

Improving Wind Turbine Generators (WTG) profitability through Safety & quality Initiatives

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Stephen lists the Safety Issues that need to be addressed in a Wind Energy Project. As India moves into the top 5 wind energy countries; its time the wind industry in India look beyond numbers.

WTG's should believe that a project will be considered a success when all of our employees return home safely each evening. Safety is accomplished by a proactive teamwork approach. Therefore WTG's must believe that by eliminating accidents and injuries, the total performance of the company is improved. To do this Romax not only provides training for staff but reviews new and existing legislation.

A recent court decision within the Madurai Bench of the Madras High Court set benchmark for the India wind Industry.

The case of S. Muppudathi v. The Chief Engineer [WP (MD) No. 9930 2011] raised the issue of, would an installation of a wind turbine and subsequent buildings fall under the requirements of Section 2(9) of the Employees Insurance Act 1949 as well as the Tamil Nadu Panchayats Act 1994. The court identified that within the meaning of the Employees Insurance Act 1949 the premises of the company are classed as a factory, although any transmission lines would not be classed as part of the factory.

This clarifies a WTG operators understanding as to what is constituted as a factory; a wind turbine is now classified as a factory as well as any substation and/or clerical building within the wind farm perimeter fencing. This would mean that any employee whether managerial, clerical or cleaner falls under the definition of an employee as per section 2(9) (i) of the act.

As there is now the clarification as to what is constituted as a factory then permission for the construction of a factory must be sought. The primary focus of this judicial review is that once a wind turbine is considered as a factory, any labour and

factory laws that are applicable to a factory as defined under Factories Act 1951 would automatically apply.

Therefore, compliance under various Labour and Industrial laws would have to be adhered to by the principal employer or any of his agents and/ contractors.

A company must take the lead by creating a unique package of safety programmes for new and existing customers focusing on improved revenue for WTG's by improving safety & quality on site. By implementing a positive safety & quality scheme within your company you will commence to see improvements with quality financial and workforce satisfaction all great for you and even better for your customer:

- Quality build and O&M, right first time, on time and safely completed.
- We want to see ALL injuries acknowledged by our staff and NOT hidden.

A company goal is for its employees to return to work safely. Park availability must also meet a goal of over 95% (contractual 90% annual availability on two wind parks that are over 3 years of age) and should steadily increase, the graphical representation relates to total operational time of turbines (Note: reporting of such data is not from when the engineer arrives on site as is reported by some Wind Parks, but from first identification within the WTG control room).

How is this achieved, an important part of the culture change has been to break down the natural reticence of staff and contractors to be totally open about their safety record. Once we have trust and openness, we can begin to share best practice and improve things. This ongoing initiative is no longer a standalone

activity, but an integral part of the way we work. While the performance measures and reduction in accidents are tangible evidence of the success of the programme, the fact that we have achieved buy-in at all levels of the organisation and contractors the way in which it has helped to improve the quality of the services delivered to our customers are our greatest achievements.

By adopting the principle that safety at work was a key operational issue, safety could be proactively managed to provide a real differentiator rather than an activity imposed through policy measures. Understanding that people's attitudes and beliefs had a huge bearing on their approach to safety and if we could influence the culture throughout the whole of the business, we would go a long way towards setting new standards in the areas of safety, teamwork and ultimately, business performance & profitability.

A benchmarking system has to be created within your organisation no matter what size you are obviously the larger the company the better as if safety improvements are 'rewarded' thus creating a competition between departments and / or contractors – as to who has improved the most. One important factor for this improvement is for the benchmarking report to be discussed and reward provided from board level.

Many companies have spent a lot of time and effort improving safety, usually by addressing hardware issues and installing safety management systems that include regular (e.g. monthly) line management safety audits. Safety Leadership is a vital component of any Safety, Health & Environment process, helping to improve



Picture 1: Excessive Oil in Gear Box; Electrical installation.



Picture 2: Crushed Power Cable, Bearing Inspection, Torque Analysis.

employee's safety behaviour by as much as 86 per cent.

Over a number of years these efforts tend to produce dramatic reductions in accident rates. Often, however, a plateau of minor accidents remains that appears to be stubbornly resistant to all efforts to remove them. Although many of these are attributed to peoples' carelessness or poor safety attitudes, most of these are triggered by deeply ingrained unsafe behaviours occasionally originating from the home. WTG's must address these by making use of proven management techniques which almost always results in a positive step change in safety performance, safety attitudes which adds improved profitability for your WTG.

A key factor to installation successes is the approval of contractors working on your project, assess your contractors against your benchmarking standards then grade the contractor.

To complement the audit process, WTG's should have created an audit programme which looks at not just your policies and procedures but at your actual Wind farm down to actual turbines. Detailed reports are fed back to WTG owners as to the condition of each WTG as quite often owners never go near the turbine and they are extremely reliant on O&M providers for updates. By 'stepped



Picture 3: Marks not in alignment; Rescue facilities, etc.

to the front' by providing a total impartial audit service (ISO 9001, 18001, 14001, BS EN 50308:2004) for WTG's, covering installation, commissioning, O&M and even de-commissioning activities WTG's will improve their profitability. Such audits cover areas such as oil and grease analysis (do you have the correct grease and oil installed and are they at the correct levels.

Working at height is a dangerous activity therefore to protect staff and contractors each should be suitably trained and instructed in the ability to climb and rescue fellow staff. WTG's must also provide Working at Height Training together with Rescue training for staff working on turbines. Certification is provided for successful participants on either courses and is valid for one year.