



WIND CHIMES

NEWS LETTER OF GWPL FAMILY

Issue-2

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March 2010-11 has come to an end and I would like to acknowledge the hard work put in by each one of you. Our production processes have been stabilized for the Tower and the 750KW Nacelle Plant and we are now known in the industry as a significant player.

March 2011-12 is a decisive year for GWPL as we build on the success of our 750KW turbine and introduce our multi-MW turbines. The 2.5MW is the largest turbine in India as on date and the 2MW is the biggest one in the gearless category. The policies are beneficial to the industry and I envisage a high level of growth for the next few years. This is evidenced by the high level of customer interest in our products.

The industry is competitive and we are well positioned. The key differentiating factor will be the ability to execute on customer orders. I therefore urge each one of you to take on ownership of your respective areas and focus on quality and cutting costs. We have the best of the people and our next level of efficiency will come from functioning as a cohesive unit that collectively concentrates on meeting and exceeding our customer expectations.

I ask you to recognize that delivering turnkey projects in this industry is complex with numerous dependencies, both, internal and external. Let us work as a team to excel in our respective functions and provide support to our fellow colleagues in their areas.

Warm Regards
M. N. Sudhindra Rao



WIND POWER INTEGRATION INTO ELECTRICITY SYSTEMS

by **Nagalingam Kannan**
Assistant Vice President – Nacelle

Wind power is clocking the fastest rate of growth among all forms of electricity generation in the world. The resource potential is large, and ambitious goals for wind power development have been set by many countries.

Wind power is increasingly being viewed as a mainstream electricity supply technology. Its attractiveness as an electricity supply source is due to the following benefits :

1. Very low lifetime emissions of harmful gases, particularly CO₂.
2. Significant economically exploitable resource potential.
3. No cost uncertainties from fuel supply price fluctuations.
4. Increased diversity and security of supply.
5. Modular and rapid installation.
6. Opportunities for industrial, economic and rural development.

As wind power availability has increased, so have concerns on how to incorporate a significant amount of intermittent and non-dispatchable generation without disrupting the finely-tuned balance that network systems demand. Grid integration issues are a challenge to the expansion of wind power in some countries. Solutions such as aggregation of wind turbines, forecasting and modelling have been implemented to facilitate larger market penetration of wind power. Collaborations are increasingly addressing the integration and grid improvement issues.

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Wind Power Overview

Estimates of the global wind resource potential are large and geographically spread. The total technically recoverable resource is estimated to be 53000 Terawatt hours (TWh). The IEA's 2004 World Energy Outlook estimates that by 2020 global electricity demand will be 25578 TWh.

Ambitious targets for renewable sources in energy supply have been established in many countries to diversify sources of power supply for their energy security / economic development reasons such as job creation / and environmental reasons, including greenhouse gas emissions. Examples include : • An European Union (EU) Directive which sets fixed percentage targets: the EU 15 have an overall target of 22% of electricity supply from renewable energy and the EU 10 have a target of 11%. • Germany's long-term target aims to produce 25% of the country's electricity from wind power by 2025. • China aims to increase wind power capacity to ensure 10% of its electricity supply is from renewable energy by 2020.

Technology Developments

Enhanced performance and cost reductions have been closely related to increase in turbine size. Until the mid-1980s, turbines were typically less than 100 kW with rotor diameters of about 20 metres. This increased to a few hundred kilowatts by the mid-1990s, when turbine sizes began to range from 0.5 – 1.5 MW. New turbines deployed in 2002 averaged about 1170 kW. In 2002, a large offshore demonstration project in Denmark was commissioned using 2 – 2.3 MW turbines, while in Germany, average wind turbine size reached 1.4 MW. The largest turbines being manufactured today are 4.5 MW capacity with a rotor diameter of 112 metres. A prototype 5 MW turbine with a 124 metres rotor diameter, the largest in the world, has been installed recently in Germany.

Interest in the potential for offshore wind development has grown more or less in step with the scaling up of turbines capacity and dimension. Offshore technologies are not yet proven than onshore wind turbines : the marine environment is more challenging, and it requires large fixed

investments to develop the infrastructure – civil engineering, ships, platforms, installation technologies and transmission lines. The ongoing development of onshore wind turbines and components is viewed by some as primarily the preserve of industry, because the technology is relatively mature. Both onshore and offshore wind power expansion face issues of grid integration, although the technical, operational and cost issues differ.

Challenges: Integration into Electricity Systems

Grid integration concerns has come into reckoning in recent years as an issue that may impede the widespread deployment of wind power systems. Two of the strongest challenges to wind power's future prospects are the problems of intermittency and grid reliability.

The conventional management of transmission and distribution operation is challenged by electricity market restructuring, security of supply concerns and the integration of newer generation technologies such as wind power. Transmission availability can be a barrier to wind power development. Favourable wind locations are often in areas distant from existing transmission. Building new transmission lines can be difficult due to planning barriers, land use rights and costs.

Strategies to Tackle the Challenges

Strategies to tackle the challenges of wind power grid integration :

- 1) Both R&D and new management techniques (network planning and operation).
- 2) R&D to increase the value of wind by facilitating electricity production forecasting.
- 3) Standardised certification and testing procedures for entire wind power systems.
- 4) The type approval and certification system help to mitigate market barriers, e.g., the European network of tests centres with mutually accepted test certifications.
- 5) Long-Term: turbine and infrastructure to interact in closer co-operation; intelligent wind systems to interact with other power sources in a network; electricity storage technologies.



by Debasish Chaterjee - Deputy General Manager - Stores

In life, we so often complain my profession has left no room for my personal life. It is run, run, run from dawn till dusk. You know how much I miss my family, my friend, my personal wishes and my desire to cherish life the way I want to. And with all the heavy feelings, we wait for the next day's mechanical life to proceed.

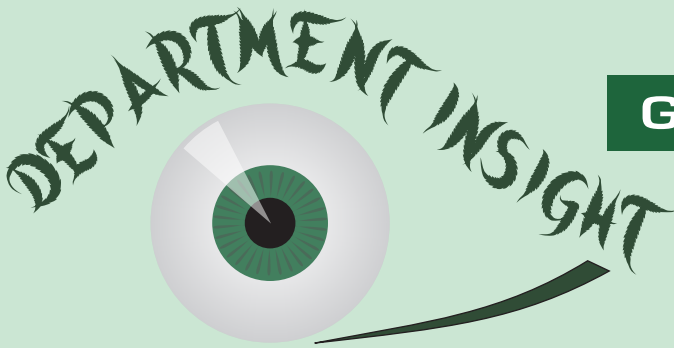
Is this really so? Have we ever done any introspection?

A small story says it all.....

A teacher comes to a classroom filled with students. She brings a big glass jar and places it on the table. Teacher asks a student- "bring the balls and fill those inside this jar". Student obliges and the jar is filled till the rim. She asks, can anything else go in. Students shout "NO". She empties out a sack of rubbles in the jar. She repeats, can anything else still go in. The reply is again "NO". She brings sand and fills inside. Again she asks, "anything more". Students remain silent. She pours water inside and it goes in till the bottom.

Let us now look at it like this.....The jar is my own life. Balls represent my profession, my career. After filling balls, we do always think, my life is choked and there is no room left there. Now if we consider rubbles, sand & water, stand for my personal feelings, my family, my wishes, my love, my desires, and the complete non-professional me, how well they fit inside the jar with the balls and fills every single space so nicely, leaving no gaps anywhere.

So let us all realise and remember that in our life, there always is space for not just our professional life, but also for our personal life. It is up to us to balance the two and enjoy life in totality. Let's live happily.



O & M DEPARTMENT



by **Suresh Makhija**
Head O&M

OPERATION AND MAINTENANCE DEPARTMENT (O&M) - THE FACE OF THE COMPANY

The responsibility of Operations and Maintenance department is like Customer's Asset Management. The major functions are Productivity, Environment, Health and Safety of the wind farm.

Basic function of O & M

Operation and Maintenance normally referred as O & M, is the face of the company for the customer. The machines are produced in the plant and erected by Projects. The O & M team then takes over the machines and from then on, is responsible for the operations and maintenance of the Turbine.

The O & M business is responsible for operations and maintenance of the turbines in the first year as a part of the warranty provided by GWPL and SWL. Subsequently it offers to customers various packages for Annual Maintenance Contracts for the machines. O & M team is responsible for keeping the machines in sound condition for the life time and also have satisfied customers by achieving the best performance from the machines in terms of availability.

The other major role of the O & M team is to analyse various problems in the machine to provide feedback to Manufacturing, Materials, Marketing and Engineering teams, to make continuous improvements in both product and services.

Our Management has a very strong focus on customer satisfaction.

CUSTOMER SATISFACTION AT THE LOWEST COST WITHOUT SACRIFICING QUALITY AND SAFETY IS THE PHILOSOPHY OF OUR TEAM.

Annual Maintenance Contracts:

For satisfaction of different segments of the customers while we offer different policies and services based on the requirements of customers, we leave the choice to the customer. However most of the customers prefer the Comprehensive Annual Maintenance contract with us. Sometimes if the customer desires, we make customised contracts based on customer needs.

Presence of O & M

O & M is maintaining our turbines all over India and on date we have around:

- 425 machines of 225 KW at Five major sites- (300 under AMC and 125 under warranty)

- 80 machines of 750 KW at Three major sites-(22 under AMC and 58 under warranty)
- One prototype 2 MW.

Main functions of O & M

1. **Machine Availability:** The main function of O & M is to maintain machines trouble-free, and have machine availability of more than 95%. This is achieved by:
 - Proper planning of all inputs such as manpower, spares and tools.
 - Proper scheduling of preventive maintenance.
 - Continuous improvement in product, process and on-call response.

The machine availability for the last year was around 98%. This is comparable to Best In Class for wind turbines.

2. **Power Generation:** Even though the machine availability is maintained, the satisfaction of the customer is based on the generation of machine. O & M team, continuously analyses the generations of various machines on a regular basis and undertakes corrective / preventive actions, to optimise the power generation.
3. **Customer feedback:** This is an important tool, through which we are able to address the issues raised by customers and improve the company satisfaction level. The last feedback received was, on a scale of 100, the satisfaction level was at 80%.
4. **Internal audits:** This is an important tool to assess if the systems, procedures etc. are being followed properly. The system for this is under implementation.

Other functions of O & M:

1. Interactions with Electricity Board for :
 - a) Availability of grid.
 - b) Timely submissions of EB invoices and follow-up for the payments.
 - c) Various statutory requirements.
2. Interactions with local government agencies for requirements of customers for documents etc.
3. MIS for customers :
 - a) Daily Generation reports.
 - b) Performance of the machines.
4. Providing support to customers for CDM activities as well as on any queries from customers.

The success of O & M team depends not only on their team members but more so on the support from all departments across the organisation as O & M team is committed to get the best out of our turbines. There is significant contribution of other teams in the performance of O & M and without their support, O & M will not be able to perform at their best.

O&M Department is confident of improving the performances of the machines as well as reduce costs for O & M activities, with the strong support from all other Departments.

To conclude, the performance of the O & M team will significantly influence customer opinions especially on repeat orders for the company and hence we are face of the organisation.



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Employee Welfare & Corporate Social Responsibility (CSR) Activities at our Silvassa Plant

by **Vijaykumar**, Assistant Manager - HR



1. Support provided to Government Hospital in Khanvel for the Polio Camp which was scheduled on 23rd January 2011 & 27th February 2011. We have extended support by providing two volunteers for the two booths in Kherdi village and one vehicle for the whole day for vaccine transportation and other work related to Polio Camps.
2. Blood Donation Camp organized on 24th January 2011 at Silvassa factory. Total staff participation was 92 members and 69 bottles of blood were collected.
3. Republic Day Celebration on 26th January 2011 – Flag hoisting was done at 9.00 a.m. and Inter Department Cricket match was organized. The cricket match was won by the “Tower Plant Team” and runner up team was GWPL. GWPL team consisted of company employees as well as contract employees. Total of Six matches were played – four knock out matches, two semi-finals and one final. Prizes were distributed consisting of Gold and Silver medals to the Winners and Runners.
4. Support extended to the Police Department of Udhwa for their Annual Welfare program on 31st January 2011.
5. Supported the local Gram Panchayat of Amboli for their Annual Sports Day by providing dress (White T-Shirts & White Pants) for their cricket players.

6. One friendly 20 – 20 Cricket match was organized with our neighbour company M/s. Hindalco Ltd., Khanvel on 6th March 2011. GWPL Team headed by Mr. Digvijay Solanki as Captain and Mr. Krunal Panwala as Vice Captain won the match by 5 wickets.
7. During the 40th National Safety Week, we observed the Safety Week in our factory premises from 4th to 10th March 2011. Weekly program were as follows:
 - a) 4th March – Opening ceremony – Safety Flag hoisting, Safety Oath taking, Safety Badge distribution and inauguration of Safety Exhibition.
 - b) 5th March - Collection of Safety Slogan, Safety Posters, Safety Essay & Safety Poems from all employees.
 - c) 6th March – Safety Exhibition was organised for the whole week and HODs were invited to give a speech each day on Safety for half an hour.
 - d) 7th March – Safety Quiz Competition.
 - e) 8th March – Training on First Aid provided by St. John Ambulance Team to 32 participants including company as well as contract employees.
 - f) 9th March – Fire Hydrant and Fire Extinguishers Mock drill.
 - g) 10th March – Closing ceremony followed by prize distribution to winners of the 40th Safety Week.



Service Hand of GWPL at Polio Vaccination Camp



Safety Oath



Winners Award



Victorious Tower Team



Safety Team of Silvassa



Safety Demo



A Noble Act



Helping Save a life



Security Team Parade on Republic Day



20-20 match with Hindalco - GWPL winners



Man : What is the name of your car?
 Lady : I forgot the name, but it starts with 'T'.
 Man : Oh, what a strange car, starts with Tea. All cars that I know start with petrol.

Teacher : What is your name?
 Student : Mera naam Suraj Prakash hai.
 Teacher : When I ask a question in English, answer it in English.
 Student : My name is Sunlight.

Teacher : Can anyone give me an example of Coincidence?
 Johnny : Sir, my mother and father got married on the same day same time.
 Teacher : Now children, if I saw a man beating a donkey and stopped him, then what virtue would I be showing?
 Student : BROTHERLY LOVE.

Contribution from :
Ms. Trupti and Mr. Suraj of Mumbai Office