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windpower Revolution

renewable solutions

Going Green

The 2020 Renewable Target

The countries of the EU are currently the global leaders in the development and application of renewable energy. The use of renewable energy sources is important both to the reduction of the EU's dependence on foreign energy imports, and in meeting targets to combat global warming. Germany and the United Kingdom are currently the only members of the EU that are on track to achieve the objectives set by the Kyoto Protocol on climate change.

However, in September 2008, leaked documents from the council of the EU reveals "member states want the aviation sector to be excluded from... the overall target." Luxembourg MEP Claude Turmes criticised the UK's approach: " Britain is leading the attempt to undermine the climate change directive. Gordon Brown promised that the UK would not attempt to cut the EU 20% renewables target... Now UK civil servants from the Department for Business, Enterprise and Regulatory Reform have a different strategy and are pushing for cuts. A government that is supposedly committed to tackle climate change must not try to kill the essence of this directive."

"Quo Vadis, Wind Energy"

windpower renewable solutions Ltd Held Second Wind Energy Forum

The second Wind Energy Forum "Quo Vadis" was held at OrbisEnergy in Lowestoft on 5th December 2008.

There is only one way to describe the 2nd Quo Vadis Forum: Very Successful.

With over 60 attendees, nearly every major owner was represented.

The agenda was packed with interesting information from our speakers:

Sigrid Donovan gave an in-depth presentation on windpower renewable solutions Ltd which set the scene for the rest of this amazing day.

Steve Clarke introduced Renewables East and the revolutionary OrbisEnergy Building, followed by presentations from Stork Gears & Services, FAG/INA F'IS (FAG Industrial Services), GasTops and Shell.

In the exhibition area ten companies who are trying to build their business in renewables had their own display stands.

The Forum was buzzing all day, the activity was great to watch, and Quo Vadis still proves to be a success story.

Watch out for the date and venue for Quo Vadis 2009.

Help Is At Hand

As everyone is aware, availability of large size bearings is a major problem for the wind industry. Who can afford to wait 6 to 18 months - or even longer - for a gearbox to be refurbished?

windpower renewable solutions Ltd. saw the problem coming; by placing orders for large quantities of these bearings aeons ago they are now in a position to offer many of these bearings from stock.

As Niche Market Distributor for the renewable industry for INA/FAG and authorised distributor for SKF, windpower renewable solutions Ltd. represent the world's major bearing suppliers. The stocks include the SL and LSL ranges of full compliment bearings from INA and large size cylindrical roller bearings of the NU and NJ design from SKF.

windpower renewable solutions Ltd also benefit from 6 years of intensive work collating information on bearing sets that are used in wind turbine gearboxes. The database contains information on some forty gearbox units as well as main and blade bearings.

"When one tugs at a single thing in nature, one finds it attached to the rest of the world."

John Muir (1838-1914), Naturalist and Writer

Lubrication at the right time and place

SKF's Vogel Windlub lubrication system is designed to minimise the need for manual lubrication of all the critical components including pitch and yaw slewing bearings/gears, main shaft bearings and generator bearings.

As a consequence of a poorly executed lubrication regime, turbines can run "dry" or at dangerously low lubrication levels, which can lead to bearing damage, even failure, and - on a larger context - even shorten the life expectancy of the turbine. This type of damage or failure results in a significant increase to unplanned running costs ranging from general maintenance (labour), to component replacement, support services, not to mention lost capacity.

Tim Veal, SKF Lubrication Solutions Manager says: "We have found that many end users have little control over the re-lubrication procedure, i. e. quantity and frequency. Similarly, manual re-lubrication is a costly procedure and requires regular, planned access and is often dictated by the type of machine, its environment and as such often gets missed or sacrificed."

In the case of turbines with higher than 1.5 MW output, automatic lubrication systems are now, in the main, built in at the OE stage. However, end users and wind park owners are now looking to introduce such systems onto smaller machines, to turbines that have not been fitted with this technology, or in situations where maintenance is no longer the responsibility of the builder through warranty but that of the user.

It is possible for the majority of these turbines to be equipped with some form of automated lubrication. Also, in combination with SKF WindCon System, the end user can take comfort and security from knowing that the lubrication system is functioning and delivering lubricant when required and in the correct dosage by planning maintenance periods that fall in line with planned outages rather than through component failure.

"The future belongs to those who understand that doing more with less is compassionate, prosperous, and enduring, and thus more intelligent, even competitive."

Paul Hawken, Environmentalist, Entrepreneur and Journalist

MetalSCAN Proven On Wind Turbines

MetalSCAN again demonstrates its effectiveness as a reliable equipment condition monitoring technology. After two years exploring the wind turbine marketplace to understand the maintenance, reliability and operational challenges facing operators in this new growth market, GasTOPS now has significant application knowledge of monitoring the condition of a variety of wind turbine drive gearboxes. Now well known in the industry as being the wind turbine drive component having the most reliability challenges, these gearboxes are increasing in size and complexity as wind turbine output ratings grow.

Premature failures of the internal bearings and gear train of these gearboxes continues to challenge all of the wind turbine manufacturers. The focus has been to apply vibration based condition-monitoring solutions to detect progressing damage internal to the gearbox in the hopes of limiting damage and repair cost exposure for operators and insurers. Significant investments have already been made by many of the manufacturers in vibration technology, however, without the level of success that all had hoped for. The overriding technological challenge for vibration detection is clear – the rotational speeds of the wind turbine are very low, thus the energy levels are low, and as such the vibration energy generated from contact surface damage is extremely difficult to discern from normal background vibration.

The MetalSCAN oil debris monitor is a natural for the wind turbine gearbox application since they are all equipped with pressurized oil lubrication systems and when internal damage occurs, large quantities of debris easily detectible by MetalSCAN, are introduced into the oil system. After fitting MetalSCAN to more than two hundred operational wind turbines over the years GasTOPS now has the evidence to prove it.

Debris will appear at low levels and be monitored over a period. The particles will gradually increase indicating that the damage is progressive. The planetary section is the hardest to detect due to the low speed of the stage. It presents the biggest challenge for conventional vibration based monitoring systems. The cost savings that can be achieved by the early damage detection in planetary sections can be enormous. MetalSCAN is a must fit for wind turbine gearboxes.

MetalSCAN installed on a GE1.5 turbine

> **"Sooner or later, wittingly or unwittingly, we must pay for every intrusion on the natural environment."**
>
> *Barry Commoner, U.S. Biologist*

windpower renewable solutions Ltd. are proud to have been appointed Sole Distributor for GasTOPS MetalSCAN in the UK and Ireland.

The Other Life of a Wind Farm Manager

In his day job Jon Beresford manages over 80 MW of wind power for E.ON Climate and Renewables including Scroby Sands Offshore Wind Farm off the coast of Great Yarmouth. So it's a wonder how he also finds the time to run an animal rescue centre that he and his partner founded and now run as a Charity.

Jon and his Partner Beth have been rescuing sick, injured and abandoned wild animals for over 4 years. In 2007 they ploughed their life savings into purchasing a 4 acre property where they set up Brinsley Animals Rescue. With their extended land they have expanded into taking in abandoned and unwanted pets as well as rescuing farm animals.

In the last year alone they have rescued over 700 animals which include 450 ex-battery chickens, 100 rabbits, 8 pigs, 8 goats, over a hundred wild animals and many other small pets. They currently have over 250 animals at their centre which they care for daily.

The Charity's aims are to rehabilitate and release wild animals, rescue pets and farm animals and find them loving lifelong homes, where this is not possible Jon and Beth will give them permanent sanctuary.

Jon explaines: "Beth and I first volunteered for an animal ambulance charity and found that there were not enough people who had the right skills to rehabilitate wild animals and so we trained ourselves and started to take them on. We began by hand rearing baby bird chicks and now treat all kinds of injuries in wild animals including broken bones. Last year we rescued a pheasant that had been shot, her injuries included a broken leg and wounded other leg. We managed to completely cure her and release her back into the wild well away from hunters."

"We have built up our skills and knowledge and now have quite a reputation which means that the public, police, other rescue centres and even vets contact us for advice as well as to bring animals to us for treatment."

"Our busiest period is spring when we have a procession of baby wild animals which need to be hand reared. These are generally bird chicks but often include hedgehogs, fox cubs, squirrels and even wild mice. Hand rearing is very time consuming, I have often had to take a bird chick into work so that I can feed it every hour. As I frequently work away from home I have even had to ask for permission from hoteliers to bring baby animals into my room so that I could continue to care for them."

In 2008 they rescued 6 baby goats from a dairy farm. Jon clarifies: "Goats, just like cows and all mammals, have to have young to produce milk. Unfortunately the young are a waste by-product. When we rescued these goats they were only a week old and so had to be bottle-fed every 4 hours. They have all survived and 2 are now in lifelong loving homes, the rest are still looking for that perfect residence."

If you would like to know more about the good work Jon and Beth carry out you can check out their website at www.brinsleyanimalrescue.org. The site contains details of rescued animals looking for adoption as well as details of how you can make a donation or help this very worthwhile cause.

windpower renewable solutions Ltd. have pleasure in donating £100 to this great project that deserves support.

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