

# CONDITION DIAGNOSTICS FOR WIND PARKS FROM WINERGY BASED ON OPENpredictor™

POWER



**Winergy partners with Rovsing Dynamics to develop their new Predictive Condition Diagnostics solution for wind turbines. The objective is to increase the availability and facilitate Condition Based Maintenance to reduce wind park owners' total cost of ownership.**



Winergy, a German based leading supplier of innovative drive systems to the international wind power industry, presented its new Condition Diagnostics System for gear boxes and other critical wind turbines components at the recent Husum WindEnergy trade show. The first system was recently put into operation.

## **Automated solution for high availability & low lifecycle costs**

"To fulfil wind park owners requests for high turbine availability, optimized maintenance planning and low lifecycle costs, we wished to extend our offerings with more than just a simple alarm system," says Dr. Volker Kreidler, Winergy's Chief Technology Officer. "We want a predictive monitoring solution which forecasts developing turbine faults and predicts lead time to action. It must be an intelligent solution with automated diagnosis based on software, not people, doing the cumbersome analysis of vast amount of real-time data on component health. Remote monitoring of large wind parks with advanced user-oriented reporting possibilities are other key requirements. All these

features are paramount for cost-efficient monitoring of wind parks. With support from Rovsing Dynamics we have now reached this goal."

## **Standard products adapted to suit the needs of wind parks**

The Predictive Condition Diagnostic solution is based on standard products, which have proved themselves in daily operation world wide.

Rovsing Dynamics' advanced OPENpredictor™ signal processing software and patented AutoDiagnosis™ with automated fault identification and prediction have been adapted to suit the needs of wind turbines and embedded into a strong Siemens hardware platform. The solution had to pass several tests to fulfil a range of tough requirements specific for wind power

applications:

- Compact hardware due to the limited space inside the wind turbine
- Able to withstand harsh weather conditions: cold, heat, vibrations due to storm
- Remote monitoring with automated warnings about developing problems. This enables few operators to keep overview of large, land based and offshore wind parks with up to more than 100 turbines from distant, more convenient locations.

## **Combining know-how**

"To meet the booming wind power industry's requests for predictive health diagnoses, it was ideal for us to partner with Winergy rather than developing our own solution," says Rovsing Dynamics' CEO Thea Larsen. "Experts from both companies worked together on the new

dedicated wind turbine solution and combined the best from two worlds: Winergy's unique know-how and more than 25 years' experience from supplying wind power drive systems for one out of two of the world's wind turbines plus Rovsing Dynamics' unique experience in advanced signal processing and automated machinery health diagnostics. We see it as a yet another quality stamp that a leading German manufacturer like Winergy chooses to lean on our OPENpredictor™ technology."

#### Flexible approach for new wind turbines & retrofit

Winergy's new diagnostics system can be supplied for new wind parks or retrofitted

to existing ones. The overall approach is modular and flexible. It can be applied to gearboxes and other turbine components like e.g. generators, rotor blades and pitch systems for wind turbines from 1 MW to 5-6 MW.

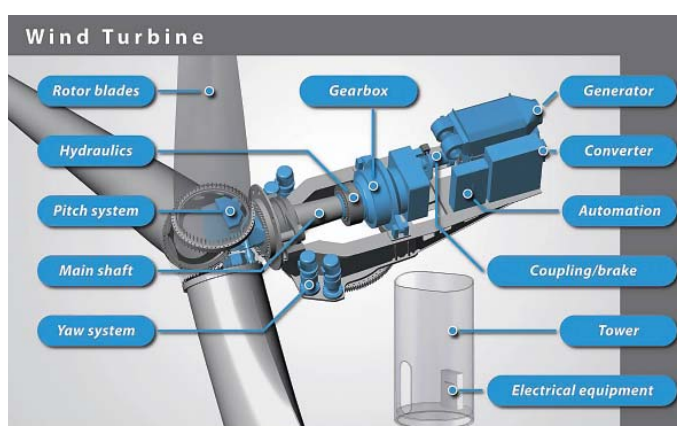
Typical, critical wind turbine problems to be diagnosed:

- Gear wear & tooth damages
- Rolling element bearing wear & defects
- Rotor unbalance & misalignment
- Generator asymmetry.

#### Prevented downtime saves costs

Early warnings about developing component faults prevent

downtime and lost revenue, and extend wind turbine lifetime. Wind park owners and operators benefit from a user-friendly overview of health information on all turbines plus better maintenance planning and spare parts procurement. This is especially beneficial in today's rapid expansion of large wind parks in remote locations.



If e.g. an offshore wind turbine is hit by a damage and harsh weather and/or spare part delivery prevents immediate repair, the result could be two months downtime plus repair costs and lost electricity production amounting to EUR 400,000 or more.

Read more: [www.winergy-ag.com](http://www.winergy-ag.com)

## HIGH GROWTH IN WIND POWER

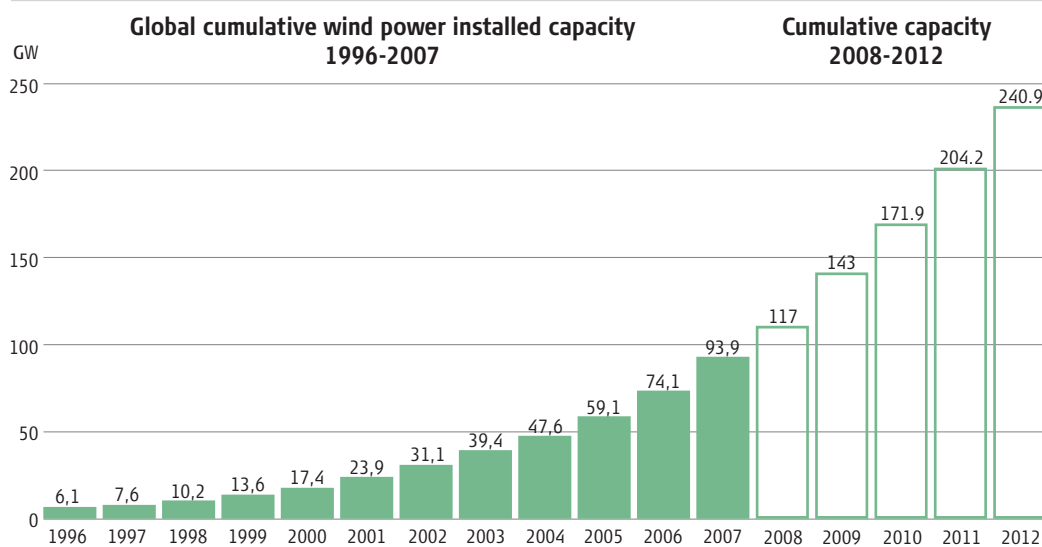
The use of wind power is increasing rapidly to fulfil many nations' goal of a much higher percentage of power from

renewable energy. The European Union has introduced a legally binding target for 20% of the region's energy to come from

renewable sources by 2020. Today wind power accounts for about 1% of the global electricity coverage.

In the last decade the total global use of wind power has increased dramatically from a total capacity of 6,100 MW to 93,864 in 2007 with average annual cumulative growth rates of over 32%. Last year another 19,865 MW capacity (27%) was added. Germany, the US, Spain, India and China are hosting most of the installed capacity today.

Over the coming five years, wind power capacity is expected to grow with around 20% each year. Offshore wind parks' relative share of the installed wind power capacity is anticipated to increase from 1% last year to over 3 % by 2012.



Sources: Global Wind 2007 Report, Global Wind Energy Council; BTM Consult