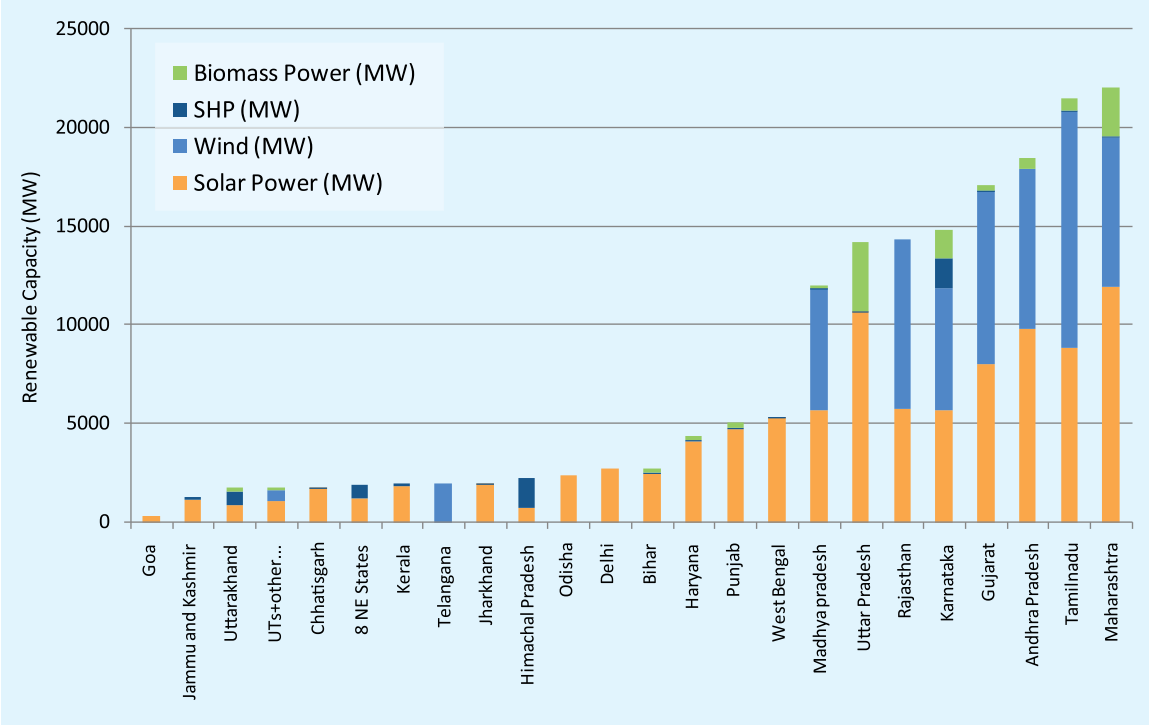
Wind Power Targets to Ponder

Year-wise RE Targeted Capacity addition during 2016-2022



Source: Prayas analysis based on compilation from various MNRE publications. Rooftop capacity addition in 2015-16 is roughly estimated at 13% of total solar capacity addition in 2015-16.

State-wise Allocation of the 175 GW Target



Source: MNRE/Prayas (Energy Group)

YOU CAN HAVE IT ALL

lmwindpower.com

Is it possible to optimize a blade design to a specific turbine and still ensure a fast launch on the global market with economies of scale and competitiveness? The answer is yes!

LM Wind Power has more than 35 years of experience in blade design and manufacturing. This strong combination helps ensure first-class, certified technology, tailored to your specific turbine.

Quality and reliability are key. We use our own wind tunnel to continuously optimize the blade profiles and we validate new materials and designs in our full-scale test facilities. We provide customized blades with variable root diameters and lengths for the 2.5-3.3 MW segment, always finding the optimum fit for your turbine to reduce the cost of energy. The modular concept we apply has proven to increase AEP by up to 14%.

You CAN have it all; a perfectly optimized blade yet leveraging LM Wind Power's global supplier base and manufacturing footprint.

LM WIND POWER

Gamesa Community Spirit

Madhukumar Boppana, General Manager, Corporate Communication
Gamesa Renewable Private limited, Chennai

Gamesa Community Spirit is our flagship initiative that brings out the CSR dimension of Gamesa India. This initiative of ours ensures the implementation of developmental projects in and around our wind farm sites and manufacturing plants there by placing communities towards a meaningful development. This initiative draws key focus towards the community, hovering on the pillars of education, healthcare, infrastructure development, livelihood and sports for development.

On Going Projects

Below mentioned are the some programs that are up and running under our flagship initiative, Gamesa Community Spirit.

a. Education: Gamesa Academic Excellence

Gamesa India initiated the Gamesa Academic Excellence Program in the year 2015 with the following objectives in mind:

- To empower the rural students in order to compete with their urban counterparts.
- To shape their academic and life skills
- To provide them necessary educational aids and infrastructure
- To empower the rural students with information & knowledge in shaping their career.
- To provide scholarships for the deserving students

Donation of benches and desks

In the first step towards our goal, 600 students from 40 schools of most deserving state were selected as the beneficiaries of the program by our committee and are being mentored continuously for their development.

Gamesa Scholarship Program

b. Health: Gamesa Gram Aarogya

Gamesa Health Care Project

Statistics show that more than 60% of the rural population does not have access to the basic medical facilities. For this purpose, Gamesa India initiated the Gamesa Gram Aarogya project in the year 2015 with the following objectives in mind:

- To provide basic medical assistance to the rural population living around our wind farm sites.

Gamesa Rural Health Care Project

- To provide medical assistance to ensure proper anti-natal care
- To provide basic education regarding seasonal diseases & precautions to avoid it.

Veterinary Camp Project

– The project has reached out 15,000 villagers from 28 villages near 4 wind farm sites located in the states of Madhya Pradesh and Andhra Pradesh.

Gamesa Mobile Health Care Project

c. Livelihood: Gamesa Vocational Training – Key Highlights

Jobs cannot be created unless we have the required skills. This "Lack of skills" situation is widely faced by rural India due to non-availability of required information and access towards modernization. This dearth was identified as an opportunity to contribute our share to the villages around our business operations thus formulizing Gamesa Vocational Training program. As the first phase of this program, we have initiated two projects as mentioned below.

I. Scrap Woods to School Rooms

The main objectives of this project are:

– To convert wood scarp into school furniture by training/employing the indigenous people in the work of carpentry, who have their habitat around our manufacturing plants in Mamandur and Redhills (Outskirts of Chennai).

– To empower rural students' education with proper infrastructure and comfort. The project commenced in the year 2012 and has registered a successful run, bringing out the following outcomes.

– During the years, more than 130 people were trained/employed in turning scrap woods to school benches and chairs.

– From the date of commencement till now close to 1,120 tonnes of scrap woods have been recycled and made into 5,600 tables and benches, benefiting 20,000 students.

This project will be a continuous effort from Gamesa in improving the infrastructures of deprived schools across India.

d. Sports for Development – Gamesa Soccer League

Gamesa Soccer League is a Sport for Development initiative supported by Global Sustainability that forms part of Gamesa India's CSR paradigm – Gamesa Community Spirit. This initiative encourages the beautiful game of street soccer that transcends race, religion, language and gender to bring about a change in the lives of those children living around our areas of operations. The organization's wind farms are based out of locations that are extremely remote and relatively untouched by economic progress. This has led to a lot of disillusionment particularly amongst the youth who then stray into a life of alcohol & drug addiction, crime and have no opportunities beyond daily wage jobs. Additionally, the project saw engagement of urban underprivileged youth based out of Chennai. They remain marginalized with no steady income or social security. By extension, there is very low literacy rate and retention rate among the children from these households.

Gamesa Dreamfooters Team at Spain

TN Education Minister Handing over Trophy to GSL participant

Scaling up from Y1, nearly a 1,000 youth from these sections are a part of the Gamesa Soccer League for Y2 and they are undergoing the exclusively designed program. Indirect outreach is approximately 3000 with girls making up nearly 30% of the participant tally.

Impact

- No. of Direct Beneficiaries – approximately 1,000
- No. of Indirect Beneficiaries – approximately 3,000
- No. of Coaches Trained – 35+49 = 84
- 15 twelve year old boys from all over the country were identified for an academy style residential program, given rigorous training and traveled

to San Sebastian, Spain to play in the Donosti International Cup 2016.

- 200 girls from the government school in Chennai were selected to be a part of a structured sports program for the first time in their lives. None of them had ever kicked a ball before. They now regularly play in local and national tournaments.

Chennaiyin FC team with Gaemsa Soccer League Team

The Gamesa Soccer league has been a remarkable study of collaboration and teamwork. A number of different organizations have been a part of the program - each bringing in their unique expertise and perspective.

After an exhaustive study of S4D organizations that operate in the Indian context, Gamesa zeroed in on Slum Soccer - an organization who brought years' worth of valuable experience and a great deal of energy to the table.

GSL Kick off by Deputy British High Commissioner

The Madras School of Social Work helped define key focus areas and also worked with us on developing M&E parameters that showcase the program's efficiency.

Coaches across the continents brought with them the know how to adapt and effectively engage participants thereby ensuring we addressed all the issues identified during the baseline studies.

The district education boards and schools of Chennai, Tuticorin, Theni and Udumalpet proved to be eager participants and helped with infrastructure and community liaising.

Overall, each of the stakeholders proved to be vital to the ultimate success of the project and this has given us a blueprint that we will use to replicate projects in other communities and scale up.

Snippets on Wind Power

Draft KSERC (Renewable Energy) Amendment Regulations, 2016.

Kerala State Electricity Regulatory Commission (KSERC) vide their latter no. 442/CT/2015/ KSERC dated 4th November, 2016 has published the Kerala State Electricity Regulatory Commission (Renewable Energy) Amendment Regulations, 2016, for information of persons likely to be affected thereby and the objection or suggestions thereon has been invited. Besides other matters Normative parameters and the tariff applicable to the renewable energy projects commissioned during the financial years 2016-17 has been proposed as follows:

S. No.	Description	Levellised Tariff	Benefit of Accelerated Depreciation	Net levellised tariff upon adjusting for Accelerated Depreciation benefit) (if availed)
1	Wind energy generation projects, located in wind zone – 1 (CUF- 20%)	6.60	0.71	5.89
2	Wind energy generation projects, located in wind zone – 2 (CUF- 22%)	6.00	0.65	5.36
3	Wind energy generation projects, located in wind zone – 3 (CUF- 25%)	5.28	0.57	4.71
4	Wind energy generation projects, located in wind zone – 4 (CUF- 30%)	4.40	0.47	3.93
5	Wind energy generation projects, located in wind zone – 5 (CUF- 32%)	4.13	0.44	3.68

20 YEARS
OF REVOLUTIONIZING WIND ENERGY IN INDIA

Suzlon's contribution in building India's wind energy sector has been inspired by its ideology of 'powering a greener tomorrow'. With our reach and capabilities, we are best equipped to capitalize the new opportunities that promise to take India and us to newer heights.

Suzlon in India

- World-class technology, manufacturing and services
- More than 1700 customers
- Installed base of more than 8500 MW
- Lighting-up more than 20 million lives

20 years of revolutionizing wind energy

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MNRE Guidelines for Development of Onshore Wind Power Projects

Ministry of New and Renewable Energy, Government of India has issued Guidelines for Development of Onshore Wind Power Projects vide their latter no. F. No. 66/183/2016-WE Dated: 22 October 2016 as below.

Background

To ensure healthy and orderly growth of wind power sector in the country, Ministry issued guidelines for wind power projects in July 1995, which were revised in June 1996. Clarifications and modifications in these guidelines were issued by the Ministry from time to time. However, with advancement in the wind turbine technology and requirement to comply various standards and regulations issued by CEA and other regulatory bodies and to address issues related to micrositing, decommissioning, health and safety, it is felt to formulate Comprehensive Guidelines for Development of Wind Power Projects in the country.

After detailed consultation with various stakeholders, Ministry has finalized the guidelines and same are given below for the benefit of all stakeholders.

I. Introduction

To ensure healthy and orderly growth of wind power sector in the country, the Ministry of New & Renewable Energy issued guidelines for development of wind power projects in July 1995 and same were revised from time to time. In addition the Government has taken various initiatives to encourage wind power development in the country. All these efforts have resulted in reaching 28.1 GW of wind power installed capacity in the country at the end of September 2016 and now, India is globally placed at 4th position in terms of wind power installed capacity.

Most of the wind power development in India took place over the last 20 years and during this period the wind turbine technology has evolved from less efficient turbines with low capacity of 225 kW to more efficient turbines with high capacity of 3 MW being manufactured in India. Wind being intermittent in nature the large scale deployment of wind power has posed challenges on grid integration. The regulatory authorities have tightened regulations for grid integration of wind turbines.

Further, the Government has set an ambitious target of reaching 60 GW of wind power installed capacity in the country by 2022. To achieve the target the current rate of deployment of wind power capacity is required to be more than doubled.

With the technology development, new regulations and requirement of accelerated growth of wind power sector, it is felt to issue comprehensive guidelines for development wind power projects in the country in consultation with various stakeholders.

II. Objective

The objective of these guidelines is to facilitate the development of wind power projects in an efficient, cost effective and environmentally benign manner taking into account the requirements of project developers, State and national imperatives.

III. Site Selection and Feasibility

The process of wind power project development starts with site selection. Identification of suitable sites depends upon land use permission, availability of wind resource, technically and commercially feasible grid connectivity, transport logistics and environmental acceptability.

a. **Land Use Permission:** The project developer should ensure that the land being selected for the wind power project can be legally used for the purpose and all regulations regarding land use/land cover are complied with.

   In case of allotment of land or land use permission given by State Government for the purpose of development of wind power project, a maximum period of 4 years may be allowed for development and start of commissioning of the project after allotment/ permission to use land given by the Government. If the project is not developed within the given time frame the land allotment/land use permission may be cancelled, however, extension may be granted for force majeure conditions.

   For existing project developers, where land is already allotted or land use permission has been already given 18 months or higher, prior to issue of these guidelines

may be given another 30 months subject to providing an undertaking that they are willing to develop and start commissioning of the project within stipulated period of 30 months.

b. **Availability of wind resource:** The project developer is required to ensure the availability of wind resource at the site based on the various parameters measured for the purpose. The project developer is also required to ensure the quality of the data captured at a particular site for the correct assessment of the wind resource potential, project viability and sustainability of the project over the designed life time of the project.

   In order to facilitate the wind industry, academia and research institution to analyse the wind power potential, the time series data from all the wind masts installed by NIWE through financial assistance from Government of India will be made available by NIWE without charging any cost.

c. **Technically and commercially feasible grid connectivity:** The project developer should ensure that grid connectivity is technically and commercially feasible at the site selected.

d. **Transport logistics:** The project developer should ensure that components of the wind power project can be transported to the site selected with existing infrastructure and in case any addition is required the same would be created without any legal issues.

e. **Environmental acceptability:** If the site being selected falls in the area of forest land or in the vicinity of habitat of migratory birds and their flight routes, civil aviation, defence and heritage establishments the project developer should ensure availability of necessary clearances from concerning authorities.

IV. Type Certification and Quality Assurance

Type certification is to confirm that the wind turbine type is designed, documented and manufactured in conformity with design assumptions, specific standards and other technical requirements. For manufacturers of wind turbines and components, type and quality certification by an Internationally Accredited Certification Body shall be a mandatory requirement. The wind turbine model shall possess a valid type certificate issued by any internationally accredited type certification body as per IEC /GL type certification scheme, along with certified power curve. The type certificate of the wind turbine model should mandatorily include Hub and Nacelle assembly/manufacturing facility in India.

No wind turbine model shall be allowed for installation in the country until it has obtained type and quality certification as mentioned above. To facilitate SNAs, investors, lenders and developers, the Ministry of New and Renewable Energy will bring out the list of type and quality certified wind turbine models eligible for installation in the country. The list will be regularly updated by the MNRE through an online automated tracking and approval process.

V. Micrositing

Micrositing is the optimization of energy production through the correct placement of wind turbine generators in the wind farm area, considering all physical constraints of the area. The optimized location of wind turbine generators (WTGs) may be computed by running an appropriate wind flow modelling, optimisation tools (linear and non-linear) and techniques in any terrain conditions. The criteria for Micrositing shall be based on an optimised output rather than a strict mandated minimum distance between wind turbines. Micrositing criteria are prescribed as under:

i. Developer(s) shall optimise the wind turbine locations within their land using appropriate wind flow modelling and optimisation tools (linear and non-linear)/techniques subject to site assessment as per IEC 61400-1 standard for turbine safety considering extreme wind, flow inclination, vertical wind shear, and turbulence with added wake effects and corrections for terrain complexity, etc.

ii. Developer(s) shall maintain a distance of 2 x D (D-Rotor Diameter) distance perpendicular to the predominant wind direction and 3 x D distance in the pre-dominant wind direction from the boundary line of each adjoining land of other developer(s) with appropriate offset.

iii. Developer(s) shall maintain a wake loss (in terms of energy) of 10% between wind turbines with appropriate offset for wind turbines sited on a foot print basis.

iv. Developer(s) shall maintain a distance of HH+12 RD+ 5m (Hub Height+ Half Rotor Diameter +5 meters) from Public Roads, railway tracks, highways, buildings, public institutions and EHV lines.

v. Developer(s) shall not site wind turbines within 500 m of any dwelling for the mitigation of noise.

The above mentioned Micro siting techniques will also assist in repowering & intercropping as the investors/developers will have no constraints with minimum distances within the available land ensuring optimised utilisation of the land with wind resource.

VI. Grid connectivity

For establishment of the evacuation arrangement and grid connectivity, the respective Electricity Regulatory Commission Order/Regulation shall be applicable.

VII. Compliance of Grid Regulations

Wind turbine should be certified by an accredited certifying body for the compliance of the grid regulations including Active/Reactive power control, Low Voltage Ride Through (LVRT), power quality and other applicable requirements as per standards and regulations prescribed for the same by regulatory authorities.

VIII. Metering and Real Time Monitoring

It shall be necessary for the project developer to install Availability Based Tariff (ABT) compliant meter with telecommunication facility at the pooling station/sub-station to enable implementation of forecasting and scheduling regulation. It shall also be mandatory to communicate vital grid parameters on real time basis to respective Regional/ State Load Despatch Centre.

IX. Online Registry and Performance Reporting of Wind turbines

An online registry of wind turbines installed in the country will be created by NIWE. The wind project developer shall upload monthly performance report of the wind turbine on the web-portal created by NIWE for this purpose.

X. Health & Safety

In order to ensure health and safety of people working/ residing near the wind power installations the NIWE will prescribe criteria for noise and shadow flicker in consultation with stakeholders.

XI. Hybridization

Wind being intermittent in nature and having low CUF in comparison to conventional power, its hybridisation with other renewable and storage technologies would result in reduced intermittency and efficient utilisation of transmission infrastructure. The project developer may prudently use hybrid technologies in line with policy issued by the Central/State Governments for this purpose.

XII. Repowering

Based on the improved wind turbine technology available the project developer may opt for repowering of the wind turbine as per Repowering Policy of the Central/State Governments.

XIII. Decommissioning Plan

The proposal to establish wind power project should necessarily include decommissioning plan of the wind turbine after completion of its useful life. The NIWE will formulate guidelines for decommissioning of the wind turbines in consultation with stakeholders

Source: MNRE

Snippets on Wind Power

RE Targets for 2017-18 and 2018-19

Ministry of New and Renewable Energy (MNRE) has fixed a target of connecting to the grid about 20,450 MW of renewable energy during the year 2017-18. The major share includes 15,000 MW of solar power capacity.

The year wise targets are as follows:

Source	2016/17	2017/18	2018/19
Solar Power	12,000 MW	15,000 MW	16,000 MW
Wind Power	4,000 MW	4,600 MW	5,200 MW
Biomass	500 MW	750 MW	850 MW
SHP	225 MW	100 MW	100 MW
Total	16,725 MW	20,450 MW	22,150 MW

Minister of State for Power, Coal, New & Renewable Energy and Mines, Mr. Piyush Goyal, informed that various initiatives will be implemented in order to achieve the targets. These include setting up exclusive solar parks, developing a power transmission network through Green Energy Corridor project and several rooftop solar-related moves. Also, the government plans amendments to the tariff policy aimed at the strong enforcement of Renewable Purchase Obligation (RPO) and for providing Renewable Generation Obligation (RGO).

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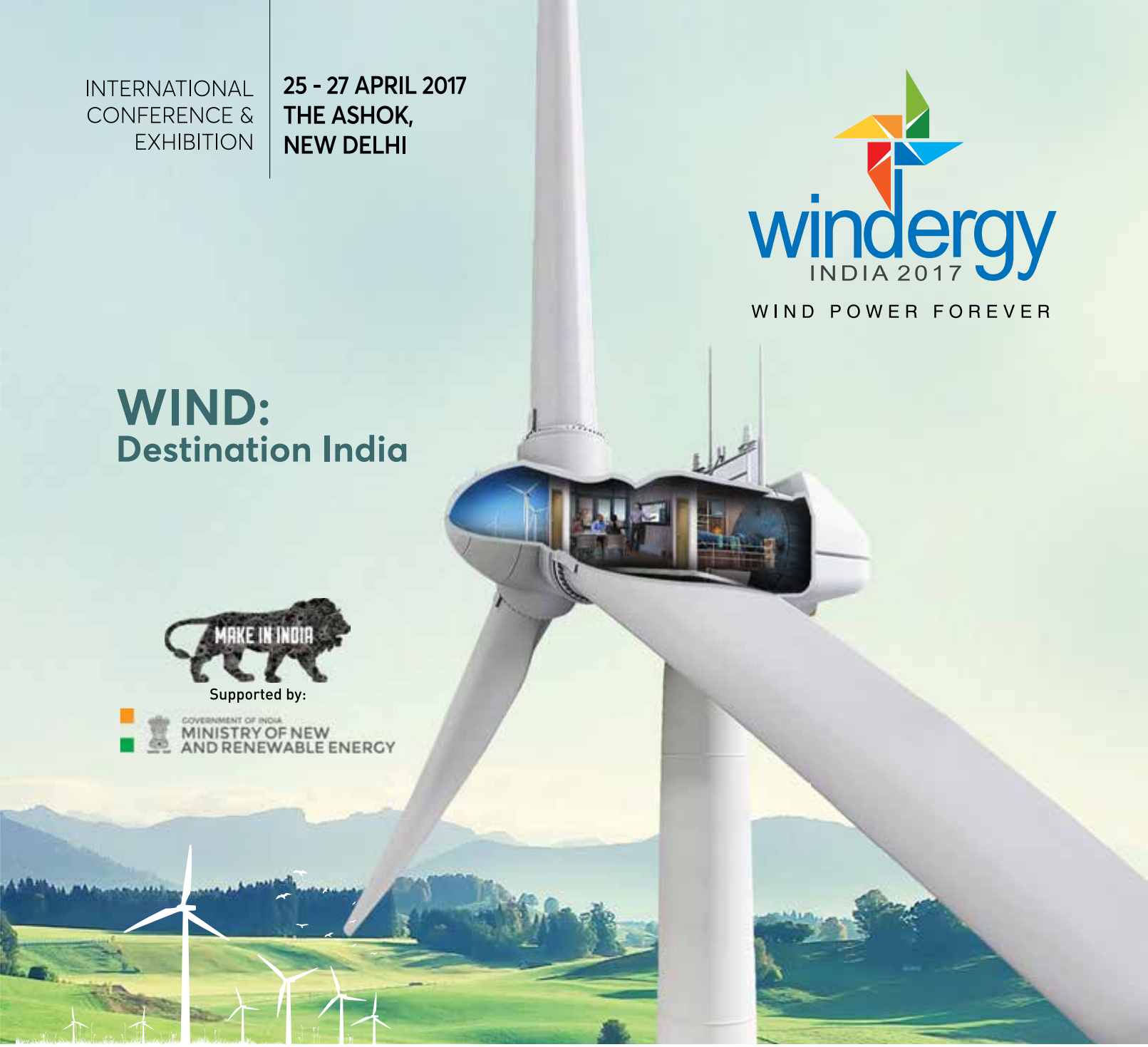

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Inox Wind - Energizing Rural India and Touching Lives

Kallol Chakraborty, Head (Group Corporate Human Resources)
Inox Wind Limited, NOIDA, U.P.

India's rising economic activities, growing population and improving living standards have led to a steady growth in her appetite for quality and quantity of energy services. As the economy expands the electricity demand is going to grow further. Considering the energy security concern for and commitment to a 'Low Carbon Growth Strategy', the 12th Five Year Plan of the country included plans to ensure sustainable development of the power sector. The 12th Five Year Plan's strategy aims to develop the Renewable Energy sector through capacity addition in wind power, small hydro power, solar power, and bio-power. Thus the Renewable Energy space in the country is going to witness a large number of RE projects in coming years. With this impetus an increase in the development of medium to high density wind and solar farms in India is expected. In this scenario it becomes important and necessary to revisit the impacts of Renewable Energy projects in the neighborhood where these projects are coming up.

Inox Wind having its wind farms in the four states across India touches the lives of the population in the vicinity of these sites. In addition, Inox Wind also has three manufacturing sites in the state of Gujarat, Himachal Pradesh and Madhya Pradesh. These foot prints, slowly but surely, is bringing about a socio-economic change in the backyards of the country.

Inox Wind is one on the best examples of Public-Private Partnership in Skill Development as part of the Skill India Initiative of the Narendra Modi Government. The manufacturing of rotor blade is a specialized, complex and highly labor intensive requiring highly skilled manpower which is not readily available. This had led to an imbalance in demand and supply of highly skilled manpower. No such training program/certification course was easily available in the state of Gujarat. Inox Wind Limited joined hands with Government of Gujarat through department of Employment and Training which has launched an initiative of Industrial Kaushalya Vardhan Kendra (i-KVK) where government and industries would partner together for developing industry specific skills. A MOU was signed between Inox Wind and the Department of Employment and Training on 24th February 2014 in the presence of Shri Narendra Modi, the then Hon'ble Chief Minister of Gujarat. The scheme of i-KVK involves utilization of infrastructure & experience available with Inox Wind where skill is imparted in its premises which involves theoretical as well as on job training. The whole process is monitored by the department of Employment and Training, Gujarat. Each candidate who completes the training undergoes the examination. Upon successful completion, Government & industry both issues a Skill Certificate. The first batch of 40 candidates was launched formally on 1st October 2014. Till now 7 batches have been completed and 8th batch is in progress.

Inox Wind Limited has always taken lead in supporting educational institutes in and around their sites. Across rural India, Inox Wind has supported the village schools by providing students with bags and water bottles periodically. In Himachal Pradesh, Inox Wind has donated water coolers and done plantation under the Go-Green Campaign in the Government Primary Schools. The Inox Wind Una Wives Association have donated woolen clothes, uniform shoes and computers to a Mentally Challanged Kids Ashram (100 Students) at Una. Computers and RO plants have been donated to schools in

Gujarat. Donations have been given to various schools to improve the infrastructure.

Inox Wind Limited has also taken a leading role in the betterment of health around their establishments. Regular Health camps are conducted sponsored by the company across India. Our Plant in Madhya Pradesh has taken a lead in this noble endeavor and has so far conducted more than a dozen village health camps where hundreds of villagers got access to modern medicine and health care advice.

Inox Wind is today present in four states and employs more than 3,500 employees. Most of these employees are "sons of the soil". However, the impact of the presence of our company in different parts of the country can be felt if we take the perspective of indirect employment generation. Every establishment being set up becomes a fulcrum of generating gainful employment or entrepreneurship. Across sites the company engaged more than 180 vehicles, all of which are hired from the local area. For various activities connected with the company, like security, horticulture, house-keeping, peons etc, indirect employment is generated.

Across India, Inox Wind have today engaged more than 2,000 personnel round the year. To a small extent, this is taking away the dependency of the village economy from solely dependent on agricultural income to industrial income. Thereby reducing the burden of "hidden unemployment" in the village economy.

What were the barren lands in the remotest areas of India, is now becoming the epicenter of industrial activity and socio-economic development. Thanks to the fill-up given by the Government of India for renewable energy - this is making companies like Inox Wind go to remote areas and set up centers of industrial activities. This in turn is setting the fly-wheel of socio-economic development in every nook and corner of India.

Snippets on Wind Power

Wind Industry News

- **Gamesa to Supply 304 MW Turbines for Five Wind Farms in India**

  Gamesa has secured contracts for 304 MW of wind turbines to install and commission 80 of its G114-2.0 class S turbines (160 MW) and 72 of its G97-2.0 MW class S (144 MW) turbines at five wind farms in India. Besides, it will be responsible for handling the operations and maintenance services at all of the facilities. At four of the wind farms, the company will take charge of construction.

- **750 MW of Solar Power Tendered at Record Low Price of INR 3.93/kWh**

  A new record-low price for solar in India has been set in the latest tender offered by the Solar Energy Corporation of India (SECI) for the Bhadla Solar Park in Rajasthan, and will see 750 MW of new PV capacity added for just INR 3.93/kWh ($0.0590/kWh), which undercuts the previous benchmark price for the state of INR 4.43/kWh ($0.0665/kWh).

- **Inox Wind Wins Repeat Order from Roha Dyechem for 40 MW**

  Inox Wind has bagged a repeat order for a 40 MW wind power project to be deployed in the state of Gujarat from Roha Dyechem Private Ltd. for supply and installation of 20 units of 2MW 113 meter rotor diameter turbine.

- **Gamesa bags order from ReNew Power for wind project in MP**

  Gamesa has bagged a contract from ReNew Power for a 50 MW turnkey project for supply of 25 units of G114 - 2.0MW T106 turbines at Amba, Madhya Pradesh.

- **Suzlon Receives Order from THDCIL**

  Suzlon Group has got a 63MW wind turbines order from Tehri Hydro Development Corporation of India Ltd (THDCIL) for 30 units of S97 120m Hybrid Tower, 2.1 mw turbines at Kandorna and Bhanwad sites in Dwarka, Gujarat.

Snippets on Wind Power

Shri Rajeev Kapoor Appointed as Secretary, MNRE

Mr. Rajeev Kapoor, IAS, 1983 Batch UP Cadre has been appointed as Secretary, Ministry of New & Renewable Energy after retirement of Mr. Upendra Tripathy, who has retired on 31st October 2016.

Shri Kapoor currently serves as Director, Lal Bahadur Shastri National Academy of Administration, Mussoorie.

Draft KERC (Procurement of Energy from Renewable sources) (Fourth Amendment) Regulations, 2016

Karnataka Electricity Regulatory Commission (KERC) has issued the Draft KERC (Procurement of Energy from Renewable sources) (Fourth Amendment) Regulations, 2016 vide notification no. Y/03/16/1875 dated 26.10.2016. The suggestions are invited on the draft on various matters.

CEA - Draft Technical Standards for Grid Regulation, 2007

Central Electricity Authority (CEA) has proposed various amendments made in the existing Technical Standards for Connectivity to the Grid Regulations 2007 and also new provisions have been added up in the latest draft regulation. CEA has invited the comments/suggestions are to be submitted by 31st December 2016.

MNRE Issues Procedure for Inclusion of a Wind Turbine Model in the RLMM

The new Guidelines for Development of Onshore Wind Power Projects have been issued by MNRE on 22 October 2016.

To facilitate SNAs, investors, lenders and developers the guidelines provides for bringing out the list of type and quality certified wind turbine models eligible for installation in the country by the MNRE. The list to be regularly updated through an online automated tracking and approval process. As the functioning of online process may take some time, till then the offline procedure for enlisting the wind turbine manufactures/models in the RLMM will be followed.

MNRE has issued the procedure to apply for inclusion of a Wind Turbine Model in the Revised List of Models and Manufacturers of Wind Turbines (RLMM) vide no. 66/183/2016-WE dated 27 October 2016.

Dr. Ashvini Kumar Appointed as MD of SECI

Dr. Ashvini Kumar, Director (Solar) SECI appointed as Managing Director in Solar Energy Corporation of India (SECI), New Delhi for a period of 5 years.

NIWE Releases RLMM List

National Institute of Wind Energy (NIWE), Chennai has released the Revised List of Models and Manufacturers of Wind Turbines –"MAIN LIST" prepared as per MNRE guidelines No.66/53/2000-WE (PG) dated 23.10.2000, based on the information provided by wind turbine manufacturers vide Ref. no.: NIWE/S&C/RLMM/2016-17/72 dated 26.10.2016.

It contains two lists:

Table A-1: List of wind turbine models possessing valid Type Approval/Certificate & Self Declared that their wind turbine model(s) comply with CEA Technical Standard for Connectivity to the Grid in terms of LVRT (voltage dips) & Harmonics.

This list contains 51 models ranging from 500 kW to 3000 kW from 18 manufacturers.

Table A-2: List of wind turbine models possessing valid Type Approval/Certificate & Self Declared that their wind turbine model(s) do not comply with CEA Technical Standard for Connectivity to the Grid in terms of LVRT (voltage dips).

This list contains 5 models ranging from 225 kW to 500 kW from 4 manufacturers.

Bonfiglioli to Expand Operations in India

Bonfiglioli Transmissions Pvt Ltd, the India-based subsidiary of Bonfiglioli Riduttori S.p.A. has announced an expansion of operations in India by including improvements to existing facilities in Chennai and construction of a new facility in Pune (Chakan area), for a total investment of 85 Cr INR (11.3 million euro). The current plants in Chennai at Thirumudivakkam and the Mannur manufacture gearboxes and gearmotors for mobile machinery, wind turbines and industrial processes.

Compiled By: **Mr. Abhijit Kulkarni**
Business Unit Head - Energy Segment
SKF India Ltd, Pune and
IWTMA Team

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Photo Feature

Indo-Spanish Wind Supply Meet

The Indo-Spanish Wind Supply Meet was organised at Leela Palace Hotel, Chennai on 15th and 16th November 2016. The meet was supported by IWTMA. This meet was in continuation of the event organized by the Navarra Wind Supply Association, which joins the vast majority of Spanish wind suppliers with presence in India, in Navarra, Spain during last month of September.

A large Spanish delegation of 15 companies and 40 people was accompanied by the presence of Vice-president of Navarra's Government Mr. Manuel Ayerdi. A number of wind turbine and component manufacturers from India participated in the meet.

IWTMA Chairman Mr. Sarvesh Kumar lighting the lamp during inauguration of the meet. Mr. Inaki Soto, Managing Director, Navarra Wind Supply Association; Mr. Manuel Ayerdi, Vice President, Government of Navarra; Mr. Carlos Jimenez, Chief Economic and Commercial Counsellor, Embassy of Spain in India; Dr. S. Gomathynagam, Director General, National Institute of Wind Energy, Chennai, India looks on.

Mr. Inaki Soto, Managing Director, Navarra Wind Supply Association, welcoming the delegates at the meet. Others on the dais from left to right are - Mr. Manuel Ayerdi, Vice-President, Government of Navarra; Mr. Carlos Jimenez, Chief Economic and Commercial Counsellor, Embassy of Spain in India; Dr. S. Gomathynagam, Director General, National Institute of Wind Energy, Chennai, India and Mr. Sarvesh Kumar, Chairman, IWTMA.

Mr. Sarvesh Kumar, Chairman, IWTMA deliberating on "Growing Challenges in Indian Market". Other on the dais are - Mr. Inaki Soto, Managing Director, Navarra Wind Supply Association; Dr. R. Kumarvel, VP, ReGen Powertech and Mr. N. Ravichandran, Indian Operations Director of Gamesa Renewables

Photo Feature

Round Table Consultations at Hyderabad and Ahmedabad

The Energy and Resources Institute (TERI) in association with Indian Wind Turbine Manufacturers Association (IWTMA) conducted First Round Table Consultation at the Park Hotel Hyderabad on 16th November 2016 for the stakeholders from Andhra Pradesh and Telegana. The Second Round Table Consultation was organized at Hotel Pride Plaza in Ahmedabad on 18th November 2016 for the stakeholders from the Western region.

Round Table Consultations at Hyderabad

Round Table Consultations at Ahmedabad

These consultations are the part of the international wind conference and exhibition, WINDERGY India 2017 for the stakeholders and members of wind energy to brainstorm on key issues that need to be addressed to achieve 60,000 MW target for wind energy by 2022. The output of this consultation will be part of the white papers which will be launched during WINDERGY International Conference, 2017.

The half-day consultation discussion covered -

- Power evacuation and grid integration
- Challenges in value chain of wind energy sector
- Project clearances issue
- Material quality and its performance reliability
- Transportation and Logistics
- Technical standards and certification
- Increased import duty on select steel products
- Building casting and forging facilities for manufacture of some key components
- Requirement of skill personnel for manufacturing blades, bearings, generators etc.
- Research and development on innovative designs for low wind regime
- Impact of new tariff policy and challenges in the financing sector

Know Your Member

ACCIONA WINDPOWER

(A Member of Nordex Group)

As a developer and manufacturer of wind turbines, Acciona Windpower offers high-efficiency wind turbines for onshore use. In addition to the overall technical design of turbines, Acciona Windpower is well experienced in developing concrete towers, rotor blades as well as electrical and control technology for wind turbines.

At its already operating plant in Chennai, Acciona Windpower manufactures its AW 125/3000 IEC IIb turbine with a rated capacity of 3MW. The plant will have a total output-capacity of about 450 MW per annum.

Acciona Windpower's proven technology and commitment to monitoring and improving its products will provide power generation asset that exceeds expectations, particularly in the key areas of availability and production. Acciona Windpower's quality systems for manufacturing, delivery, installation and commissioning have attained ISO 9001:2008 certification and have upheld the highest standards.

Nordex and Acciona Windpower merged its businesses in April 2016, forming the Nordex Group. Both Nordex and Acciona Windpower combine decades of experience in designing, constructing and operating wind turbines, delivering more than 20 GW of wind energy worldwide. The company currently employs a workforce in excess of 5,000. In 2015, Nordex and Acciona Windpower generated combined revenues of EUR 3.4 billion.

The Group owns factories in Germany, Spain, Brazil and the US, and has set up its Nacelle assembly unit near Chennai and the Concrete Tower Manufacturing facility in Bijapur, Karnataka.

Beyond the well-engineered technical development of more efficient turbines, the Nordex Group is driven by balancing the technical design and the economics of machines in order to reduce the cost of energy – which is to the advantage of our customers and of the environment.

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Windpower

Mr. Prashanth Vittal is the CEO of Nordex/Acciona Windpower India. He holds Bachelor's Degree in Electrical Engineering with over 22 years of experience in General Management and other functional roles in the Energy and Infrastructure industry. He joined Acciona Windpower India, a subsidiary of Nordex SE, in Feb 2016 from Acciona Energy where he was heading Projects and Operations and was part of team which set up Acciona in India. Before joining Acciona he was with GE for about 13 years in various senior management roles.

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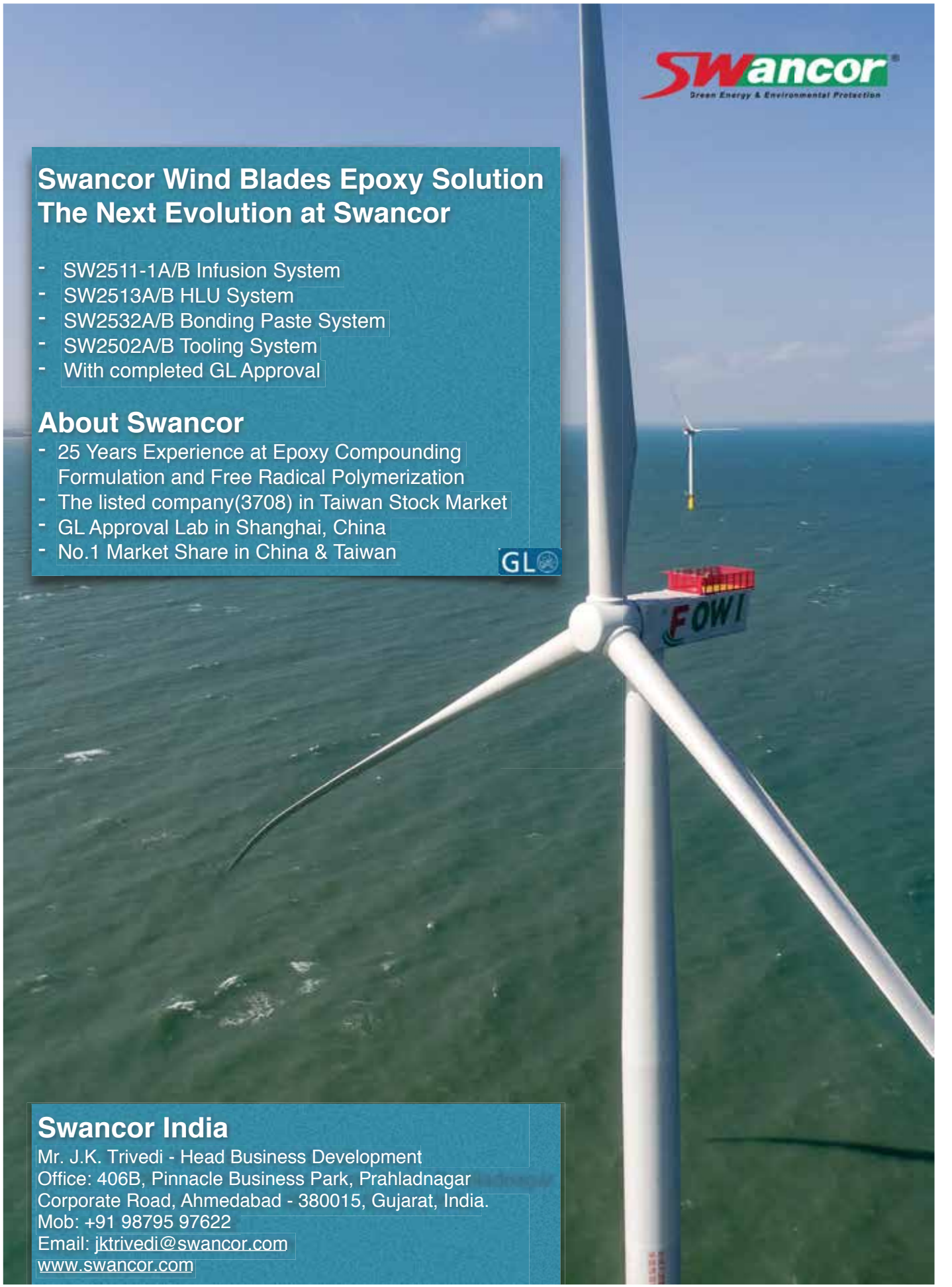

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