WindEnergy NETWORK

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

THETIS MRE 2014 CHERBOURG

SPOTLIGHT ON SOUTH HUMBER

Global Offshore Wind Preview

Focus on the Tyne

MAY/JUNE 2014 | £7.50

THETIS MRE 2014

THETIS MRE 2014 CHERBOURG

We visited this memorable event in Normandy and found a region and indeed a country working together to ensure future success.

The bonhomie experienced was quite something! Read all about the trip later in this edition.

TYNE FEATURE

Our 'Spotlight On…' feature focuses on the port of Tyne North East, one of the many regional ports which have evolved to serve the needs of the industry.

SOUTH HUMBER

We also turn our spotlight on South Humber featuring AbleUK's development and the vast array of companies and organisations who sit within the supply chain.

LEAD ARTICLE TÜV SÜD

Windfarms in forest areas – energy harvesting at great heights. Test masts show high-wind sites can also be found in forest areas in southern Germany.

TÜV SÜD analysis of the first interim results are very promising – wind speeds are higher than expected and overall windfarm conditions at the site are excellent.

The lead industry article has been written by Peter Herbert Meier from TÜV SÜD Industrie Service.

FEATURES – GET INVOLVED

The magazine continues to grow and it is now commonplace to see separate features on all sorts of areas within the industry. These features emanate from our discussions with leading experts in the industry during our visits to conferences and events, as well as our editorial team bringing up subject areas when looking at the industry as a whole.

Please feel free to contact us if there is any subject area which you think may be of interest to our readership and we will do the rest – there is never any charge for genuine editorial.

You will find our 'Forthcoming Features' tab on our website in the magazine section.

MAGAZINE AND WEBSITE INTERACTION – QR CODES

Yet another reminder that we have changed our pink and green flashes indicating more information online. QR codes have been substituted in the printed version which means that you can scan the code with your smart phone and it will direct you to the featured company or organisation micropage held within our website, so that you can learn much more in all sorts of formats.

These have already become very popular as it links the printed magazine in a very interactive way – a great marketing tool for our decision making readership to find out about products and services following the reading of an interesting article.

JULY/AUGUST 'HULL & HUMBER SPECIAL EDITION'

We widen our focus on the area following the Siemens announcement to the whole of the Hull and the Humber region – in fact we have decided to produce a 'Hull & Humber Special Edition' which will dominate the next issue.

This 'Hull & Humber Special Edition' will also include a supplement which will be a pull-out and keep matrix of 100 companies involved within the supply chain serving the needs of the industry.

We will welcome your editorial involvement in this edition.

Duncan McGilvray
Editor | **Wind Energy Network**

www.windenergynetwork.co.uk

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Scan/click this link to find out how to get involved in this magazine

QUO VADIS BERLIN, GERMANY

BERLIN WAS THE VENUE FOR THE QUO VADIS CONFERENCE IN 2013, AN INVITATION ONLY EVENT FOR THE INDUSTRY, WHICH HAS BEEN GROWING SINCE ITS INCEPTION SOME 7 YEARS AGO.

QUO VADIS 2014 IS SCHEDULED FOR HAMBURG IN OCTOBER AND WE CONTINUE OUR SUPPORT FOR THIS MUCH APPLAUDED INDUSTRY INITIATIVE.

SPOTLIGHT ON SOUTH HUMBER
Some time ago we planned this feature on the South Humber because of AbleUK's intended developments. The much awaited Siemens announcement then emerged so we are at present planning a much more comprehensive and expansive 'Special Edition' of Wind Energy Network covering the whole region of Hull and the Humber.

THETIS MRE 2014 CHERBOURG
We visited this memorable event in Normandy and found a region and indeed a Country working together to ensure future success.

FOCUS ON THE TYNE
The Port of Tyne embraces the offshore renewable industry.

GLOBAL OFFSHORE WIND PREVIEW
We have a quick look at some of the highlights of the upcoming RenewableUK event in Glasgow in June 2014.

Duncan McGilvray
Editor | Wind Energy Network

Front cover image:
Berlin, Germany

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WIND FARMS IN FOREST AREAS ENERGY HARVESTING AT GREAT HEIGHTS

Test masts show high-wind sites can also be found in forest areas in southern Germany.

TÜV SÜD has been operating a test wind mast in northern Bavaria for over one year. The wind professionals use the mast to investigate wind conditions at a site located in a forest area near Erbendorf. Their analyses of the first interim results are promising: wind speeds are higher than expected and overall wind-farm conditions at the site are excellent.

FOREST GROWTH

More and more wind farms are being installed in forest areas on Germany's low mountain ranges. The southern German states in particular have stepped up investments in wind power in recent years.

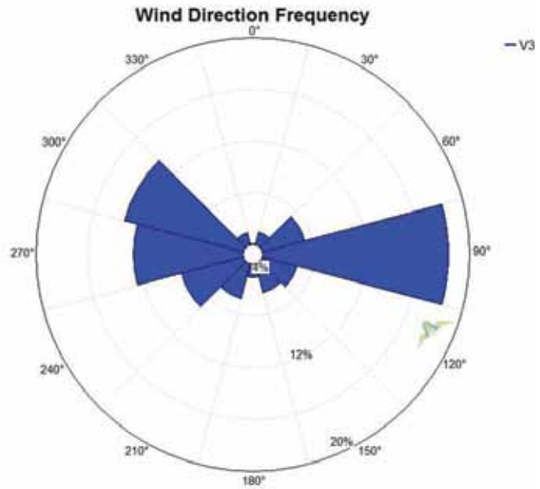
As experts' opinions on viability and profitability tend to differ, this development is controversially discussed among the specialists. Generally, wind speeds in these regions are lower while costs – because of higher turbine towers and larger rotors – are significantly higher.

The topography of forested low mountain ranges also makes very special demands on wind farms. In view of these unfavourable factors, many stakeholders doubt the viability of a project from the start or even question the further advancement of wind power in this region altogether.

INTERIM RESULTS SHOW POSITIVE OUTCOMES

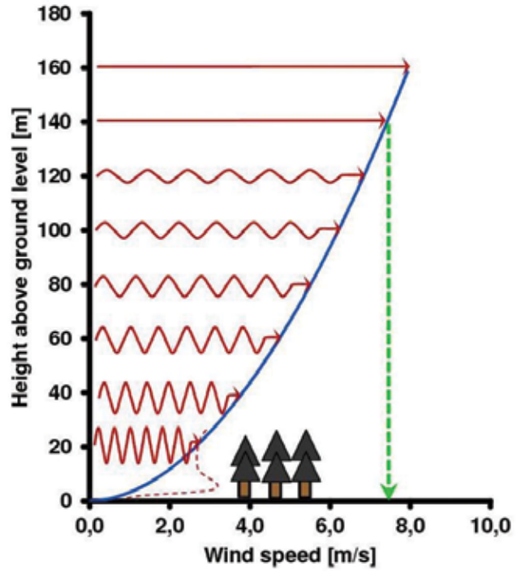
Nevertheless, this generalisation is too simple to reflect the topographic conditions in this region, as is shown by the first interim results of the 140-metre test wind mast that has been operated in the Bavarian region of Upper Palatinate by TÜV SÜD and the local energy initiative, Natural Energy Solutions, Erbendorf, since October 2012.

Figure 1: Evaluation of wind direction frequency shows the directions of east or west to west-north-west as the prevailing wind directions. Wind from the north or south was recorded only very rarely in the one-year period.



The analysis of the data collected during the mast's operation so far has revealed that wind speeds exceed the expectations based on advance simulations and predictions.

The mean wind speed at a height of 140 m above ground level amounted to 7.0 m/sec. The sensors even measured a wind gust with a peak wind speed of 30.8 m/sec. Prevailing wind directions were east and west.



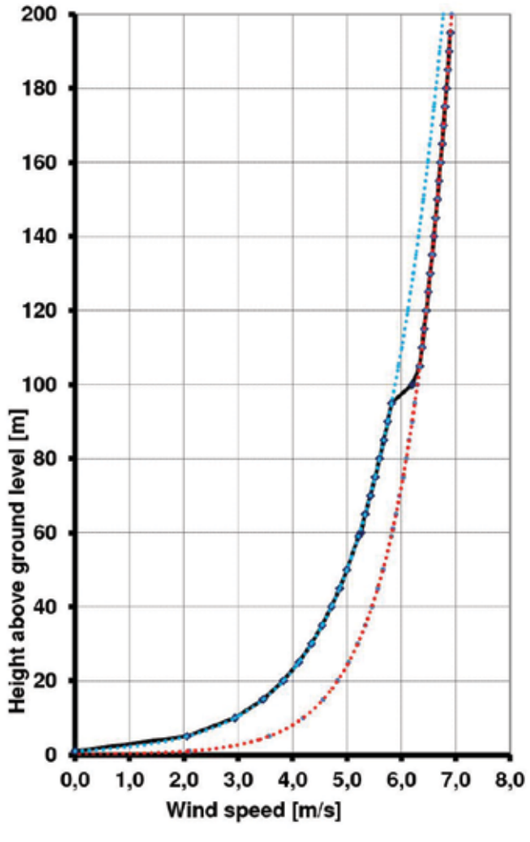


Figure 2a and 2b: The wind profile maps wind velocity (x-axis in m/sec) at various heights (y-axis in metres). At a height of roughly 100 metres, the measured data (black line) show a visible blip, with wind speeds increasing drastically from that height. The zone below is marked by high turbulence intensity caused by the trees in the forest. Turbulence intensity is considerably weaker in the zone above, where the air flow is largely uninfluenced by trees and topography.

Mean turbulence intensity at a height of 140 m is 10.4 per cent. This relatively low turbulence intensity is important for the design and construction and thus the structural stability of the wind turbines. However, at lower levels, the complex topography and particularly the trees, cause a drastic increase in turbulence intensity.

TREES CAUSE TURBULENCE

Turbulence is a typical feature of forest areas, as wind that passes over trees in its path will swirl violently near ground level. The wind profile reflects this phenomenon, showing a visible blip at a measurement height of around 100 metres.

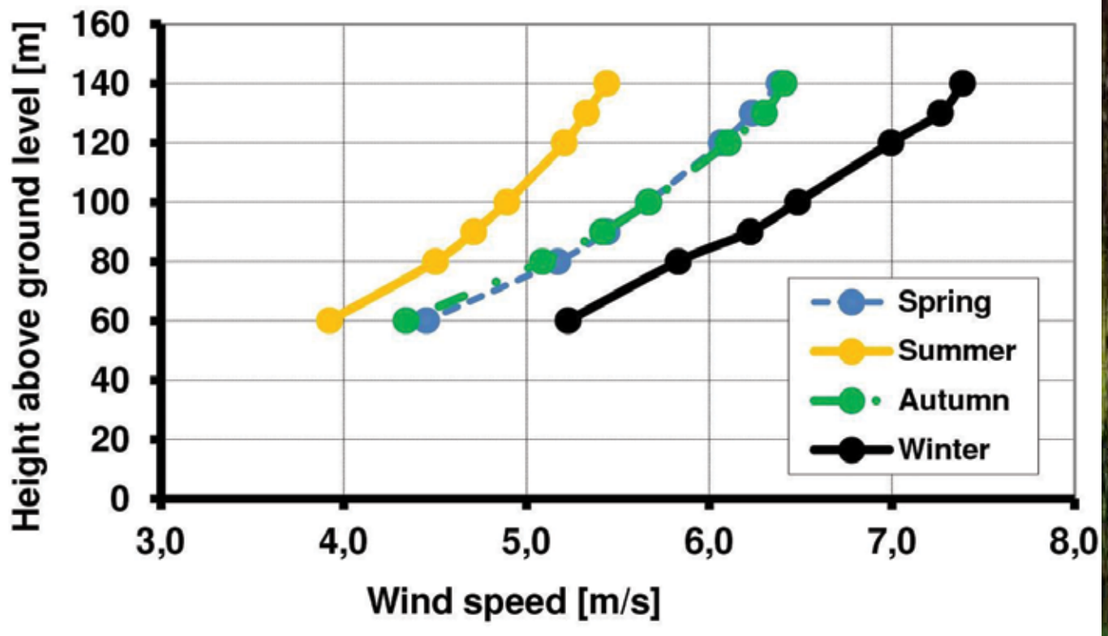
This height is an important design criterion for the projected wind turbines, which must be designed to harness the wind above the zone of wind turbulence and withstand the turbulence intensity prevailing at the site. Based on the measured data, the experts further determined the preliminary reference yield – an important tool for estimating the possible future energy output. The reference yield is calculated in comparison to a reference site with a reference yield of 100 %, i.e. an average site with favourable wind conditions on the coast of northern Germany.

The measurements in the Upper Palatinate region, carried out after one year of operation, revealed a reference yield of around 94 per cent. The site's viability is thus comparable to that of a high-wind site near the coast in northern Germany. In the second year of operation this result is to be verified and statistically validated.

The measurements also showed major variance over the course of the year.

INDUSTRY ARTICLE

Figure 3: The measured data show pronounced variance over the course of the year. Measured wind speeds were highest in winter and lower in summer. Given this, performance of long-term measurements over one complete year or measurements during the transition between the seasons are important to obtain valid data of the potential yield.



shows that measurements that are conducted only in summer or winter do not deliver reliable, representative results and may cause the potential of the site to be significantly over- or underestimated in this case.

This finding is also highly significant for other sites, as measurements (using methods such as laser-aided LIDAR systems) often only extend over a few months for cost reasons. However, the evaluation of the measured wind data

WILL THE WIND FARM BE PROFITABLE?

The test wind mast supplies significant information on the wind conditions in the forest areas of lower mountain ranges in general. So far, there have been only a few studies on this subject in Germany.

However, in addition to these findings, the data also answer a very specific question, i.e. whether profitable operation of a wind farm is possible in the forest region of Hessenreuther Wald.

This is the issue facing Natural Energy Solutions GmbH & Co KG, Erbendorf, the local energy initiative which plans to build a wind farm there. However, for the multi-million-euro project to be realised successfully, profitability and cost-effectiveness must be ensured.

As is often the case, this quickly led to the question of whether wind conditions and thus ultimately also the potential energy yield at the site, would be sufficient. After all, large turbines and state-of-the-art technology also mean high purchase and installation costs. However, in this context the complex topography of the low mountain region is far more important. Extensive commercial forests cover the surrounding valleys, hills and mountains, so that the relief greatly influences the air currents at the site.

COMPLEX TERRAIN MAKES FOR A COMPLEX SITUATION

So far, these complex topographic formations have made it difficult to provide reliable predictions of the potential energy yields. Based on topography, actual wind conditions may deviate more strongly from the common calculation models and computer simulations as is generally the case. Depending on the wind direction, air flows may be diverted, slowed down or accelerated differently. As a general principle, wind speed may thus be higher or lower than predicted by the models.

Yield predictions in this region are made even more difficult by the fact that the number of wind turbines per square kilometre is still relatively low. Given this, data on the energy yield of wind turbines in the vicinity are virtually non-existent. In the North German plains, the data from these “validation turbines” are frequently used to verify yield predictions.

However, even if wind turbines were operated near Erbendorf, the data measured at these sites could not simply be used to infer wind conditions at the new projected site. In the main wind direction, for example, a nearby site may be located in the lee of a mountain range, while another site in the direct vicinity may benefit from unobstructed, low-turbulence winds blowing at high velocity.

ON LOW MOUNTAIN RANGES NO TWO SITES ARE THE SAME

As wind conditions even at nearby sites can differ so widely, standardised wind measurement is an important prerequisite for reliable yield prediction and the only possibility for the project initiators at Natural Energy Solutions of obtaining certainty concerning the actual wind conditions.

This in turn is important for project funding and the preparation of a bankable wind report. Reliable data are needed to compare investment and operating costs with the energy yields and the income generated by the wind farm, in order to assess its profitability.

Forest areas on low mountain ranges in southern Germany can indeed offer high-wind sites, as demonstrated by the results of TÜV SÜD’s wind measurements after one year of operation.

The simple generalisation that wind speeds in these regions are normally too low does not do justice to the terrain’s complex topography. However, to identify viable sites, standardised wind measurements are needed because predictions prepared with the help of simulation models are fraught with uncertainties due to the complex terrain.

SUMMARY

Provided high-wind sites that offer excellent viability for wind farms are identified, regions located on Germany’s low mountain ranges can also contribute significantly to the success of the energy transition.

Peter Herbert Meier
TÜV SÜD Industrie Service

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IT'S ALL ABOUT YOU!

SEACAT SERVICES SCORES DONG DUO AT FIRST 6MW PROJECT

Service agreement provides greater operational weather window.

DONG Energy and class-leading offshore wind transfer vessel operator, Seacat Services, recently confirmed a twelve-month, two workboat crew transfer deal to support construction operations at the 210MW Westermost Rough Offshore Wind Farm.

WORLD FIRST

The Round 2 UK offshore wind project, which began offshore construction earlier this year, will become the first wind farm to use the Siemens 6MW turbine on a commercial scale, anywhere in the world.

With all 35 turbines to be fully commissioned by mid-2015, construction on the thirty-five square kilometre site will demand the highest possible level of workboat and crew availability – a challenge that can present significant concerns for developers when undertaking large-scale installations far out to sea.

VESSEL SPECIFICATION

To address this, Seacat Services will deploy two DNV class-certified, British-built workboats, powered by two MTU diesel engines driving water jets. When fully laden, each vessel has the capability to accommodate 12 technicians, up to 3 STCW-certified crew and 15 tonnes of equipment and on-deck cargo, while reaching speeds of over 25 knots.

Combined, the two workboats have already accumulated in excess of 5,000 operational hours spent working on a range of different UK and European offshore wind initiatives.

NECESSARY EXPERIENCE AND EQUIPMENT

"As offshore wind farm owners and investors look to develop, construct and commission increasingly ambitious new power projects within tight time parameters, it's imperative that external suppliers, contractors and support staff have the experience and equipment necessary to keep new developments on budget and on track," said Ian Baylis, Managing Director, Seacat Services.

"With the importance of establishing and maintaining an strong supply chain already well-documented, the success of our work at Westermost Rough Offshore Wind Farm will be judged on the efficient and safe, regular transit of cargo and crew.

"At completion the turbines are expected to stand in water of between ten and twenty-five metres. Given this and the pioneering use of the new 6MW turbine, we look forward to working with all parties active on this critical site throughout 2014." Ian concluded.

The first workboat, Seacat Reliance, is already operational and in use on the site. She will be joined by a sister vessel, in June 2014, following the completion of a successful charter elsewhere.

LATEST CHARTER DEAL

The Westermost Rough Offshore Wind Farm charter deal is the latest confirmed offshore wind farm support agreement to be undertaken by the six-strong Seacat Services fleet.

In 2014, Seacat Services launched its latest DNV class-certified vessel, 24-metre Seacat Volunteer, with sea trials having taken place throughout January. A further DNV class-certified 24-metre workboat will be launched in June 2014 and two 26-metre workboats, already in build, are scheduled to be launched in October 2014 and January 2015 respectively.

MARKET COMMITMENT

The completion and launch of the new vessels underlines Seacat Services commitment to provide the market with first-class transit equipment capable of operating throughout Europe and during the harshest of weather conditions.

Seacat Services

NEW SMART LED OBSTRUCTION LIGHT OUTSHINES COMPETITION AT EWEA 2014

Orga Aviation, a world leader in the design, development and manufacture of state-of-the-art hazard warning lights, is celebrating after its most successful European Wind Energy Association (EWEA) event ever.

This was the company's sixth year of exhibiting at the annual conference and exhibition and with high attendance levels and a buzzing exhibition hall, the overall vibe at EWEA 2014 was certainly positive.

EXCELLENT PLATFORM

An excellent platform for showcasing new products to the wind energy market, visitors to Orga's stand were treated to the world's first sneak glimpse of its next generation smart aviation LED obstruction light.

INNOVATIVE FEATURES

Set for production later this year, the patent-pending fourth-generation medium-intensity LED obstruction lighting solution brings together a host of innovative features all in one single, smaller and lighter unit to deliver optimum performance and lower the total cost of ownership.

Building on the success of its highly successful and popular L450-series, which was also on show at the event, the company's latest microprocessor controlled white and red LED and IR system boasts cutting-edge optics, automatic day/night sensor, integrated monitoring and a self-contained power supply in a compact design for easy use and installation.

INTERNATIONAL STANDARDS

With all international hardware solutions now consolidated into one model, Orga offers its growing global customer base a unique certified obstruction lighting system. Optical engineering at its best, the smart lighting solution is precision engineered to meet the minimum requirements specified within international and national regulatory standards whilst attaining maximum functionality.

EWEA 2014 EXCEEDED ALL EXPECTATIONS

Praising this year's event, Matthieu Scheffers, Business Manager for Obstruction Lighting at Orga said: *"EWEA 2014 exceeded all our expectations. We received solid enquiries and are confident they will result in new business. Visitors were especially interested in our next generation smart LED obstruction light and the feedback we received was very positive."*

CONFERENCE PROGRAMME

Scheffers also commended the EWEA conference programme, particularly noting the presentation delivered by Dave Jones, Head of Renewable Energy at Allianz Capital Partners. According to Jones, cost reduction is one of the biggest challenges facing the wind energy industry today and that reducing capital costs, particularly in offshore wind, must be an industry priority over the coming years.

"It was interesting to hear what Dave Jones had to say," said Scheffers. *"For 40 years, Orga has been committed to producing precision-engineered aviation obstruction lighting systems which will help minimise capital costs and costs of ownership."*

Scheffers added: *"We are totally focused on continuing to give our customers a sustainable competitive advantage by keeping ahead of emerging technologies."*

Orga Aviation

Click to view more info

30 WIND TURBINE TOWER DEAL

Mabey Bridge, the UK's largest indigenous supplier of wind turbine towers, has been awarded a contract for 30 onshore wind turbine towers from the Dutch wind turbine manufacturer EWT.

The deal, which will also see Mabey Bridge supply 41 wind turbine foundations, will be for EWT's DW52 and DW54 500kW wind turbines for the community energy generation market. The wind turbines are 35, 40, 50 and 75 metres tall and as well as being installed in the UK will also be exported to mainland Europe.

GLOBAL DESIGN AND MANUFACTURE

EWT is a global designer and manufacturer of gearless wind turbines active in Europe, North America and Asia. The company offers a range of onshore direct drive wind turbines.

MABEY BRIDGE RENEWABLES

Mark Coia, Managing Director of Mabey Bridge Renewables said: *"There has been lots of talk recently about an industry pivot from onshore to offshore wind renewable energy generation. However, this EWT deal shows that onshore wind is supporting skilled manufacturing jobs and can play an integral role in reaching Britain's 15% renewable energy target by 2020.*

"Most importantly, this deal with EWT represents a real vote of confidence in the British renewables manufacturing sector. Whilst the UK still imports far more renewable energy infrastructure than we might like, a clean energy manufacturing sector is thriving that will help create sustainable skilled jobs and growth for years to come."

EWT

Martin Dijkstra, Global Supply Chain Manager at EWT added: *"This contract with Mabey Bridge allows us to serve our increasing project pipeline in England, Scotland and Wales in 2014. We are pleased to work with an established local manufacturer for our growing business in the UK.*

"EWT has a strong focus on the UK market and continue to look for opportunities, like this agreement with Mabey Bridge, to delivery our customers the best solutions available. Sourcing components, wherever feasible, from local suppliers is a key aspect in our Supply Chain strategy."

Mabey Bridge Renewables

TRIO OF ORDERS IN NORTHERN EUROPE, INCLUDING FIRST CONTRACT WITH ENECO

Senvion SE has made a strong start to 2014 with the signing of three new contracts in the Northern European market, including the company's first contract with Eneco Wind B.V, one of the largest utilities in the Benelux market.

Senvion SE will be supplying turbines to the Zierikzee and Laarakkerdijk wind farms in the Netherlands, as well as to the Rågåkra wind farm in Sweden.

BRABANT, NETHERLANDS

The Laarakkerdijk wind farm in Brabant, Netherlands is being developed by Eneco Wind B.V and will consist of five MM100 turbines with a total rated output of 10MW. Construction will start in November 2014 and is scheduled for completion in early 2015.

ZEELAND, NETHERLANDS

Windpark Zierikzee BV located in Zeeland in the Netherlands will consist of three 3.4M104 turbines, Senvion's most powerful onshore variant. The project plans for the site were first developed 17 years ago as a farm community project. Construction at Windpark Zierikzee BV will start in August and is scheduled for completion at the end of 2014. Senvion already has 150MW installed capacity in the Netherlands.

HÖGANÄS MUNICIPALITY, SWEDEN

Finally, the Rågåkra wind farm located in the Höganäs Municipality, Sweden, is being developed by Bjäre Kraft Energi AB and will consist of two 3.2M114 turbines. This is the first contract Senvion has signed with Bjäre Kraft Energi AB and will be the eighth project for Senvion in Sweden. Construction at Rågåkra will start in July and is scheduled for completion in October 2014.

POSITIVE START TO 2014

Raymond Gilfedder, Managing Director of Senvion Northern Europe, commented: *"This trio of contracts marks a very positive start to the year and I am delighted to be supplying our first turbines to Eneco, one of the major utility companies in the Dutch market, with whom we look forward to working with in 2014 and beyond."*

Senvion SE

NEW BUSINESS DEVELOPMENT MANAGER FOR SCOUR PREVENTION SYSTEMS

Scour Prevention Systems Ltd (SPSL) have announced the appointment of business development manager Tim Smith to their growing team.

RENEWABLES EXPERIENCE

Tim was previously sales manager at leading offshore wind industry service provider CWind. Prior to that he was business development manager at Fendercare where he played a leading role in developing the company's activities in the renewables sector, leading to the establishment of the James Fisher Renewables division.

John Balch, Executive Chairman of Scour Prevention Systems, said: *"We're absolutely delighted to welcome Tim to the team. His skillset will perfectly complement the expertise of our existing team and allow us to accelerate commercial sales of our field-proven product."*

SCOUR PREVENTION MATS

Last year the company successfully completed offshore demonstrations of their innovative scour solution on E.On's Scroby Sands wind farm off the Norfolk coast. Scour Prevention Mats are now endorsed by E.On and commercially available to the global offshore market.

EXCITING FUTURE

Tim Smith said: *"I have high hopes for the future of SPSL and can't wait to get started in my new role. I'm really excited to start working with the company at such a key stage of its development and hope to make a real impact on developing new opportunities for the company."*

SOUTHERN NORTH SEA SNS2014 CONFERENCE

Tim represented SPSL on the company's exhibition stand at the Southern North Sea SNS2014 conference recently.

SNS2014 is the most important conference for the offshore energy industry in the East of England and is the largest conference delivered by East of England Energy Group (EEEGR).

INNOVATIVE SOLUTION TO ELIMINATING SCOUR

SPL, based at OrbisEnergy in Lowestoft, has developed an innovative and patented solution to remediate and eliminate scour around offshore structures and over cables, which is recognised as a significant problem within the offshore energy industry.

Scour Prevention Mats consist of a matrix of end-of-life vehicle tyres which stabilise the seabed to stop scour. Scour is caused by the flow of water speeding up around an object, causing a hole to form in the seabed around the object's base, which gets progressively deeper. If left unchecked this can affect a structure's integrity and damage its foundations.

Scour Prevention Systems

MAYOR'S AWARD FOR TIDAL TRANSIT

Tidal Transit won the 'Small Growing Business' section of the 2014 Mayor's Business Awards recently.

The company is one of North Norfolk's most vibrant small businesses, having built a fleet of three state of the art personnel transfer vessels [PTVs] which are currently on long-term charter to the Sheringham Shoal Offshore Wind Farm. A fourth vessel, Kitty Petra, is scheduled to join Ginny Louise, Eden Rose and Tia Elizabeth in May 2014.

COMPANY GROWTH

"In the space of three years, Tidal Transit has grown from being a small and thriving charter company into the very successful operation servicing offshore wind farms that it is today," commented Leo Hambro, Commercial Director of Tidal Transit.

"We saw the potential offered by the continued development of offshore wind energy in the North Sea and have developed our business with this industry in mind. We have been finalists in The Mayor's Business of the Year Award for two years running and we are very proud to have won the Small Growing Business section of the 2014 Mayor's Business Awards." Leo concluded.

ACKNOWLEDGING OUTSTANDING BUSINESS ACHIEVEMENTS

The Mayor's Business Awards were established in 1989 by the then Mayor, Cllr Les Daubney and in 2014 are, for the first time, are a joint venture between King's Lynn Borough Council and the Lynn News.

The aim is to acknowledge outstanding business achievements and their contributions to the local economy. The Awards fall in to eight categories, recognising business excellence in a number of areas, with the overall winner being the Mayor's Business of the Year.

Tidal Transit

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= Click to view video 1

= Click to view video 2

48TH TURBINE SECURED AT NORDSEE OST OFFSHORE WIND FARM

FOUNDOCEAN CONFIRMED RECENTLY THAT THEY HAVE COMPLETED GROUTING OPERATIONS ON THE 48TH TURBINE, OF RWE INNOGY'S 295 MW CAPACITY NORDSEE OST OFFSHORE WIND FARM.

The wind farm is located 35 kilometres north-east of the island of Helgoland in the German North Sea and sits in water depths of up to 25 meters.

FROM OIL & GAS TO OFFSHORE WIND

The foundations are four-legged jacket structures, akin to those used in the oil and gas industry, yet engineered to suit the design specifications of an offshore wind turbine. FoundOcean mixed and pumped a total of 2,400 tonnes of cement into the foundations to secure all 48 jackets and one substation, to the seabed.

INNOVATION AND SOLVING PROBLEMS

The company continues to innovate new ways in which to solve problems and speed up grouting times offshore and Nordsee Ost was no exception. FoundOcean supplied a specially designed grouting system which allowed grout connections to be made subsea as opposed to the standard above-water method.

By doing so, grouting times were greatly reduced as the company was able to use larger diameter grout hoses which allowed for more efficient material delivery rates.

Jim Bell, Managing Director of FoundOcean commented *"Nordsee Ost was already an innovative project to which FoundOcean contributed further innovation by providing its 50 years of grouting expertise for faster and more efficient grouting rates throughout the entire installation schedule."*

FoundOcean

Click to view more info

= Click to view video

1,500 INCIDENT-FREE DIVES BY HSSE

Hughes Sub Surface Engineering Ltd. have been awarded a safety certificate for completing 1,500 incident-free dives on the Gwynt y Môr Offshore Wind Farm project during a recent visit by UK H&SE.

PRESENTATION

The certificate, awarded to the onshore HSSE Offshore Management, was presented by RWE's Contract Package Manager onboard the DP2 vessel Red7 Tonjer (formally the Normand Tonjer).

The company always strives to maintain high standards and reaching this milestone illustrates a high level of competency for all of HSSE's offshore operations team.
They are currently providing a state-of-the-art diving system on board, including Twin Launch and Recovery systems (LARS), NITROX breathing gases, hot water diving systems and an 1800mm decompression chamber; ensuring maximum productivity on site and limiting downtime due to weather.

£5MILLION CONTRACT

HSSE were originally awarded the £5million contract for diving and cable installation support services in 2012 and at the time RWE npower renewables' Gwynt y Môr Project Director, Toby Edmonds said: "*Hughes Sub Surface Engineering is providing crucial diving services to support the construction of Gwynt y Môr. Finding this level of specialism so close to the construction site has been hugely beneficial in developing good working relationships. HSSE has been working hard to meet the needs of the renewables industry and as a result is now one of the largest suppliers of diving services to the offshore wind industry.*"

The award for the 1,500 dives has been presented in recognition of the Red7 Tonjer vessel alone and as such a full project estimation is assumed to be roughly around 2,000 dives incident-free.

RECOGNITION

Managing Director, Ian Hughes said: "*Hughes Sub Surface Engineering are very pleased be to issued with this certificate of recognition, all our personnel are certified to the highest level and display a strong sense of safety on a daily basis and this can be seen through successfully reaching this milestone.*"

During the visit the HS&E commented that "*HSSE have set a standard that others should follow.*"

HSSE

Click to view more info

= Click to view video

EVENTS AND WHAT'S NEW

We continue to feature some of the most important events in the calendar, so that you can, at a glance, consider which events to attend. A more detailed listing is available online.

PWEA CONFERENCE AND EXHIBITION 2014
WHEN 27 – 28 May 2014
WHERE Serock, Poland
CONTACT www.psew.pl

RENEWABLEUK – GLOBAL OFFSHORE WIND 2014
WHEN 11 – 12 Jun 2014
WHERE Glasgow, UK
CONTACT www.renewableuk.com

WINDFORCE 2014
WHEN 17 – 19 Jun 2014
WHERE Bremen, Germany
CONTACT www.windforce2014.com

ONSHORE WIND CONFERENCE & EXHIBITION
WHEN Tuesday, 24 Jun 2014
WHERE Royal College of Surgeons, Edinburgh, EH8 9DW, UK
CONTACT www.scottishrenewables.com

BRAZIL WINDPOWER 2014
WHEN 26 – 28 Aug 2014
WHERE Rio de Janerio, Brazil
CONTACT www.brazilwindpower.org

WINDENERGY HAMBURG 2014
WHEN 26 – 29 Sep 2014
WHERE Hamburg, Germany
CONTACT www.windenergyhamburg.com

IWEA AUTUMN CONFERENCE 2014
WHEN 8 – 9 Oct 2014
WHERE Kilkenny, Ireland
CONTACT www.iwea.com

CANWEA ANNUAL CONFERENCE AND EXHIBITION 2014
WHEN 27 – 30 Oct 2014
WHERE Québec, Canada
CONTACT www.canwea.ca

STCW 95
WHEN 7 - 11 July 2014
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(editorial deadline 5th June 2014)

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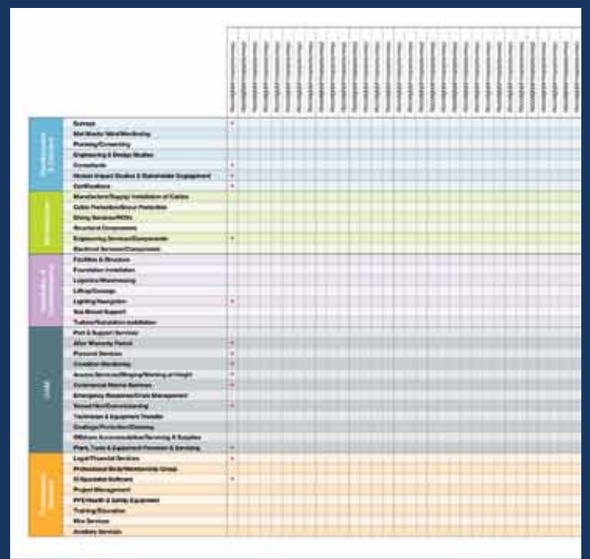

JULY/AUGUST 2014 ISSUE 23 (editorial deadline 5th June 2014)

Please contact Carly on 01765 644224 or Emal: carly@greenenergypublishing.co.uk

FIND A SOLUTION NOT A FAULT

With vast amounts of offshore wind farms now installed worldwide and with more planned, increased focus are being placed on the importance of reducing the costs of producing this energy source. Through both the initial construction phase as well as during the operation and maintenance of the projects lifecycle, some targets have even been set to reduce these costs by around 25% in total.

Many industry experts suggest that reducing electrical faults is a key way to reduce the operation and maintenance costs associated with offshore wind farms going forward. Mostly because of the increased costs of offshore cable failures, this can be anywhere between 10 and 100 times more costly when compared to onshore ones. With round 3 wind farms being up to double the distance from shore than round 1, this is increasingly worrying.

OFFSHORE POWER FAULTS

Common causes of offshore power faults are inadequacies in the design of cable/ cable accessories, insufficient mechanical protection, but most commonly, poor installation practice. It has been reported that on average, there are more than double the number of faults per 100 kilometres of offshore cable to the equivalent onshore.

SPECIALIST OPERATOR

CGI's Limited, based in Kent, specialise in the field of offshore cable jointing and have been working on offshore wind farms for ten years now. The first of which was the North Hoyle wind farm situated off the coast of Rhyl in North Wales, before going on to apply their skills and knowledge to the construction of a vast proportion of the UK's offshore wind farms, as well as some in Northern Europe.

Their expanding team of skilled, apprentice trained cable jointers have worked on both onshore and offshore power cable projects world-wide, up to voltages of 132kV. They also have their own state of the art VLF (Very Low Frequency) testing kit which has been used in the commissioning on some of these offshore wind farms.

HANDS-ON EXPERIENCE

The hands-on experience of the company's Directors combined with their background of working in a cable and cable accessory design laboratory means that they are able to provide the company with an insight into the most common causes of faults in offshore power cables. As well as, more importantly, how as an 'industry' they can set about minimising these errors and subsequently lowering the high repair and outage costs that come with them on projects going forward.

OFFSHORE INCREASED RISK

CGI's Directors point out that there is a much higher chance of a cable fault at sea than on land due to the sheer length of the export cable that has to be laid to feed the power to the onshore grid. Cables in the sea are much more susceptible to the elements, issues can occur from the movement of cables over time, due to the tide and current movements causing mechanical wear.

Poorly designed and manufactured cables would have a far greater detrimental impact than its onshore equivalent, because of the increased risk of corrosion, which would ultimately lead to the cables protection breaking down over time and eventually resulting in a cable failure. Furthermore badly installed accessories also contribute to cable failure offshore. Cables are also susceptible to damage from ship anchors and near shore fishing.

COMPANY EXPERIENCE

However, having worked on more than 10 offshore wind farm projects in the UK alone, many more offshore projects in the Oil and Gas industry, the company maintains that the main reasons for electrical cable failure are due to poor jointing practices during the cable termination of the export and array cables. CGI's Directors Ian Abbott and Gary Watkins go on to provide further insight as to why they think this is the case.

Although very rarely, they have come across poorly designed joints, but state that mostly the cable joints and accessories that they are provided with on these projects are of a very high quality.

RISING DEMAND

Due to the increasing number of these projects that are constructed worldwide, the demand for cable jointers offshore is rising dramatically. There are increased pressures to complete these projects on time, despite there being days on end where the personnel can't go offshore due to poor weather conditions and high seas.

CGI's state that it is not at all uncommon for offshore teams to be stood down for up to a month at a time due to inclement weather conditions and that this increases the chance for installation error due to companies bringing on board more and more personnel in order to expedite the project. The problem that arises here is that as more crews are called upon, it becomes harder to manage the quality and risk to manage the numbers involved.

THE IMPORTANCE OF TRAINING

The most important aspect of reducing these errors is better cable jointer training, CGI's cable jointers have completed comprehensive training schemes including long term apprenticeships, where they didn't just learn the basics of how to joint or terminate a cable, but were also taught about the make-up, inner workings and mechanics of the cables, cable accessories and cable systems.

Unfortunately because of the increased pressures of completing these projects on time there seems to be a growing number of cable jointers with the bare minimum of training and qualifications going offshore and although they can do a certain type of cable hang off / termination that may be commonly used offshore they don't fully understand why they have to do something a particular way, or more importantly what to do if they face an obstacle or something goes wrong, which when working offshore is increasingly likely. Having spoken to other qualified cable jointers in the offshore industry they find they share the same concerns about under qualified personnel going offshore with very little experience. This comes under the old adage that "you can't buy experience". You cannot merely complete a course to gain all the necessary experience and correct working practices.

PHILOSOPHY

Hopefully loopholes like this will be clamped down on as part of the industry's future cost cutting plans in order to help justify renewable energy sources, because ultimately any un-necessary costs that are incurred will be passed on to the energy consumer.

CGI's philosophy is to find a solution, not a fault.

CGI's Limited

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www.windenergynetwork.co.uk 21

BENEFITS IN MOVING THE INTER-ARRAY VOLTAGE FROM 33 KV TO 66 KV AC FOR LARGE OFFSHORE WIND FARMS

It has been found that wind farms operating at higher inter-array voltages than is currently the norm will benefit from considerable cost reductions and higher yields.

This paper highlights the potential for higher voltage inter-array systems to deliver significant cost benefit to the design of future offshore wind farms.

COMPARISONS

A detailed comparison of 36 kV AC (operating at 33 kV) radial and ring inter-array systems with 52 kV AC (operating at 48 kV) and 72.5 kV AC (operating at 66 kV) radial and ring inter-array systems was undertaken. This involved an analysis of all key technical components of the system, i.e. cables, switchgear, transformers and offshore substations and optimising and comparing the inter-array designs.

COST-BENEFIT ANALYSIS

A detailed cost - benefit analysis was carried out in order to compare the systems.

This included CAPEX, operation and maintenance, cost of system losses and cost of losses due to cable failure for an assumed wind farm lifetime of 25 years.

A further qualitative comparison was performed to identify other risks and benefits, including supply chain, health and safety and operation and maintenance considerations.

ROUTE TO COMMERCIALISATION

Finally, the optimal higher voltage system was identified and a roadmap was developed to identify the route to commercialisation. It was found that moving to either 48 kV or 66 kV demonstrated a material improvement in the full life costs compared with 33 kV, but that the improvement for 66 kV was the highest.

PAST WORK

Previous work has examined the potential for higher voltages (48 kV or 66 kV) to be used to connect wind farms without an offshore substation but this is the first time that a full analysis has been carried out for the use of higher voltage inter-array systems for wind farms that are far offshore and still incorporate a high voltage AC (HVAC) or high voltage DC (HVDC) transmission systems.

ED'S NOTE
This is an abridged version of the full article which can read online through the QR Code/link below.

Carbon Trust

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Atkins Global

www.windenergynetwork.co.uk 23

NEW BUILD CABLE LAY VESSEL CHARTER

DeepOcean UK, a subsidiary of DeepOcean Group Holding BV, recently announced that the company has entered into a 7 year charter agreement with Maersk Supply Services, for a new build next generation cable lay vessel.

The vessel is the DOC 8500, a Damen Offshore Carrier which has been designed specifically to suit DeepOcean's requirements.

EXTENDING CAPABILITIES

The DOC 8500 will extend DeepOcean's capabilities in the larger cable laying end of the market, representing a new focus on Interconnector projects, in addition to oil & gas sector and renewables work. The specially equipped vessel will be delivered from the Damen Galati yard in Romania.

Owned and operated by Maersk Supply Service, the vessel will become the latest addition to the 60 plus strong Maersk offshore support vessel fleet.

René Berkvens, Damen Shipyards Group Chief Executive Officer, said: *"We are very proud of being contracted by Maersk Supply Service and DeepOcean for this cable layer. We really believe in the new design, a result of our continuous R&D efforts.*

"Because of the flexibility of the concept, the customer can incorporate a large number of purpose-specific demands to suit his needs. This particular vessel has been adapted in close cooperation with our clients, drawing on the expertise of all three companies to create a state-of-the-art Offshore Construction Vessel."

LASTING RELATIONSHIP – MAERSK & DEEPOCEAN

Maersk

Maersk Supply Service Chief Executive Officer Carsten Plougmann Andersen said: *"This project builds on our long lasting relationship with DeepOcean, supporting their subsea operations. We look forward to expanding our cooperation with this highly valued customer and entering into a close working relationship with Damen Shipyards Group.*

"We are convinced that the cooperation between all three parties will result in an efficient, reliable and very competitive vessel."

DeepOcean

Tony Inglis, DeepOcean UK Managing Director, says: *"This next generation cable lay vessel in combination with our survey and trenching capabilities will enable us to bundle our services for customers in the offshore power cable and umbilical markets.*

"The versatile new vessel will be well suited for installation and burial projects using its 7,000 tonne carousel from land-fall to deepwater and also in remote geographical locations.

"The vessel is designed to meet the high standards demanded by North Sea Oil and Gas customers. We are delighted to be working with Maersk Supply Service and Damen to bring this high capability vessel to the market."

FLEXIBLE PLATFORM

Remko Bouma of Damen Shipyards Bergum, who is overseeing vessel construction, describes the DOC 8500 as a 'semi-customised, modular' design. For DeepOcean, the ship-to-ship rule compliant vessel has been configured to accommodate 90 personnel, mostly in single occupancy cabins.

"The DOC 8500 has been developed as a flexible platform for both transport and installation work offshore," said Mr Bouma. "Its bow and slender hull optimise sea keeping in rough seas and suppress slamming. The ship will run on either MGO or HFO and has DP2 capabilities in line with offshore market preferences.

"Its high ondeck cable carrying capacity makes it particularly competitive as a cable layer, while the vessel has also been optimised for shallow water operations, coming complete with a seven-point mooring system and the ability to take the ground fully loaded."

GENERAL SPECIFICATIONS

The 138m length, 27.5m breadth DOC 8500 features 2,200 m² of unobstructed deck of 20T/m2 load capacity with ro-ro capability. The 9,300dwt vessel will have a top speed of 12 knots.

DeepOcean UK

Click to view more info

= Click to view video

Maersk

Click to view more info

= Click to view video

Damen

EAST OF ENGLAND WINDFARM ZONE COULD BECOME FLAGSHIP FOR THE WORLD

The East Anglia Offshore Windfarm Zone could become an international flagship for the industry, according to its developers.

Jonathan Cole, Managing Director of Iberdrola Offshore Wind, told the East of England Energy Group's SNS2014 Conference, held recently in Norwich, it was the perfect zone for reducing the cost of windfarm development - imperative for the industry to succeed.

REDUCTION IN COSTS

The scale, location and similarity of six sites within the planned 7,200MW zone leant themselves to the 35% reduction in costs needed by 2020 - and with consent for the first site expected mid-2014, this could become a very significant year for East Anglia.

His words brought a delighted reaction from James Gray, Inward Investment Director for the East of England Energy Zone (EEEZ) who last month said he believed the region was on the verge of a major breakthrough in its battle to win a massive slice of the offshore windpower market.

TREMENDOUS BOOST

"*It confirms my belief that the industry's centre of gravity is moving towards us and I'm highly encouraged by Mr Cole's talk of future investment and major opportunities for the local supply chain and ports,*" he said.

Energy Minister Michael Fallon (centre) visiting the SNS2014 exhibition with EEEGR Chief Executive Simon Gray (right) and Director Mark Goodall

And continued "*This is a tremendous boost for the region, particularly it comes shortly after Statoil confirmed that Great Yarmouth would be operations port for the Dudgeon windfarm while Lowestoft was chosen as operating base for the Galloper development off Suffolk.*"

EXPECTED PROGRESS

Mr Cole told delegates he expected first tenders to be under consideration this year for East Anglia ONE offshore windfarm, with construction in 2018 and first power generated in 2019.

Planning consent for sites three and four would be sought in 2016/17 and for two, five and six in 2018/2020.

RISING TO THE CHALLENGE

"*The cost of energy will be the deciding factor. Probably the only real argument against windpower is cost. It scores high everywhere else.*

Jonathan Cole, of Iberdrola.

"*If we cannot rise to the challenge of reducing costs then the offshore wind scene will be quite short-lived. But we do not intend to fail.*"

ECONOMIES OF SCALE

He said there was no one magical solution to cutting costs but it would evolve from selecting the best sites and correct technology and then standardising the development process to take advantage of economies of scale.

The East Anglia zone was perfect for such evolution because all six sites had many similarities. Lessons from the first would benefit those which followed.

"*If East Anglia cannot be made to work, I don't know where you will find a project that can,*" concluded Mr Cole.

Iberdrola's subsidiary, Scottish Power Renewables (SPR) is joint developer of the East Anglia Array offshore windfarm with Vattenfall.

EEEGR

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WHAT DO YOU EXPECT?

PART 2
IS THIS AS GOOD AS YOU ARE GOING TO GET?

In his last article Leadership Trainer and Motivational Speaker Frank Newberry explored how the power of your expectation can influence the performance of others. In this article he considers how our expectations of ourselves can affect our own performance.

Like many others who made the move from management to skills training I was soon made aware of what many call the 'Conscious Competence Model' more accurately described as Noel Burch's 'Four Stages of Competence'.

Burch observed that people pass through four stages when they are learning something new. These stages are:
First – unconscious incompetence
Second – conscious incompetence,
Third – conscious competence and
Fourth – unconscious competence.

For example, when I first learned to drive a car - the process of learning went as follows:

STAGE 1: UNCONSCIOUS INCOMPETENCE

As a non-driver watching experienced drivers close up I was blissfully unaware of just how much of a skill it was and how much training would be needed for me to reach competence. I was totally unaware of how incompetent I was.

STAGE 2: CONSCIOUS INCOMPETENCE

During my very first driving lesson it became immediately clear just how much I did not know and how much I could not do. I had no idea from watching experienced drivers that each of my limbs would have to perform different actions (at the same time), that I had to look forwards and sometimes backwards and that I had to be able to use the gear stick and all the other controls without taking my eyes off the road. At my first lesson I became very aware of how incompetent I was.

STAGE 3: CONSCIOUS COMPETENCE

As time went by and I took more driving lessons I found that if I really concentrated hard I could become more skilled and more confident. However at this stage if my mind wandered for a second I would make a mistake that - if repeated at my driving test - would cause me to fail the test. I was now aware that I could be competent if I really concentrated hard.

STAGE 4: UNCONSCIOUS COMPETENCE

As more time went by I began to forget how much I could do without having to think. My limbs could automatically do different actions (at the same time), I could look forwards and backwards and I could locate all the car's controls without taking my eyes off the road. I eventually became unaware of how competent I was – that is until I nearly had an accident. Then like everyone else in that situation – I went back to 'conscious competence' and concentrated more whilst I was driving – for a while at least.

Relating this back to my last article called 'What do you expect?' I suggested that to get a better performance (or reaction) from others you may need to consider what your expectations are of them. I suggested that if you communicate a positive expectation their performance will improve to meet your expectation.

We can extend that to your performance and pose the question 'What do you expect of yourself?'

THE POWER OF EXPECTATION WILL 'KICK IN' BETWEEN STAGES 2 AND 3

A positive expectation can be crucial to your continued skill development and the power of this expectation will 'kick in' between stages 2 and 3 above. As we go from incompetence to competence we at some point will consciously or unconsciously ask ourselves the question: 'Can I be better - or is this as good as I am going to get?'

The messages we send to our body and limbs as they strive to master new skills or achieve greater competence have also been observed and analysed by Dr Albert Bandura.

How many times have you been on a sports field or a golf course and played a great shot or scored a really good goal and said 'That was a fluke'.

YOU ARE GETTING BETTER. YOU ARE GETTING GOOD AT THIS GAME!

This is apparently a very normal reaction when you play rather well the first time. When you do it again it's not such a fluke and you may not make that comment. When you play a great shot or score a great goal for the third time in a short period then it's no fluke. You are getting better. You are getting good at this game!

Sadly there are people who do not see you play so often who will try to tell you that it was a lucky shot or a jammy goal – 'Bet you can't do that again!' This does not help your skill building or your confidence when it happens. I often wonder why people say such things. I usually conclude that this is to put you off or to comfort them when they are not playing so well themselves.

Worse, these people are usually not around when you consistently show improvement. For example, when you are playing computer games for long periods and your hand/eye co-ordination or body balance is progressing in leaps and bounds as the minutes and hours tick by.

YOUR CONFIDENCE IS HIGHER AND YOUR EXPECTATION OF FURTHER IMPROVEMENT IS GREATER

When you return to the game after some success your confidence is higher and your expectation of further improvement is greater. The more often you play well the greater the expectation you will continue to play well. If you do not practice for a while doubt may set in, your confidence might lower and your performance can suffer.

So many times we hear football managers say that they select the match team on the basis of their players' fitness and performance in practice games. This is because the manager (who sees a consistent good performance from players during practice) expects that performance to continue onto the field on match day.

Those of us in supervisory or other leadership positions can also expect that individuals and teams will do well at work if we:

1. Identify the competences we need them to display
2. Train them and let them practice until they become confident and competent
3. Resist telling them that their good performance is a fluke!

Why number three? Because they are worrying enough about it themselves and do not need you to validate in their minds that it was just a fluke. Dr Bandura concludes that when we think a good performance is a fluke our performance can peak at 'the fluke' and then go down or progress more slowly.

STOP THINKING THAT A GOOD PERFORMANCE IS AN EXCEPTION OR A FLUKE

He concludes that you and I can be better if we will stop thinking that a good performance is an exception or a fluke. Our performance will exceed our expectations (permanently) and we will move faster towards a much higher peak if we will just say to ourselves 'You are getting better' rather than 'you were lucky that time'.

I would like to encourage you to have a positive expectation of yourself. In a learning or challenging situation you may need to stop remembering past mistakes and start recalling how you felt when you were successful at learning a skill or overcoming an obstacle.

Most of us 'hope for the best', but sometimes we 'fear the worst' so much that we prepare more for the consequences of failure than we do for the prospect of success.

I am asking you to prepare for success by concentrating hard and then expecting it to happen. Some success will happen quickly and some will take a little longer. May you have lots of little successes and some big ones and may you reach your full potential much sooner!

Frank Newberry

ABLE (UK), WILLING

HUB OF ACTIVITY

There is a frenzy of activity and anticipation occurring in our 'Focus' on a geographical area of interest, which illuminates The South Humber. Able UK is the feature sponsor for this issue and I caught up with the gentleman at the helm of this much anticipated development – The Able Marine Energy Park.

MULTI-USER FACILITY

It has been the vision for many years to create a hub for the renewable energy sector and this site ticks all the boxes. This will be the first of its kind anywhere in the world having the potential to facilitate the creation of over 4,000 jobs over the next 10 years and the potential for a further 10,000 in the local and national supporting supply chain.

AMEP offers over 900 acres of developable land and 1,279 metres of new heavy duty deep water quays making it the biggest single site available for port related developments in the UK. Specifically designed to provide a 'one-stop-shop' multi-user facility for the manufacture, storage, assembly and deployment for the next generation offshore wind turbines and associated supply chain.

VISIONARY

Sometimes certain people are destined for greatness, and develop character and a self belief from a vision at a young age, one such person who I believe is one of those is Peter Stephenson, Chairman of Able UK.

AHEAD OF HIS TIME

Beginning in 1966 at the tender age of 19, Peter's entrepreneurial streak began when he purchased his first bulldozer. That turned out to be the springboard! At the time there was a market for plant hire which he developed and shortly after that, as opportunities arose, he found there was a demand for demolition.

Even at a young age he did not want to fall into the trap of having all his eggs in one basket and that he started to diversify to meet the varying specific needs of a growing number of clients.

The Group has progressed from complex demolition into land reclamation and development, as a port operator active in the the oil and gas sector engaged in both the decommissioning of rigs – in which it is the market leader – as well as in the upgrading and maintenance of active jack-up and semi-sub rigs and the list goes on…

TWICE BITTEN THIRD SHY!

"*Diversifying into different businesses is the key*" Peter commented, having come through two financial economic crashes in his career life, he wanted to be prepared when the third one appeared.

After the second, this was the catalyst for him to invest in property/land development. Peter acquired disused gas power stations and dealt with associated specialist skills i.e. hazardous waste, demolition and recycling and he has gone from strength to strength.

The operational risks are spread across a variety of sectors and the land uses range from farmland to residential, from office to industrial and from greenfield to brownfield. Similarly the largely 'blue-chip' tenant base is as diversified as the Group itself.

....AND ACHIEVING

ABLE MARINE ENERGY PARK

Due to the very nature of this development and the huge scale of this Nationally Significant Infrastructure Project (NSIP), the journey has been a somewhat arduous one – despite the alleged 'fast-track' that the new (2008 Planning Act) offers. The process was further complicated by the unique nature of the development and the challenges posed – and subsequently overcome – in respect of ecological mitigation and compensation. From the start of the land assembly to date has taken 14 years!

UNUSUAL CIRCUMSTANCES

Peter understandably has experienced many unusual and interesting circumstances, however one such occasion he recounts was the episode of the so-called 'ghost ships', and the initial – but later to subside – opposition of a small but vocal number of local of agitators who Peter says, *'really should have known better*" given that fact that this was just about the very first time that ships would be re-cycled properly'.

Another occasion requested his services in France for a French Aircraft Carrier, Le Clemenceau, to be towed to the UK, again to be dismantled – just like the ghost ships this business was won and the contract completed successfully. (This short scribe only allows me to offer a snapshot into the world of Peter Stephenson, column space restrictions dictate, however I could write a whole chapter on just his experiences.... perhaps in a future issue?)

MENTOR

Peter commented *"...had the privilege to work over the years with extremely clever people and as such I have acquired remarkable contacts and a vast amount of information and experience"*

3 WORDS TO DESCRIBE HIMSELF

Committed, decisive and passionate

HOBBIES

Rally racing (several trophies on the shelf!) and downhill skiing

AIMS & ASPIRATIONS

"To grow the company to be bigger and better – to be almost future-proofed. Retaining it as a private company which can take a longer strategic view and continue to invest, grow and spread risk."

IN A NUTSHELL

Speaking with Peter it became abundantly evident how passionate he is about what he does, it was an honour to speak with such a modest luminary who has created such a successful organisation which has a healthy and deep-seated respect for the environment.

We look forward to following Able UK's continued success and will continue the journey in future editions.

Interview by Fliss Chaffer
Wind Energy Network

Peter Stephenson
Chairman
Able UK

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HULL AND HUMBER IN VOGUE AS MORE BUSINESSES LOOK TO MAKE IT THEIR HOME

The tide seems to be turning for the Humber region as more businesses and employees consider making it their new home. Now, Peter Watson, MD of relocation specialists, Vantage Relocation, believes a perfect storm is in place to generate 'transformational' renewable growth. Peter explains in more detail...

IDEAL ENVIRONMENT

It's an exciting time for the Humber region. We now have LEP status in what it is already one of the country's leading areas for the renewable energy industry, with over 20 new major wind energy projects underway. We already had news of the £450 million Able Marine Energy Park on the south bank, and now we've had confirmation of the £ 310 million investment in the Siemens wind turbine facilities in Hull, which will create a wind energy hub and thousands of jobs on the north bank.

There is a real buzz about the Humber region in general. We've had the City of Culture news for Hull and Hull City's premier league status, which really help to raise the profile. We attend many conferences to share our knowledge on how businesses moving to new areas can reduce the time, effort and cost of relocation. More and more people want to talk about the Humber and establish a presence here. Only last week, we had an enquiry from a major wind company to provide accommodation for up to 40 employees in the Grimsby area. Things are changing.

Poorly managed relocation programmes can mean that staff members and their families don't settle, causing problems like reduced productivity and increased absenteeism and, in some cases, the failure of the assignment or recruitment process entirely. That's why it's always more efficient for businesses to employ the services of corporate relocation specialists.

STAFF RELOCATION

Peter believes that whilst this will be a fantastic boost to the region's economy, there will inevitably be a need for some organisations to recruit talent and expertise from outside the region. Therefore, the task of moving staff members to a new area still exists and remains a challenge.

Relocating staff is an intricate process with so many factors to consider. When there is a lack of reliable information on suitable locations, schools, amenities and utilities, staff members often find the moving process very daunting - especially if they are moving to a new area where they have no family or friends.

ADVICE AND SUPPORT

Vantage Relocation is the region's only fully accredited relocation company. From their offices in East Yorkshire and London, the business offers relocation services to a range of clients from SME's with specific needs through to FTSE 100 companies with a global workforce.

Vantage Relocation

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PLAYING A KEY ROLE

North Lincolnshire has a key role in the Humber's vision to become the major European and UK centre for Renewables and Engineering in the UK. Already a powerhouse for energy, power production and manufacturing with more than twice the national average employed within these sectors, the area is on the cusp of huge inward investment that will create thousands of new jobs within Engineering Manufacture in North Lincolnshire.

ENERGY ESTUARY

The designation of the Humber as the Energy Estuary offers a once in a lifetime opportunity for the area to develop long term sustainable jobs linked to renewable energy. Central to this is the Able Marine Energy Park. North Lindsey College based on a 33 acre campus in Scunthorpe in North Lincolnshire is currently working closely with Able UK, presenting skills solutions for potential inward investors.

GATEWAY TO EMPLOYMENT

In order to become North Lincolnshire's 'Gateway to Employment' for young people, the unemployed, individuals and employers who need to upskill, North Lindsey College is dedicated to developing a culture of high aspirations and ambition, underpinned by a learning environment that is flexible, high quality and meets the needs and expectations of employers.

NORTH LINDSEY COLLEGE

Located on an escarpment, overlooking the Trent Valley to the West of Scunthorpe, the college campus has pleasant green spaces, woodland areas and playing fields surrounding it's 16 main buildings.

These buildings are of various ages from 2 to 60 years old, and the engineering and fabrication and welding curriculum areas vital to the college's strategy were in need of immediate updating and the installation of new equipment for the students.

ENGINEERING CENTRE

As part of a 3 phase property strategy, the college secured a substantial grant from the Skills Funding Agency to provide students in the engineering curriculum areas with an iconic Engineering Centre that will be a catalyst for engaging with prospective students and raising awareness of career opportunities.

The main areas to benefit from the property strategy to provide improved facilities are the areas prioritised by the Humber LEP, being engineering, wabrication and welding and creative digital.

ENDLESS POSSIBILITIES

Work will commence on this exciting and challenging project in June 2014 and will be completed by September 2015 when the new intake of students will reap the benefits of an outstanding educational facility which will set them on a career pathway with endless possibility in the wind energy industry.

North Lindsey College

SIEMENS ANNOUNCEMENT

EXCITING TIMES AHEAD

AS EVERYONE IN THE INDUSTRY NOW KNOWS SIEMENS ANNOUNCED RECENTLY THAT THEY ARE INVESTING IN THE HULL & HUMBER AREA WITH A VIEW TO NOT ONLY ASSEMBLE COMPONENTS FOR THE WIND ENERGY SECTOR BUT START TO SET UP MANUFACTURING FACILITIES AS WELL.

We have selected excerpts from the views of both national and local professional membership associations to give us a flavour of what to expect in the future.

WE GIVE THE LEAD TO RENEWABLEUK…

Siemens has announced its decision to invest £160 million (EUR190m) in wind turbine production and installation facilities in Yorkshire. The revised plan will be spread across two sites comprising the previously announced Green Port Hull project construction, assembly and service facility and a new rotor blade manufacturing facility in nearby Paull, in East Riding.

Siemens is investing £160 million across the two locations and its port partner Associated British Ports (ABP) is investing a further £150 million in the Green Port Hull development. The investment will provide a huge boost to the UK's offshore wind industry and the Humber region. The combined investments of £310 million will create up to 1,000 jobs directly, with additional jobs during construction and indirectly in the supply chain.

Prime Minister David Cameron said: "*This is a massive vote of confidence in our long-term economic plan. This investment is going to create lots of new jobs and opportunities, meaning more financial security and peace of mind for families and a more resilient economy for our country.*"

COLLABORATION

The Green Port Hull project has been in the making for around four years and is the product of a huge team effort between many national and local political, business and community parties and many people within Siemens in the UK, Denmark, Germany and ABP.

LANDMARK

The much anticipated investment is a landmark moment for the UK offshore wind industry. It is the first manufacturing plant of its kind for Siemens next generation blade technology (IntegralBlade®) designed for Siemens SWT-6.0-154 6 megawatt (MW) wind turbine. This is leading edge technology - each rotor blade is 75 metres long and when rotating covers an area the size of two and a half football pitches.

"Our decision to construct a production facility for offshore wind turbines in England is part of our global strategy: we invest in markets with reliable conditions that can ensure that factories can work to capacity. The British energy policy creates a favourable framework for the expansion of offshore wind energy. In particular, it recognises the potential of offshore wind energy within the overall portfolio of energy production", stated Michael Suess, member of the Managing Board of Siemens AG and CEO of the Energy Sector.

Team Humber Marine Alliance (THMA) continues the theme…

SIEMENS' DECISION WILL BOOST REGIONAL SUPPLY CHAIN

"*Siemens' decision to go ahead with the construction of an offshore wind manufacturing plant in Hull will provide a significant boost to the region's offshore and marine engineering supply chain*" says Team Humber Marine Alliance Director, Mark O'Reilly.

Mark O'Reilly

"Siemens is among the biggest and the best in the offshore wind sector, and this positive, encouraging decision cements the Humber region as a vital UK and European centre for offshore wind," said Mark, who heads up the 180-strong group of Humber companies.

"This is another jolt of good news which we have all been waiting for and creates an atmosphere of industry excellence, and financial opportunity, from which we can all benefit."

Sam Pick

"Siemens coming to Hull and the Humber sends out a clear message to other manufacturing companies in the sector who will now be able to push ahead with their plans to build their own facilities, which are linked to Round 2 and 3 windfarms," Mark concluded.

Sam Pick from Renewables Network sums things up quite nicely…

SIEMENS' MOVE COULD CREATE 'GLOBAL ENERGY CITY'

Siemens' decision to establish Britain's first major offshore wind turbine manufacturing plant in Hull could help it to become a 'global energy city', according to a leading industry group.

Experts from the Humber-based Renewables Network – which represents more than 260 companies across the green energy supply chain – have welcomed the long awaited announcement from Siemens to develop an £80 million assembly plant in the east of the city, believing it to be 'a golden opportunity that must be seized with both hands'.

Sam Pick, Business Development Director of the Renewables Network, said: *"This is the game-changer that the whole region has been working towards for a long time. Finally, we can put the politics behind us and get to work on establishing the Humber as a leading renewables hub. We have talked a lot about the creation of thousands of jobs in the past but now the hard work really begins.*

"Local firms need to be even more determined, prepared and clear on their capabilities to grab this historic opportunity and not miss out on securing a role in the renewables supply chain. That means having the training, skills and capacity to ensure that nobody has to look elsewhere. We have to fully embrace the concept of a dynamic, forward-thinking, global energy city that others aspire to be. The momentum that got the Humber this far, in its rebirth as a centre for green energy, cannot stop now."

Siemens

Click to view more info

RenewableUK

THMA

Click to view more info

= Click to view video

Renewables Network

EDITOR'S NOTE

The news of Siemens' decision came while we were finalising this spotlight on the South Humber. We therefore decided to produce a 'Special Edition on the Hull & Humber' within the next edition of the magazine and we expect this to cover some 50/60 pages!

It will also contain a pull out Supply Chain Matrix supplement which will list 100 companies, by areas of specialism, from all tiers which will serve the industry.

PERMANENT BASE FOR RES OFFSHORE

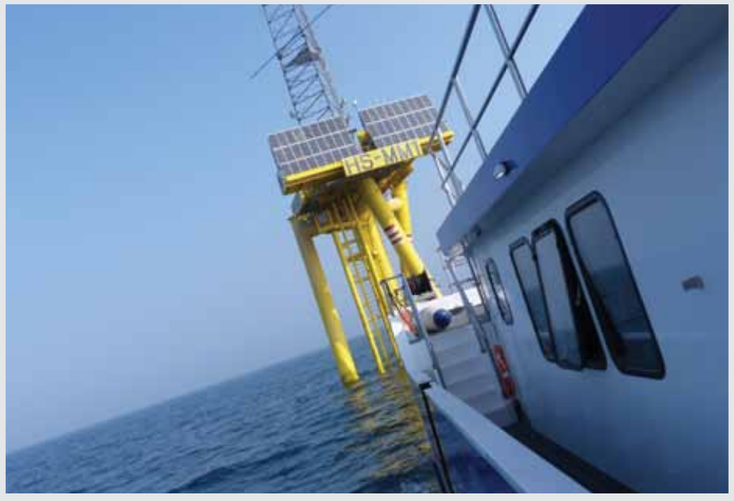
RES has had a presence at Port of Grimsby East, known locally as the Fish Docks, for over 9 years. Initially, they worked alongside its clients within its clients' offices. The company subsequently expanded its team to the point where it needed its own office facilities.

Therefore, over the past 24 months, RES rented space from Grimsby Fish Dock Enterprises. Now there is a need to have a permanent base, so they have signed a long term lease with Associated British Ports for a one-acre site on Humber Bridge Road which faces the docks and gives a view of the many different types of vessels operating there.

COMMITMENT TO SUPPORT THE LOCAL SUPPLY CHAIN

Construction work for the new building is scheduled to begin later in 2014 and RES plans to move in by early 2015. The company is committed to supporting the local supply chain and tender documents will go to companies based in the Humber Region.

Initially, a single storey building will accommodate up to 20 engineers and include a manager's office and meeting rooms. The specification will allow for quick extension through the addition of a second storey. The site also allows for storage containers and a laydown area.



OPERATIONS AND MAINTENANCE

The base will be used to manage its Operations and Maintenance business, including the recently announced Forewind Dogger Bank Met Mast contract and existing contracts with clients that include Centrica and SMartWind.

This heightened presence in Grimsby reinforces RES' commitment to the region.

MAXIMISING BENEFITS AND OPPORTUNITIES

RES is committed to maximising the benefits and opportunities to local communities that arise from the growth of Renewable Energy.

GRIMSBY RENEWABLES PARTNERSHIP

One area that demonstrates this commitment is their involvement in Grimsby Renewables Partnership (GRP). Chris Holden currently chairs this Partnership and actively encourages local tier two and three organisations to get involved.

The organisation is a true public private partnership with the local council holding a seat on the board. It is entirely non profit making. The Partnership meets at least once a month with a networking event held on the docks in Grimsby. Around 70 companies attend and share best practice and contacts, often creating smaller partnerships to deliver services.

The companies attending range from major multi-national utilities to the local sandwich shop and taxi firms. In the middle, they have engineering firms who have historically provided services to the fishing fleet.

RES Offshore

HUMBER HOTEL SPECIALISING IN ENERGY SECTOR EXPERIENCING RENEWABLES BOOST

A North Lincolnshire hotel specialising in providing overnight accommodation for offshore oil and gas workers has seen an upturn in business from the region's growing renewables sector.

According to Paul Green, owner of Nightel Humber based on Humberside Airport, the number of offshore workers destined for wind farms staying at the hotel has been rising month on month and shows no sign of abating.

EXCLUSIVELY SET UP FOR OFFSHORE WORKERS

Nightel Humber was set up three years ago to cater exclusively for offshore workers who are helicoptered to and from oil and gas rigs off the east coast on a daily basis, rather than staying out at sea.

Now, as the Humber region plays host to a renewable energy revolution, Nightel is seeing growing numbers of engineers from the wind energy sector through its doors to service and maintain turbines off the east coast.

CHANGING TIMES

"It is a sign of the way things are changing," Paul said. *"When we started three years ago it was exclusively gas and oil workers, but that's no longer the case. We've seen a huge increase in the amount of wind energy engineers in the last six months compared to the six months before that and I can only see that continuing.*

"There is a lot of talk about the Humber's renewables sector and some people think that is all it is – talk. But we're seeing evidence of a tangible growth in the industry in the way our business is changing."

COPENHAGEN CONNECTION

Paul added that the upturn began after Humberside Airport introduced flights to and from Copenhagen in October last year.

"*Copenhagen is a hub for Europe's renewables energy industry*" Paul said, "*and people flying into the airport often head straight to the hotel.*"

HUGE POTENTIAL GROWTH

He added that renewables provided 'huge potential growth' for the Nightel Humber.

"Currently many of the engineers associated with wind turbines are using boats to get out to sea but I believe in the future turbines will be accessible by helicopter," Paul said. *"That will be a real game changer and is fantastic for us because it is precisely how we currently operate for the gas and oil sector."*

Nightel Humber

Paul Green, owner of Nightel Humber

HUMBER PORTS UK WIND TURBINE SHIPMENTS

WWL ALS has completed and is currently involved in a series of port operations for wind farms for Nordex involving the Humber Ports.

These include 4 wind farm projects completed for Severn Trent and Todmorden wind farms, the latter of which is an ongoing project.

TODMORDEN

5 Nordex N90/R80 wind turbines featuring LM 43.80m long blades. The towers comprise of 4 sections, the longest of which measures over 20.80 metres long and largest diameter 4.30 metres.

SEVERN TRENT

4 identical N100/R80 wind turbines chosen for 3 different sites: Wanlip, Newthorpe, and Spondon. The blades measure 48.80 metres long.

WWL ALS' role encompasses vessel operations, port operations, storage, quality and stock control and dispatch to individual wind farms.

VESSEL OPERATIONS/ SHIPS HUSBANDRY

Controlling vessel movement within the Humber estuary and port, liaising with pilots, customs, mooring, port authorities, port health, crew welfare and vessel owners requirements.

PORT OPERATIONS – PHASE 1

Responsibility for…

- Managing and arranging all cargo discharge operations from vessels including
- Stevedoring
- Crane hire
- Welders
- Organising and liaising with specialist transport for removal to storage area

PORT OPERATIONS - PHASE 2

- Managing, receiving storage and dispatch in allocated storage areas at port
- All quality control including: inspection and condition reporting of individual components
- Care and maintenance of stock

The team offers an individual service of the highest standard with a global presence and reliable partners, providing clients with the most suitable and cost-effective solutions.

WWL ALS

KURT CHRISTENSEN WIND POWER SUPPORT

(ALIAS 'PAGE THE ORACLE!')

Throughout all these issues of Wind Energy Network, I have had the pleasure of meeting some fascinating and extremely interesting characters within this industry, many of whom hide their light under a bushel, and I for one am delighted to be able to be the 'mouthpiece' as it were, to bring them to the fore and enlighten their expertise and the importance of their skills which they bring to this sector.

CHARISMATIC WITH A CAPITAL K!!!

My next guest is Kurt Christensen – charismatic with a capital K!!! A gentleman with a very interesting story to bestow, no doubt on a couple of occasions he may well cringe when he reads this scribe, as one of self-effacing modesty, but I tell it as it is!

HALCYON DAYS

He remembers it vividly – 7th March 1957 when his father, a Danish trawler skipper and his mother and brother set sail to begin a new life in England, aged 3. It was a brave move, but one that promised prosperity as in those days Grimsby had a flourishing fleet of over 500 fishing ships, including Danish and local, today there are only 9.

It was possibly a foregone conclusion that Kurt would become the man he is today, a pending 'page the oracle' for at the tender age of 15, having left school he was an invaluable help to the crews of the Danish boats.

He was the 'errand boy' in the know; becoming a skippers-runner, performing all manner of duties, from requisition repairs, to liaising with engineering companies to acquiring every tin of Quality Street on the market for the crew to take home to their families! Those days were to become what has been an invaluable foundation, setting the course for the rest of his career.

IN THE BLOOD

With saltwater in his blood and a successful career as a fish auctioneer for 43 years (of which he thrived) his extensive experience of fishing and the waters, his boats, (Wind Ambition, Wind Solution and Support 1) and of course contacts and knowledge of the locale, Kurt became 'the man in the know' who people would seek out to ask.

It was in 2008 and the advent of the wind industry that Kurt realised there was potential for his expertise, lending support to companies in the offshore sector ... and so begins Wind Power Support, his company providing a wide range of services within the maritime industry.

FLOATING HOTEL

In the early days (when he was also a vessel agent) he recounts that he was approached by a client at 5 in the morning to undertake assistance with a new project which would be a world first!

Wind Solution a floating hotel (9,800 tons) and to undertake the re-fit in Estonia. With his knowledge and wherewithall, it was imperative that the project was completed within the year providing a safe and cost-effective service – this was achieved.

Over the years Kurt has developed excellent working relationships with other ports, his congenial and professional manner matched with a strong work ethic has reaped the rewards. He goes on to say he has dealings with Harwich, Liverpool, Lowestoft and Gt Yarmouth (opening an office there) and many other ports who he has found to be most approachable and a pleasure to deal with. Traditionally port calls can be a lengthy process of up to 48 hours – over time Kurt states that with lateral thinking, this time span has been greatly reduced, in some cases down to 18 hours, which ultimately is more cost-effective.

DEDICATED

He was asked once by a Senior member at Siemens, whilst still working at 8 in the evening *" how old are you and why aren't you playing golf?"*
His retort: *"This is my hobby, would you rather put a man on the moon, build an offshore wind farm or golf? – I rest my case!"*

RECOGNITION

As a pioneer in Grimsby's offshore wind industry Kurt's talents have deservedly been recognised. He was awarded a first class knighthood for all his work and continued work as Consul for Grimsby, by the Danish Ambassador to Britain, Anne Hedensted Steffense,who presented him with The Order of Dannagrog at the Danish Embassy in London.

His passion for the area and it's community is unparalleled as he laughingly goes on to say the locals now doff their caps to him!!

WHAT INSPIRES YOU?

Gin and Tonic!

FACTOID

In a nutshell Kurt thrives on a challenge, enjoying nothing more than a good problem to solve! In fact a short factoid: In his early days of fishing, he was the first to have a chilling system on his trawler! Also in long lining for dogfish when mobile phones were just being introduced, he would ring in to the markets with his catch whilst still out to sea, before all the other boats as they were on a radio frequency! Ahead of his time – literally!

FAMILY AND TEAM

On a more serious note, Kurt states his is very fortunate and much blessed. He attributes this not only to his family but also his team – and of course Bob! (his long term business partner).

There is no doubt that Kurt is one of the industry's colourful characters with a penchant for life, his work, his community and for the sector as a whole!

IN A NUTSHELL...

Quotable quote from Kurt: As he gets older he gets wiser, old age is the price to pay for wisdom – I would summarise by saying, age is an attitude!

Fliss Chaffer
Interviewer
Wind Energy Network

Kurt Christensen
Wind Power Support

EXPANDING GLOBALLY FROM THE HUMBER

Beverley-based Marine Rescue Technologies (MRT) is targeting UK and global markets after an ambitious multi-million pound expansion and investment.

The company manufactures specialist man overboard monitoring, alerting and tracking systems and has invested in new manufacturing and assembly facilities and offices, increasing its suite of products, and its employee numbers in the process.

BIG PLANS

Operating as a wholly owned subsidiary of Mobilarm, which is listed on the Australian Perth exchange (ASX:MBO), this is a company with big plans, says Chief Executive Officer, Ken Gaunt, including opening new premises abroad and in the UK.

"We are here, we mean business and we're really excited about the opportunities the next few years will bring," said Mr Gaunt, who has seen staff headcount in Beverley rise steadily since 2012, from 13 to 28.

"We have already invested millions in facilities, resources, employees, product development and training in the first phase of investment and expansion. As a business we want to lead the industry with innovation and passion to constantly improve maritime safety. Our business is dedicated to saving the man in the water."

Ken Gaunt, left, with David Marshall, the company's founder

WORLD LEADER WITH ENVIOUS CLIENT LIST

MRT is a world leader in specialist man overboard monitoring, alerting and tracking systems for a number of sectors, including oil & gas, helicopter transfer, offshore wind farms, aqua culture, seismic and general maritime.

Its customers include ABP, Bond Aviation Group, BP, Bristow Group, CGG, Western Geco, Siemens, PGS, CHC Helicopter, Shell and Total, to name a few.

FLEXIBLE AND TURNKEY SOLUTIONS

The company offers flexible financial solutions including a turnkey rental option that provides an annual recertification via an exchange service, which is also available through a global, dedicated reseller network.

As well as Marshall House, Grovehill Road, Beverley, the company operates in Australia with offices in Perth and Sydney, and in Nigeria through a joint-venture partner. This is a list of operational bases which is set to grow.

NEW FACILITIES

"We will open new facilities in Aberdeen and in the US in Houston, Texas, in the foreseeable future, extending our global reach so that moving forward and buoyed by our new products and facilities, we fully expect our customer rental and service base to grow significantly in the coming two to three years.

"We have a very different vision to other companies in the sector as 100 per cent of our focus is on the man overboard market – we are a sophisticated, specialist, dedicated man overboard business."

PRODUCT DEVELOPMENT

This clarity of focus can be seen in new product developments to clearly meet market requirements, such as the new helicopter transfer beacon.

"We are at the cutting edge of this field, and the new sMRT AU10 HT helicopter transfer beacon with its automatic identification system (AIS) is the first of its kind in the industry."

Other new products include the groundbreaking sMRT V100, also with AIS and DSC.

R&D FACILITIES AND STANDARDS

"We will continue to invest in new technology with our own R&D facilities, trialling products to suit specific market requirements while leading the market with compliance to national and international regulatory standards."

This includes the European Telecommunications Standards Institute (ETSI) and the Radio Technical Commission for Maritime Services (RTCM) standards, which bring much needed compliance to an unregulated global market.

"As far as regulation is concerned, we know what is coming and are looking to grow our rental and service customer base to meet the regulatory and market challenges ahead," said Mr Gaunt.

Ken Gaunt with the two new products: new sMRT AU10 HT (Helicopter Transfer) and sMRT V100

ESTABLISHED REPUTATION

The company has a long-established reputation on the Humber with roots firmly in East Yorkshire.

Mobilarm bought MRT in 2011 from David Marshall, who founded the business in 1974 in the aftermath of the Gaul trawler tragedy.

Mr Gaunt originally from Zimbabwe, but having lived in Australia before relocating to the UK to grow the business, moved the company's operations, and its successful Sea Marshall brand, to Beverley from Middleton-on-the-Wolds.

He has brought the bulk of Mobilarm's Australian operations to East Yorkshire and enlisted the experience and guidance of high profile Chairman Sir Tim McClement, the former Royal Navy Vice-Admiral.

LOCAL AND MARITIME CONNECTIONS

"Our local and maritime connections are fundamental to how we move our business forward. We employ locally as much as we can and we have also entered into an apprenticeship programme with East Riding College here in Beverley."

Many of its staff have been longstanding employees of the business set up by David Marshall, with professionally trained maritime safety advisers, including specialists with military and merchant navy backgrounds.

UK SUPPORT WITH GLOBAL FOCUS

The majority of product components are manufactured in the UK and assembled on site in Beverley with specialised software written locally, too.

Life jackets are manufactured by a UK specialist and designed to integrate with MRT's range of beacons. Secondary manufacturing in the Far East compliments a robust, professional and reliable range of products.

Marine Rescue Technologies (MRT)

able www.ableuk.com FEATURE SPONSOR FOCUS ON SOUTH HUMBER

HETA APPRENTICES ENGINEERING THE FUTURE OF WIND INDUSTRY

The South Bank of the Humber region has huge potential to become the UK Hub of Renewable Energy and in particular the centre of Offshore Operations & Maintenance.

HETA (Humberside Engineering Training Association) are perfectly based to help with this growth by training and supplying offshore wind turbine maintenance apprentices and also upskilling existing workforce for the wind industry.

FACILITIES AND CLIENTS

The organisation has 2 South Bank sites, one based at the CATCH facility in Stallingborough and one in Scunthorpe. From these sites they have been able to train Wind Turbine Maintenance Technicians for RES Offshore, Ecotricty and Centrica.

APPROVED CENTRE

They are now also approved to deliver the City & Guilds Wind Turbine Technician apprenticeship and will be training apprentices for SSE next year who will then go to work offshore to complete their NVQ Level 3.

Business Development & Marketing Manager James McIntosh said *"We are excited with the potential growth and developments of the Wind Energy Industry on the South Bank of the Humber. The companies that we are currently working with are trailblazers because they are looking to train engineers for the futures for what will be a sought after skills set.*

"We welcome any enquiries from companies across the UK who would like to train wind energy apprentices both on and offshore at our Stallingborough site."

In addition to having the Wind Turbine apprentices in training from September HETA will also have around 90 apprentices split between the Stallingborough and Scunthorpe for companies such as Knauf, ABP, Phillips 66, Total LOR and many more.

HETA

FAIR WIND FOR OFFSHORE SKILLS IN THE HUMBER

RECENT ANNOUNCEMENTS MAY HAVE CEMENTED THE HUMBER'S POSITION AS THE UK'S ENERGY ESTUARY, BUT INCREASING DEMAND FOR TRAINING AND COMPETENCE ASSESSMENT FOR THE OFFSHORE RENEWABLES SECTOR HAS BEEN A REALITY IN THE REGION FOR SEVERAL YEARS.

DEMAND

At the world renowned CATCH training facility in North East Lincolnshire, this demand has not gone unnoticed, as Dr Tony Flinn, Chief Executive Officer of HCF Ltd who operate CATCH, explains: *"Many of the renewable technologies that have established themselves in the Humber region share a natural affinity with our existing process, energy and engineering sectors, particularly when it comes to skills and competence assessment.*

"Where there are differences, we have been working closely with training providers to develop the specialised facilities and programmes that are necessary to realise our vision of turning CATCH into a 'one stop shop' for renewables training in the Humber region."

FACILITIES

Just seven miles from Grimsby docks where Centrica, Dong, Eon, RES Offshore and Siemens have chosen to set up O&M bases, the 10 acre CATCH site boasts an impressive list of facilities and on-site training providers who have well established links with the on and offshore wind sector.

HETA (HUMBERSIDE ENGINEERING TRAINING ASSOCIATION)

HETA has had a training base at CATCH since 2007. As the only provider in the region approved to deliver the relevant nationally recognised apprenticeship framework, HETA has been asked by SSE to train their Apprentice Wind Turbine Technicians.

The request comes on the back of the Greater Gabbard wind farm where the apprentices will form part of the ongoing maintenance team. There will be four SSE apprentices starting with HETA this year, with more planned for the future. With the addition of apprentices from other wind farm operators, HETA will be running a group of at least six wind turbine technicians from September.

RENEWABLE ENERGY TASTER WEEK

Another example of how young people have been given the opportunity to learn about careers in the renewables sector was the Renewable Energy Taster Week, part of the Employer Ownership of Skills pilot (led by Cofely Fabricom GDF SUEZ and managed by HCF Ltd) currently being delivered at the CATCH facility and funded by the Skills Funding Agency.

The Renewables Energy Taster Week was delivered at CATCH by on-site training provider the Grimsby Institute Group and saw a group of local 16-18 year olds hear from a range of companies involved in the offshore wind industry with advice on how to get into the sector and the type of conditions they could expect to face offshore.

CONFINED SPACES TRAINING

CATCH is also home to niche training providers such as Mines Rescue Service Limited who operate a state-of-the-art confined spaces training rig and new marine enclosed spaces facility at CATCH with plans to offer training and certification to Renewable UK standards.

CATCH

MAJOR UTILITY COMPANY AWARDS NEW WIND FARM CONTRACT TO OAASIS GROUP

Following a competitive tendering process conducted on behalf of E.ON, one of the big 6 energy companies, by Ecosse Subsea Systems, industrial supply company OAASIS Group Ltd was awarded a two year framework agreement by the energy company, to supply personal protective equipment (PPE) and maintenance, repair and operational equipment and consumables (MRO) for the energy giants wind farm, off the Humber Estuary, a £736 million, 73 turbine project off the Yorkshire coast.

ECOSSE SUBSEA SYSTEMS

This technology based company operates the SCAR trenching plough and various other technologies and will supply the major utility provider with the carousel and back deck personnel, tasked with the installation of Humber Gateway array cables.

OAASIS GROUP

Following an initial start-up order of approximately £150,000, OAASIS will supply a 50 man Ecosse team with work gear, life jackets, survival suits and essential tools and equipment for the duration of the contract.

Cameron Fisher, Procurement and Supply Chain Specialist with Ecosse Subsea Systems, reports that *"After a very comprehensive tendering process conducted on behalf of the energy giant, OAASIS quoted over 95% of the items on a very diverse consumable list and proved to be the best overall.*

"Subsequent to the award of the contract to OAASIS, Ecosse Subsea Systems have been very impressed with the fast, personal and detailed response rate and the on-time delivery and quality of the customer service provided. OAASIS are to be commended for their high standards and have clearly set a new benchmark for the supply of safety, technical equipment and consumables for the Wind Energy and Oil & Gas Sectors."

OAASIS recently moved to a new purpose built headquarters in Great Yarmouth, with 30,000 sq. ft of warehousing and also operates from a base in Aberdeen with partners in Ghana, Nigeria, Singapore and Azerbaijan.

Lee Sparkes, OAASIS Business Development Manager expressed the company's delight at the award of this new contract for such a prestigious client. *"We first worked with the client on a local wind farm ten years ago and since then we have supplied a number of other wind farm projects, including London Array, Burbo Bank, Robin Rigg, Gwynt y Mor and Germany's Meerwind and Bard. The latest contract award proves that we have maintained our high standards and specialist supply to the sector through dedication and enormous experience of our staff and remarkable range of quality products that we hold in stock, including the industry's leading brands of specialist products and of course our own TRAVERRSE brand of PPE."*

OAASIS Group Ltd

EMBRACING RENEWABLES

The Humber region; synonymous as being a key player in the chemical and oil industry within the UK – now ready to embrace an exciting new journey within the 'renewables' industry.

Located at the gateway of this existing, and forward thinking area of the UK, is the Hallmark Hotel. Geographically placed - 20 minutes from Humberside International Airport; which receives daily flights from Aberdeen & Amsterdam. 20 minutes from the Immingham Ports and 10 minutes to the Hull Ports – with immediate access from the A63; an envious location to suit both the South & North Banks of the River Humber.

PROFESSIONAL AND RELAXED 4 STAR HOTEL

The Hallmark Hotel is proudly the only 4 Star Hotel in the Hull area; offering an ambience which is both professional and relaxed; and individual to the successful Hotel. The Hotel offers complimentary unlimited wifi and car parking; as well as exceptional guest bedrooms, meeting & exhibition space.

PRIME VENUE OF CHOICE

Since enjoying a £3.5 million make-over; the Hotel has become a prime choice for organisers of accommodation, meetings and events in the Hull & Humberside area.

Having built strong relationships with Sam Pick from Renewables Network, the Hallmark was the obvious venue choice for a prestigious event in October 2012. The Hallmark Hotel was chosen as the host venue for a 2-day residential **'North Sea Offshore Wind Conference'**. The Hallmark Hotel provides a perfect location if for no other reason than the magnificent views of the Humber Bridge & Estuary – along with the personal Heli-pad!

INTERNATIONAL VISITORS

The event included a key opportunity to network and broker to the global key players within the industry. The Conference attracted circa 80 x Delegates; and culminated in a Gala Dinner. Delegates arrived from Norway and Denmark to embrace the annual conference in Hull.

Guest speakers of the North Sea Offshore Wind Conference included SMartWind, The Crown Estate, RES Offshore, Forewind and DONG Energy. The conference provided insight of the current wind developments; and highlighted the potential opportunities in the Yorkshire & Humberside region.

Hallmark Hotel

MANPOWER SOURCING

The Coyle Group with offices in Hull, Dublin and Abu Dhabi have just completed the supply of manpower services to a very significant Vestas construction project in the UK.

The 68 MW project consisting of 34 units of the V90-2.0 MW turbines was located at Keadby Wind Farm project near Scunthorpe in Lincolnshire, UK.

ENVIABLE CLIENT LIST

Coyle Group provides international recruitment and safety services. Their recruitment division operates within the Wind Energy, Oil & Gas, Power Generation and Construction sectors. They provide all types of professional manpower roles specific to these industries and are recognised as a leader in their field. They have clients such as Sarens, ESB International, Energia Renewables, The Weir Group andmany more.

KEADBY WIND FARM

Keadby Wind Farm is one of the largest onshore wind power plants in England. Having completed the construction phase the Keadby Wind Farm has now an installation capacity of 68 MW and it is said to provide clean, green energy and power to the equivalent of between 38,000 and 47,000 UK homes.

The contract was to provide manpower services. The site had an excellent record in Health and Safety which further enhanced Coyle's reputation given they provided the Project Health & Safety Manager for the complete contract.

Installation of the first turbines started during the late summer of 2013 and the project will be completed near the end of May 2014.

RETURN BUSINESS

The company has worked with Vestas providing manpower services on many projects such as Camster and Fallago Rig in Scotland, Fullabrook in England and many central European projects in Germany, Sweden and Belgium. Whilst they have a strong reputation for providing safety professionals they also provide engineers, project teams and technicians.

EXPANSION AND SAFETY TRAINING

The Coyle Group have recently expanded into the Middle East and Asian markets opening a strategic office in Abu Dhabi. Their safety division has just announced the release of a revolutionary online safety training IT system that reduces costs by as much as 60% and provides over 50 ROSPA approved safety courses.

Coyle Group

Fred. Olsen Windcarrier

FRED. OLSEN WINDCARRIER **STAND NO. 140**

Fred. Olsen Windcarrier provides innovative & tailored services for the transport, installation and maintenance of offshore wind parks.
Our modern fleet of vessels, which includes jack-ups & crew transfer boats, is operated by experienced crews to the highest HSEQ standards. We provide an integrated, holistic solution to the installation & maintenance of windfarms around the world.
www.windcarrier.com

dundeerenewables.com

DUNDEE RENEWABLES **STAND NO. 253**

Dundee Renewables will be promoting the latest developments in Dundee relevant to the renewable energy sector including:

- Port of Dundee
- Dundee Energy Parks
- Dundee Airport
- Offshore Renewables Institute

Dundee has the closest port to the largest of Scotland's offshore wind development sites. 160 hectares of land available now for supply chain development and O&M support.
www.dundeerenewables.com

Hughes Sub Surface Engineering

HSSE **STAND NO. 54**

Hughes Sub Surface Engineering is showcasing Hughes Offshore Support Services (HOSS), a package presenting clients with the opportunity to cover offshore support needs through one supplier. HOSS incorporates the pioneering Emergency Response Teams and a wide range of rope access services, NDT, rigging, cable stripping, generator refuelling and guano cleaning.
www.hsse.co.uk

HBM

HBM TEST & MEASUREMENT **STAND NO. 29**

HBM measurement technology helps you identify mechanical stress on wind turbine components at an early stage and hence minimise downtime! HBM was founded in 1950 and stands for excellence in test and measurement. Our products cover the entire measurement chain and offer solutions for the electrical measurement of mechanical quantities
www.hbm.com

GLOBAL OFFSHORE WIND PREVIEW

When an industry has the potential to grow quickly, just like the wind energy industry, everyone sees an opportunity to grab a piece of the action.

Event organisations are particularly aware of situations like these and you will have witnessed the amount of emails and commercial promotional opportunities which has very quickly grown over recent years.

HELP WITH MAKING CHOICES

It is not easy to find out which events to support without spending a considerable amount of time researching the whys and wherefores before making a commitment to attend. We are now recognised as a publication for the industry and to a great degree produced by the industry which promotes those events we know will be both worthwhile and cost efficient – see our events pages in the magazine and online events calendar.

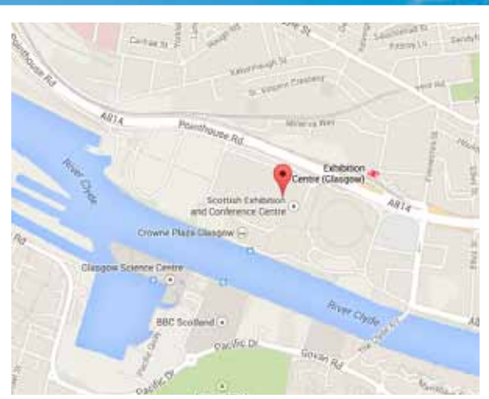
RENEWABLEUK

The Global Offshore Wind conference and exhibition is organised and controlled by RenewableUK who are a not-for-profit industry membership organisation which is run by the industry for the industry – we would recommend that you support this event. I hear many times about the costs of both attending and to a greater extent exhibiting - I would gauge my decisions ROI first and then the decision would be backed up by knowing that whatever profits are made are ploughed right back into the industry.

I hope to see you there – you will not regret it, as many previous visitors and exhibitors will testify.

GETTING THERE

SECC, Exhibition Way, Glasgow, G3 8YW – 0141 248 3000



HYTORC

HYTORC **STAND NO. 299**

With over 40 years of experience in industrial bolting technology, HYTORC is the world's oldest and largest manufacturer of hydraulic and pneumatic torque wrenches. HYTORC is dedicated in providing the highest level of customer service by continually developing new products to make bolting jobs as safe and hassle-free as possible.
www.hytorc.co.uk

JDR

JDR **STAND NO. 106**

JDR has led the development of inter-array cable design and manufacture, creating comprehensive product systems for some of the world's largest offshore wind projects. JDR is now committed to enabling the next generation of wind power projects to deliver cost-effective renewable energy, utilising its latest advances in high voltage cable technology.
www.jdrglobal.com

res power for good

The stand party will be on the Wednesday 11th at 4.30pm

RES OFFSHORE **STAND NO. 116**

RES Offshore provides integrated development, engineering, construction and AO&M services for utility-scale offshore renewable energy projects. From offshore wind to wave and tidal, we bring to projects the considerable skills and experience that we have acquired over 30 years in the renewables industry.
www.res-offshore.com

DEEPOCEAN

DEEPOCEAN UK **STAND NO. 169**

DeepOcean is an integrated provider of safe, high quality, innovative services and technologies for the subsea industry. Demonstrating an extensive track record, DeepOcean offers a breadth of subsea services including Survey and Seabed-mapping, Subsea Installation, Seabed Intervention, Inspection, Maintenance and Repair (IMR), and Decommissioning.
www.deepoceangroup.com

PD PORTS A Brookfield Ports Company

PD PORTS **STAND NO. 143**

PD Ports is an award-winning ports and logistics company based in the North East. The Port of Hartlepool is home to many renewable energy companies and most recently the EDF Teesside Wind Farm project used the Port as a base for its offshore wind turbine installation operations.
www.pdports.co.uk

La Tene Maps

LA TENE MAPS **STAND NO. 60**

See us on Stand 60 and pick up new editions of:
Britain, Ireland & the North Sea - WWT Projects
World - Offshore Wind Projects Map
Europe - Ocean Energy Projects Map
Britain - Electricity Grid Map.
www.latene.com

NOT TO BE MISSED!
GLOBAL OFFSHORE WIND 2014

WHISKY TASTING | ESS Ecology **Stand 55**
ESS Ecology will be hosting a lunchtime whisky reception at exhibition which is situated immediately to the right of the exhibition hall main entrance as you walk in.
They will be drawing business cards to give away a bottle of Glenmorangie.

NEW MAPS | Latene Maps **Stand 60**
The company is the leading publisher of printed and pdf copies of Renewable Energy Project maps and associated data packages. It has total world coverage on Offshore Wind and Wave & Tidal Projects.

DRINKS PARTY | RES Offshore **Stand 116**
RES Offshore provides integrated development, engineering, construction and AO&M services for utility-scale offshore renewable energy projects. From offshore wind to wave and tidal, they bring to projects the considerable skills and experience that we have acquired over 30 years in the renewables industry.
The stand party will be on the Wednesday 11th at 4.30pm

DEMONSTRATION | HSSE **Stand 54**
Hughes Sub Surface Engineering are pleased to announce that Managing Director, Ian Hughes and several members of the HSSE team shall be attending the RenewableUK Global Offshore wind 2014 event in Glasgow.

ROV | DeepOcean **Stand 169**
DeepOcean offers extensive knowledge and experienced staff, together with specialised tools and data processing suites to provide efficient and highly accurate survey and seabed-mapping services. With a range of surveys available, DeepOcean continues to investing in the latest techniques and tools required by the industry.

NEW INTERACTIVE MAP | Thomson Ecology **Stand 74**
Thomson Unicomarine, the marine division of Thomson Ecology, will be exhibiting at Stand 74 at Global Offshore Wind 2014. Thomson Unicomarine has over 30 years experience, with technical specialists that have delivered thousands of projects in over 50 countries.

Z WASHER | Hytorc **Stand 299**
With over 40 years of experience in industrial bolting technology, HYTORC is the world's oldest and largest manufacturer of hydraulic and pneumatic torque wrenches. The company is dedicated in providing the highest level of customer service by continually developing new products to make bolting jobs as safe and hassle-free as possible.

MPA CONCRETE CENTRE **Stand 259**
The Concrete Centre is delighted to be exhibiting at the event, on behalf of its supply chain group for concrete gravity foundations (CGFs). As wind farm sites move further offshore and into deeper waters, Concrete Gravity Foundation (CGF) solutions are the only foundation to meet performance and cost criteria.

A FRENCH ODYSSEY
A JOURNALIST'S JOURNEY

WE EDITORS DO GET A LOT OF INVITATIONS AND WOULD LOVE TO ATTEND THEM ALL BUT THERE IS JUST TOO LITTLE TIME
WE THEREFORE HAVE TO BE PARTICULARLY GOOD AT PRIORITISING OUR TIME.

The industry dictates what and how we report and if we get it wrong we soon hear about it!

It is with that in mind that there is a tendency to support those organisations and groups who support the industry. This tends to be industry membership associations such as RenewableUK, EWEA, IWE, AWEA etc.

When our publishing house received an invitation to attend the Thetis conference and exhibition in Cherbourg, France we did some research and found that this event perfectly suits the type of editorial content we feature…so I just had to force myself to attend!

Cherbourg is not an easy venue to visit, unless of course you live on the south coast next to a ferry terminal, but it was certainly worth the effort. The carefully prepared itinerary planned by UBI France ran like clockwork, even for someone travelling from North Yorkshire. Trains can be very relaxing and I have personally found them to be excellent places to work.

ITINERARY

Monday
- Travelled down to Poole on the south coast by train
- Meet our fellow scribes over a few drinks
- Dinner/overnight stay in Poole

Tuesday
- Ferry to Cherbourg – very relaxing and even more time to work while travelling
- Greeted by our French hosts from Ports of Normandy Authority (PNA)
- National Conference of the Renewable Energies Federation of France (SER)

The press pack with PNA officials

Wednesday
- Thetis MRE convention and exhibition – the annual European convention on marine based forms of energy
- Appointments with various dignitaries, company representatives etc

Thursday
- Thetis convention and exhibition until lunchtime
- Train to Paris
- Paris to St Pancras then back to North Yorkshire

FACTS & FIGURES

The 2014 edition of Thetis MRE finished on the evening of Thursday, April 10, following two days of exchanges and meetings among professionals in the Marine Renewable Energy world.

Continuing the efforts started in Bordeaux in 2012 and Brest in 2013, Thetis MRE 2014 in Cherbourg was highly successful for stakeholders in the MRE sector.

Key figures from the event include…

- 8,000 sq. metres convention area
- 262 exhibitors (up from 170 in 2013)
- 3,500 participants over 2 days
- 35% international participants, representing 15 countries
- 800 BtoB meetings organized
- 30 speakers, world MRE experts

UNITING THE INDUSTRY

Thanks to this continued success, Thetis MRE reinforces its role as the event that unites the industry and brings stakeholders together to incite technological, economic, and industrial initiatives, and thus helps the Marine Renewable Energy sector develop in France and around the world.

Christophe Peseux, Director of Thetis MRE: "*There is no doubt that deployment of Marine Renewable Energies is now moving forward. Thetis MRE, with its annual convention, is both a privileged testimonial to the rising power of the MRE sector in France and elsewhere around the world, and one of the factors of the dynamics set in motion by the entire value chain, from very small companies to major decision-makers in the Energy and Maritime sectors.*"

PROFESSIONAL BONHOMIE

Marc Lafosse, Engineer - Oceanographer, Thetis MRE founding associate: "*Thetis MRE 2014 owes its clear success to the overwhelming mobilisation of companies, researchers, territorial institutions from the Basse-Normandie region that received us in Cherbourg, and more globally the maritime regions present at the convention.*

"The 2014 edition nonetheless revealed a gap between the level of technological maturity in the MRE market, and the taking into account of industry expectations on a national level, in particular with respect to changes to make the regulatory framework more favorable for deploying projects in progress.

"As observers and stakeholders in the MRE field, we are working hard to keep Thetis MRE exciting for the 2015 edition, where we will be received by the Pays de la Loire Region in Nantes, France."

OFF PISTE

Many events have an 'out of conference' programme and Thetis did not disappoint. So off we went on a coach and boat trip around the historic port of Cherbourg on the Wednesday afternoon – perfect weather and very informative guides/officials.

We were wined and dined royally over the course of the visit and both the restaurant on one evening and the official reception (held in the Cite de la Mer maritime museum) on another were particularly memorable – the visit to a wonderful bar in Cherbourg we were taken to later that evening/early morning by our hosts was memorable too they said... but I don't remember a thing!

JOIE DE VIVRE

I think that neatly describes my experiences over the days of the Thetis conference and exhibition. There was an overwhelming feeling of being welcomed warmly and wholeheartedly – a joy to work in that sort of atmosphere.

UK/FRANCE COMPARISONS

When listening to the many local/national government dignitaries I noted that the word 'Europe' was always mentioned before 'France' even though as we know the French are extremely patriotic.

I could not help comparing this attitude to similar gatherings in the UK – pretty much the opposite is true. UK this and UK that and Europe is usually mentioned with disdain!

COLLABORATION

When you look at the size of the projects involved and the global importance of our industry to all of the European countries and its peoples' collaboration is everything. **I believe that France gets that spot on.**

Regions, local governments and national government are working together to make things happen – collaboration has been taken to new heights. Through the information gleaned from the conference and exhibition we witnessed vast projects in France at their very early stages of development but it would not be surprising in future to find those projects overtaking those of the UK because of the co-operation of everyone involved.

Ports of Normandy Authority (PNA)

UBIFrance

EDITOR'S NOTE

We are at present planning a major feature, with the help of both UBIFrance and PNA, on the region of Normandy and its ports in much more detail in a future edition with follow ups on interesting organisations/ companies relevant to the industry

INDUSTRIAL ROPE ACCESS

WHAT IS 'ROPE ACCESS'

Rope access techniques can only be carried out in a reliably safe manner where those undertaking the work are competent, i.e. suitably experienced and trained, particularly in the method(s) of access and equipment that they will actually be using. They must have knowledge of and be able to recognise any limitations of their equipment, in order to avoid misuse. In addition, the work is properly planned, managed and supervised by competent person(s).

HISTORY

Industrial rope access, started in the early to mid-80s using a technique based on a system developed by cavers during the late-60s and 70s. Whilst a safe system it relied on the use of a single rope. A second rope (the 'back up') was therefore added, in order to provide a level of security (or 'fall protection').

The application of rope access techniques on buildings, etc. transferred naturally to offshore work, where it was used to solve difficult access problems on North Sea oil rigs. In 1987, six companies started the world's first rope access trade association, the Industrial Rope Access Trade Association (IRATA) The Health and Safety Executive (HSE) was involved from the outset and was influential in ensuring that rope access would be a safe system of work. Today, industrial rope access is used for a wide range of work all over the world.

STANDARDS

IRATA International, Code of practice for industrial rope access (September 2013) (ICOP)

Comprising four elements the ICOP - based originally on the IRATA Guidelines4- reflects current best working practices on safe rope access.

BS 7985: 2013

When read in conjunction with BS ISO 22846-1: 2003 and BS ISO 22846-2: 2012, this standard gives practical advice on the duties placed on employers, employees and self-employed people who use specialist rope access methods for work at height, and gives recommendations for good practice. The first edition of BS 7985 was published in 2002 (and revised later, in 2009).

ISO 22846

This comprises two parts: Part 1 (Fundamental principles for a system of work) and Part 2 (Code of practice).

ISO 22846-1gives the fundamental principles for the use of rope access methods for work at height. It is applicable to situations where ropes are used as the primary means of access, egress or support and as the primary means of protection against a fall.

ISO 22846-2 was expands on the fundamental principles outlined in ISO 22846-1 and gives recommendations for: planning and management; operative competence and responsibilities of personnel; supervision; the selection, use and care of equipment; and advice on how to implement a 'safe system of work'.

EQUIPMENT

Since its inception, industrial rope access has used equipment predominantly designed and manufactured for caving. Initially, with no applicable industrial product standards, equipment was chosen because it provided the minimum level of safety that was considered for the then workforce experienced in caving and climbing. A number of industrial product standards now exist within Europe.

BACK-UP DEVICES

Fundamentally, rope access requires a back-up device. This is attached to the back-up safety line in order to protect the technician from a fall if the main working line fails or if the technician slips or loses control in any way. The back-up device is intended to lock on to the safety line without causing damage to the rope, and absorbing any shock load that may occur.

However, back-up devices offer considerable design challenges for manufacturers and the use of these products has been the subject of strong debate within the rope access industry for many years. In certain situations there is a real risk that devices may not work as users expect, especially when working with used rope or heavy loads. The rope may break (caused by the device) or the device may not arrest the fall. Relying on product standards alone is not enough. Some test requirements are imperfect and those selecting equipment can rely on them too much. Critically, product standards do not sufficiently consider aspects of use. The heightec Quantum back-up device was a response to an assessment of the issue of 'reasonably foreseeable misuse' and is intended to work on all types and condition of rope, with loads up to 200 kg.

ROPE ACCESS IN THE WIND INDUSTRY

Rope access work in and on wind turbines needs to consider carefully the access, egress and rescue or evacuation from any exposed or restricted area, e.g. transition piece, nacelle or hub. Planning should take account of emergency service response, remote locations, communication, boat transfer, sea conditions and working over water. Hazards include rigging, environmental considerations, mechanical isolation, entrapment, fragile surfaces, bio-hazards, electricity and fire. Other issues include an understanding of any site-specific procedures, the need for isolation and permit-to-work, ergonomics, the lifting and lowering of loads and welfare provision. Industrial rope access is versatile, and has an excellent safety record, but like all work at height must be planned and managed properly.

MANAGEMENT AND SUPERVISION OF ROPE ACCESS

ISO 22846 provides some good advice on the management and supervision of rope access. It provides a useful benchmark. IRATA has published a comparison study between ISO 22846 and its own ICOP 2013. In broad terms, the latter gives much more detail. ICOP 2013 notes that it covers only the supervision of rope access safety and that some form of training in management plus an assessment is recommended. This wider competence should include 'leadership and management', as well as 'Health and Safety'. Some employers will provide this level of knowledge and skills, through in-house training (and experience gained 'on-the-job').

heightec

ED NOTE:
Please note this is an abridged version. Follow the link to read the full article.

Click to view more info

ROPE ACCESS BENEFITS

Rope access provides an unrivalled safety record, a quick set-up and dismantling time, positive environmental benefits and no need for invasive access equipment or disruption of the site.

Like any other method of working at height, the application of rope access should be regarded as a complete system, in which planning, management, competence and suitable equipment should be treated with equal importance, to ensure a safe system of work.

WHAT ARE THE ADVANTAGES OF USING ROPE ACCESS?

The advantage of using rope access methods mainly lies in the safety and speed with which workers can get to or from difficult locations and then carry out their work, often with minimal impact on other operations and the nearby area.

Another major benefit is that the combination of the total man-hours and the level of risk for a particular task (man-at-risk hours) is often reduced when compared with other means of access and their associated risks and costs.

Speed

- It takes minimal time for the Level 3 Supervisor to rig and get Technicians working safely
- Similarly at the end of the job, there is no lengthy dismantling of equipment

Cost

- Rope access takes less time before Technicians can be working and thus saves on wages
- For small jobs, the cost of hiring scaffold, cherry pickers, etc. can be disproportionate to the work needed to be done
- If jobs are delayed the costs of extended plant hire can be negated by the use of rope access

Disruption

- Unlike scaffolding which covers the building façade making access/egress difficult, rope access leaves entry points clearly visible and accessible
- Rope access - the appearance of the building is maintained/recognisable which for some e.g. historical buildings is important and reduces loss of business through closures, etc

Flexibility

- Whereas scaffold, cherry pickers, etc. can assist work around the outside of the building, rope access can be used to access parts of the building which no other form of access is able to do safely

Safety

- IRATA statistics confirm rope access as a safe form of access
- All IRATA member companies submit quarterly returns of hours worked/any accidents, etc which are analysed and produced to support the industry
- In fifteen years of collating reports IRATA has recorded minimal serious injuries; its 'reportable incident' rate reduces year-on-year

CLIENT CASE STUDY: HANDS CLEANERS LTD

Brief

Hands Cleaners instructed us to assess the theatre in order to come up with access solutions to clean the internal and external glazing and supporting steel work of the building.

TOTAL ACCESS SOLUTION

The building was originally designed to be cleaned via MEWP access. Once built the use of access platforms could not be used. Total Access (UK) Ltd installed mechanical fixings to the internal steel work to enable operatives to traverse the internal structure thus enabling access to the glazing.

The external elevations were completed using rope access and reach and wash methods using temporary weight systems enabling the cleaning to be carried out without the need for expensive road closures.

BENEFITS OF THE SOLUTION

The theatre could be cleaned with multiple operatives without the use of costly access platforms & road closures, providing full access of the theatre to its employees and the public.

TESTIMONIAL

"Total Access (UK) Ltd acted in a very professional manor, all works were completed to a tight schedule and to a high standard."

Total Access (UK) Ltd

HARNESSING ROPE ACCESS TO REDUCE ACCIDENTS IN THE WIND SECTOR

The International Rope Access Trade Association (IRATA) defines a rope access system as 'a safe method of working at height, where ropes and associated equipment are used to gain access to and from the work place and to be supported there'. Rope access systems allow workers to quickly access hard-to-reach locations without the use of equipment, such as scaffolding, cradles or an aerial work platform, that could impact operations in the surrounding area.

Rope access is therefore useful in helping workers gain entry to elevated locations or isolated equipment in the renewable energy sector. Common modern rope access applications include inspection, surveying, maintenance, and the construction of wind turbines and towers.

TYPICAL EQUIPMENT INCLUDES…

- Climbing helmet – to protect the skull against falling debris or impact
- Anchorage point / Anchorage connector
- Body wear – 2 or 3 point full body harness
- Intermediate attachment – static line with rope grab and static rope with ascenders and controlled descent devices

All equipment must adhere to the EN 12841:2006 standard for personal fall protection equipment.

TRAINING

Working at height or in locations that present difficult or limited access requires both skill and practical training. IRATA International has an independent, formal training and certification scheme that all rope access technicians must complete.

The technical grades range from one to three; with those at the higher level able to work without supervision. The training covers rigging, rescue and rope access skills, as well as relevant legislation and compliance. IRATA also has a policy whereby member companies must submit all accident, incident and near miss occurrences.

This highlights any accident trends and assists in the improvement of equipment and working procedures.

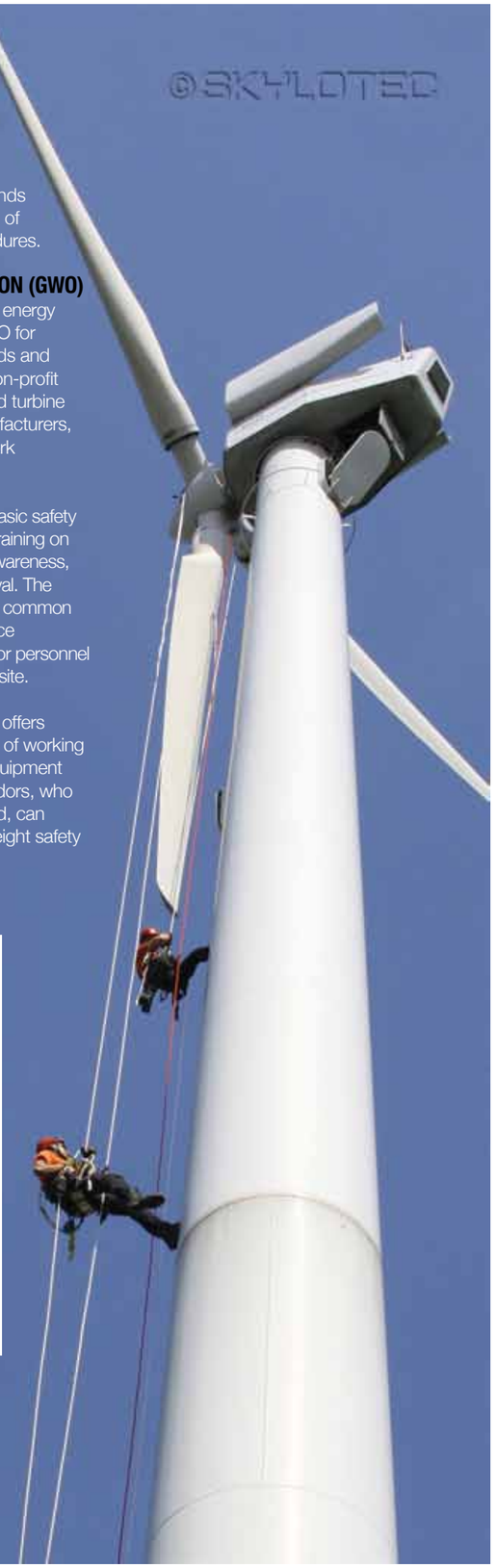
GLOBAL WIND ORGANISATION (GWO)

Workers in the renewable wind energy sector can also turn to the GWO for specific information on standards and best practice. The GWO is a non-profit organisation, comprised of wind turbine owners and wind turbine manufacturers, that strives for an injury-free work environment.

The organisation developed a basic safety training standard that includes training on first aid, manual handling, fire awareness, working at height and sea survival. The GWO hopes that by developing common industry training and best practice procedures, it will reduce risks for personnel in the wind industry working on site.

Arco Training and Consultancy offers general training on the dangers of working at height, control measures, equipment and care, whilst its partner vendors, who are all IRATA and GWO certified, can also offer specific working at height safety courses.

Arco



ADVANTAGES OF ROPE ACCESS IN ROTOR BLADE INSPECTION

The experience in rope access combined with expertise on wind turbines is the main advantage of the services that can be provided by GRwind professionals to the energy industry.

The 'tap test' is very important to perform a correct evaluation of damage extension and magnitude and to prevent 'hidden' damages.

Rope access expertise provides excellence on technical results besides contributes to save time and money in the energy industry, finally it is environment friendly.

WORKS PERFORMED

- Hidden damage detection in a rotor blade
- Lightning protection pystem (LPS) evaluation
- Drainage system assessment and cleaning

Very often lightning receptors in blades are not working. Defective LPS combined with clogging in drain system can lead to serious structural damages, especially in blade tips. They can explode (image 1) due to heating and water accumulated inside when a lightning strike hits the blade.

Rope access provides a fast, safe and high quality solution for the wind industry once that is not dependent on the mobilisation of heavy equipment and large teams moreover it can be used in more restrictive weather conditions.

BLADE INSPECTION

Nowadays the importance of rotor blades periodic inspection is recognised due to the prevention of severe damages through early detection of evidences. Thus, expensive costs can be avoided and the productivity of the turbines not compromised with downtime.

It's widely accepted that the aerodynamic blade profile has influence on turbine productivity therefore operations, as inspection, maintenance and early repair, should be performed in situ, by expert professionals and as soon as possible.

Exploded blade tip

HIDDEN DAMAGE DETECTION IN A ROTOR BLADE

A seemingly cosmetic damage (Image 2a) in a rotor blade revealed a large interior damaged area due to an excessive exothermic reaction (Image 2b). This evaluation was possible by using an in situ inspection.

Image 2a:
Seemingly cosmetic damage

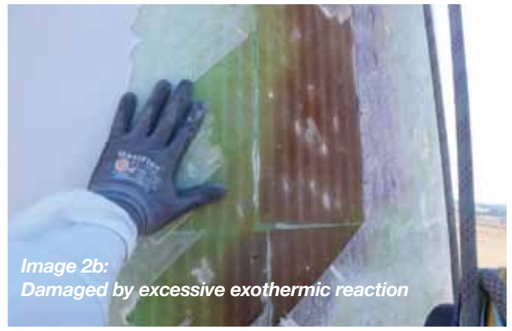


Image 2b:
Damaged by excessive exothermic reaction

LIGHTNING PROTECTION SYSTEM (LPS) EVALUATION

The rope access technique allowed detecting and repairing a severe damage on LPS during the blade inspection. The measurement of conductivity revealed absence of conductivity that indicates an inadequate LPS performance (Image 3a). After that, the inside inspection was immediately performed and the component (aluminum conductor) responsible for the damage was replaced (Image 3b). The repairing operation was successfully finished and the full capacity of blade recovered in few hours.

Image 3a:
Absence of conductivity on LPS

Image 3b:
Broken conductor inside blade

DRAINAGE SYSTEM ASSESSMENT AND CLEANING

The inspection detected a clogged drain hole, unclogging was performed on the fly. Illustration demonstrates water falling from inside blade (fig 3a), the main reason for the obstructed drain-hole was dust (fig 3b).

Francisco Rapazote
Executive Director
GRwind

UK PORTS
WINDS OF CHANGE

Royal HaskoningDHV is building on their history working in ports and harbours and are currently working on 14GW of Renewable Energy Projects across 18 Offshore Wind farms around the UK

THE UK RENEWABLE ENERGY MARKET AND THE PORT INDUSTRY

Offshore wind farms are a key focus in the UK's plans to increase the contribution of energy from renewable sources over the next decade. The Government aims to facilitate the installation of up to 18GW of offshore wind capacity by 2020, and The Crown Estate has leased a number of areas of seabed around the UK for offshore wind developments.

According to the data released by trade association RenewableUK, 2,841,080 MWh electricity was generated by wind energy projects in December, thus supplying about 10% of Britain's total power demand in the month.

This has placed the UK at the forefront of the world's renewable energy market and is attracting key industrial companies to set up manufacturing facilities in the UK to supply and service the sector.

Delivering offshore power generation on this scale will require UK ports to supply components for offshore wind turbines, as well as providing installation bases for projects.

THE GROWING INDUSTRIES

A number of offshore energy generation projects are currently in the process of being consented, for example Royal HaskoningDHV is working on Dogger Bank Creyke Beck, and there are also projects which are now in the construction phase, for example Gwynt y Môr, and therefore opportunities are increasingly available for ports to support the supply chain and help secure the UK's place as an offshore wind leader in the Europe-wide market place.

A number of European ports, such as Bremerhaven in Germany, are already servicing the North Sea offshore wind sector; however the UK has one of the largest port sectors in Europe with several sites suitable for offshore sector manufacturing, construction and operations & maintenance.

In December 2013, the Government granted planning permission for ABLE Humber Port on the South Bank of the Humber Estuary. This port will be an important industrial base for the offshore wind sector on the east coast of England and is a step forward towards being one of Europe's newest, largest multi-user ports facilities.

The offshore wind sector has growth potential and this could be a catalyst for further investment in the port industry, and much can be gained from port operators, developers, manufacturers and the government working together.

CHALLENGES AND OPPORTUNITIES

The timescales and requirements with the consenting process in the offshore renewable energy market and the port industry is challenging as the selection of the port to service the offshore development is often associated with the appointment of construction contractors and suppliers who are often not appointed until comparatively late in the project development process.

To further complicate the process, the project developers of offshore renewable energy projects are not necessarily the final project owners. For example Warwick Energy consented Dudgeon Offshore Wind Farm, which was then acquired by Statkraft and Statoil.

Even after an owner/operator is established, the selection of the construction and loadout port may be influenced by the contractors appointed to construct the project, and the final decision on foundation design and installation method. Currently, the consenting processes for port operators and wind farm development processes are not linked, which presents an opportunity to align the consenting process to streamline development.

The long term need for operational and maintenance bases to serve the offshore wind farms for many decades provides significant opportunities to UK ports, in particular smaller ports and harbours.

Many smaller ports in UK are looking to hosting operational support bases as a new and potentially lucrative income stream securing the future of the these essential small ports and harbours.

North Tyneside Council FEATURE SPONSOR SPOTLIGHT ON THE TYNE

NORTH TYNESIDE
BEST FOR BUSINESS

Ranked as the country's top district for inward investors and businesses, North Tyneside has a proven track-record for success as well as an ideal location for offshore renewable, oil and gas and marine industries.

The prestigious rating by Local Futures, the largest inward investment report commissioned in the UK, flagged up its advantages in terms of cost base, accessibility, quality of life and commercial premises.

DELIVERING MUCH MORE

North Tyneside and the surrounding area on the River Tyne in the North East of England, also delivers much more – including a ready-made infrastructure, abundant natural resources and a comprehensive package of professional and service sector support, with incentives for businesses locating into its Enterprise Zone sites.

The River corridor has attracted a number of valuable industrial sites for river related activities. The area is currently home to a broad range of major companies including Siemens, Liebherr, Maersk, OGN, Wellstream, Fabricom Offshore, SMD, WD Close, Quick Hydraulics, Mammoet UK, Barrier Group and Duco.

HISTORY AND FACILITIES

It has a long history in engineering, particularly in the marine and offshore sectors, supported by a strong supply chain and excellent transport links.

The Port of Tyne, which is a deepwater port with quays capable of handling vessels up to 13 metres draft, offers round-the-clock access and excellent intermodal links via three onsite rail terminals. It also has easy access to the UK's national motorway network with links to the rest of the UK and Europe.

The Port also offers open storage for over 500,000mts of bulk cargoes as well as modern customs-approved warehousing which efficiently integrates the port facilities with its hinterland via both its own fleet of more than 50 trucks as well as third-party operators.

NEW DEVELOPMENT - SWANS

North Tyneside Council has started work transforming the former Swan Hunter shipyard in Wallsend which, once complete, will become a state-of-the-art advanced manufacturing hub for companies specialising in renewable energy and offshore industries.

Identified as 'strategically significant' in the ongoing regeneration of the North East, this 20 hectare site, to be known as Swans, will include bespoke high-tech industrial units and office space, a fully operational 300m quay and heavy-load lay down areas together with all the associated facilities and infrastructure needed to cater for the demands of its target industries.

ENTERPRISE ZONE STATUS

Swans and Port of Tyne North Estate have been awarded Enterprise Zone status meaning there are additional incentives for investors locating to one of these sites by 2018. Benefits include business rate discounts or enhanced capital allowances and simplified planning regime making development and growth quicker and easier for investors.

SKILLS AND TRAINING

As well as investing in the infrastructure to support the growing number of subsea, offshore and renewable businesses in the area, North Tyneside Council is also working closely with local training providers and public sector bodies to ensure the local workforce has the specialist skills and training needed by companies looking to invest in the region.

Sector specific training providers in the North East include; Maersk Training, Advanced Industrial Solutions, Siemens, Energy Academy, Narec, and Future University. A new Neptune National Centre for Subsea and Offshore Engineering is also being proposed by Newcastle University.

PROPERTY PORTFOLIO

In addition to offering world class commercial property with river access, North Tyneside also has some of the most modern, flexible and affordable business and industrial space on the market in urban locations, including Cobalt; the UK's largest office park and Quorum Business Park; which offers one of the most attractive location packages in the country.

North Tyneside Council and property developers, Highbridge, have also recently launched Indigo Park, a new 82 acre strategic employment site capable of accommodating in excess of 1.3 million sq ft of new bespoke/purpose built premises for manufacturing and distribution companies. Once fully developed, this scheme has the capacity to generate over 1,000 jobs.

North Tyneside's diverse economy is also home to a large number of globally competitive blue-chip companies from other key sectors including Proctor and Gamble, Balfour Beatty, Santander, Tesco Bank, Greggs, Aesica Pharmaceuticals and Convergys.

COST COMPETITIVE LOCATION

Competitive wages and lower operating costs make North Tyneside one of the most financially rewarding places to locate in the UK. High quality office and industrial space is available for around half the cost of that in London and the South East and up to 20% less than in Leeds or Manchester. Average wages are also around 10% below the national average.

ADVICE AND SUPPORT

Investors locating to the area can benefit from practical help and guidance provided by North Tyneside Council's dedicated Business and Enterprise team. Its experienced team is able to offer investors a wide range of tailored business support packages to help establish companies in the area including sourcing suitable premises, market intelligence, recruitment and training, relocation assistance and funding advice for individual projects.

EXCITING FUTURE

Paul Buie, Head of Business and Economic Development for North Tyneside Council said: *"Our area offers a wealth of opportunities for the renewable energy and offshore industry. With its state of the art commercial property, two Enterprise Zone sites, superb transport links, competitive wages, low operating costs, specialist training providers offering a wealth of new talent and a truly unique quality of life, there are so many reasons why North Tyneside is great for business."*

North Tyneside Council

Click to view more info

NEW SURVIVAL CENTRE BLOWS AWAY THE COMPETITION

With skills shortages remaining a critical issue facing the wind sector – leading renewables training provider AIS has invested millions of pounds in a new purpose built offshore survival centre and training village in North Shields to help address the issue.

REALISTIC EMERGENCY SCENARIOS

The new £2.4 million offshore survival centre will train workers from the offshore wind, oil and gas and maritime sectors in survival techniques using facilities which imitate realistic emergency scenarios including helicopter ditching at sea, sea survival, escape from smoke filled environments, evacuation via lifeboat and boat transfer.

FACILITIES

The new centre includes an environmental pool, fire training centre and lifeboat and davit system, as well as state-of-the-art classrooms, changing facilities, world-class restaurant and meeting rooms with construction work completed in March 2014.

It's the latest addition to AIS's extensive 150,000 square foot training village in North Shields which features a variety of realistic simulated workplace environments including a 20 metre tall wind turbine training tower. The learning village is one of the highest rated, most well equipped training facilities in the UK and also one of the only places to offer courses approved to deliver OPITO, STCW, Global Wind Organisation and Renewables UK training programmes.

OFFSHORE WIND SECTOR – UNPRECEDENTED GROWTH

Paul Stonebanks, Managing Director at AIS said: *"Being so close to the River Tyne we've seen a huge upsurge in training to meet the needs of the renewable offshore wind sector.*

"The global wind industry is experiencing unprecedented growth and there are many resulting skills shortages that need to be plugged. We've invested heavily in state-of-the-art facilities and in developing one of the most comprehensive wind training portfolios to ensure we are well placed to meet the needs of an increasingly important worldwide industry."

FULL TRAINING PACKAGE

"Our training village is one of only a handful globally to offer the complete suite of GWO training modules, as well as being Renewable UK, OPITO and IRATA approved and this new survival centre will complete our offer.

"From working at height to sea survival, first aid and emergency response safety training through to specialist skills such as mechanical joint integrity, CompEx Electrical, rigging and lifting and rope access, we can now provide a full training package to anyone entering or already working in the global wind industry."

AIS Group

NEW MONITORING TECHNOLOGY POWERING WIND ENERGY SECTOR

A new remotely operated condition monitor from electrical and instrumentation specialists CMR Group will provide significant cost and operational improvements for global wind farm operators.

PARTNERSHIP

The monitor, under development in partnership with Newcastle University for a leading turbine rotary equipment manufacturer, represents a significant breakthrough in wind farm technology, coming at a time as the sector gears up for growth in emerging Far East markets.

REMOTE MONITORING SYSTEM

Quickly fitted to the turbine crankshaft, the instrument will be able to monitor the operational condition of the rotary blades of turbines, which are often located in hard to reach, remote areas of the country, checking for any stress cracks or damage due to vibration. This information will then be sent remotely via a small control and software system located at the heart of each turbine system to a central site for analysis and interpretation.

There, engineers will be able to very quickly use the data to assess the condition and, if necessary, identify any requirement for preventative work to the blades to avert damage or failure. This in turn, will enable wind farm operators to significantly cut repair and maintenance costs while boosting levels of operational reliability and performance.

PROTOTYPE

A prototype of the new monitor is currently under test before going into production later this year.

FAR EAST INVESTMENT

Ian Hamilton, Business Development Manager at CMR's Newcastle site, said *"there is a huge commercial opportunity for this type of remote monitoring capability, particularly in the Far East where billions of dollars are being invested to fuel growth in wind farm technology and the development of new sites in rural areas."*

COMMITMENT IN OVERCOMING REAL LIFE PROBLEMS

"CMR is committed to bringing innovative products to market to overcome real life problems. Technology like the new monitor reduces risk for customers, who are often operating in highly competitive sectors, a critical edge.

"Moreover, with our global reach - CMR has offices in the Far East - we will be able to support installations quickly and cost effectively, adding even more value through a high quality, locally available service."

The group supplies instrumentation and controls for offshore platforms and vessels, marine, engines and industrial applications around the world.

CMR Group

BRINGING A NEW BREED OF OCEAN GIANTS TO TYNESIDE

The iconic Swan Hunter shipyard, in Wallsend, North Tyneside, gained an almost mythical status as the birth place of some of the world's iconic ships such as the Mauretania and HMS Ark Royal , but today it is being redeveloped by Kier, in partnership with North Tyneside Council, into a centre for advanced manufacturing.

£100M REDEVELOPMENT

The £100m redevelopment of the 20ha site, of which 17ha is designated Enterprise Zone, will allow the newly branded Swans site to become home to a new breed of ocean giant: wind turbines.

Kier is redeveloping the site to appeal to a range of different manufacturing and industrial operations. The Tyneside location and extensive river frontage make it ideally suited to meet the needs of the offshore energy industry and the redevelopment is designed to appeal to this vital sector.

WIND ENERGY

While businesses locating at the new site are expected to include firms operating in a range of offshore energy sectors, including oil and gas, it is the work that Kier is undertaking for wind energy and turbine firms which is attracting particular attention, given the sector's growing importance and the fact that much current turbine manufacturing and design work is undertaken by firms based outside the UK.

The Tyneside location of the Swans scheme means it is well-positioned for the North Sea and within easy reach of other UK east coast wind farms such as The Thames Array.

KEY ATTRACTION

A key attraction of the site for the offshore energy industry is the 300m quay and heavy-load lay-down areas, which give large areas of hard-standing and broad waterside access needed for assembly, maintenance and repair - particularly vital when moving and working on turbines of up to 200m.

Demolition and initial groundwork at the site have been completed and work is currently under way to improve infrastructure, including essential quayside facilities that enable the space to be adapted to meet the needs of the wind turbine industry, rather than the ship-building sector.

INFRASTRUCTURE IMPROVEMENTS

Quayside edge improvements to provide a solid foundation, and the addition of new crane and lift facilities needed to move large structures, generator housing and components onto and off ships are being undertaken. The quayside has also been reconfigured to provide the large areas of open and unobstructed space needed to safely move turbine blades and components.

The end result will be one of the largest specialist quaysides in the UK and one of only a small number suitable for handling wind turbines.

DREDGING PROGRAMME

In addition to improving quayside hard-standing, cranes and lifting infrastructure, an extensive dredging programme is being undertaken to create berthing for ships with up to a 10m draft. The improvements will allow heavy-lift barges to dock at the facility and directly load turbine blades, generator units and other equipment - making use of the geographic features of Tyneside that drew Swan Hunter to the area over 150 years ago.

BESPOKE FACILITIES

The industrial units at the site have also been specifically designed to meet the needs of the wind turbine and offshore sector, with units ranging in size from 465sq m to 46,500sq m.

CENTRE FOR OFFSHORE RENEWABLE ENGINEERING (CORE)

The Enterprise Zone at the Swan Hunter site is one of six Centres for Offshore Renewable Engineering, enabling businesses in the sector to get additional investment support from central and local government.

Work on the site started in 2013 and is due to be completed in 2015. Kier and North Tyneside Council are in discussions with a number of potential tenants in the offshore energy and wind farm sector, with the fully occupied site expected to create in the region of 1,000 skilled jobs for the local area.

Kier Group

WORLD LEADER IN MARINE WARRANTY SURVEYING

LOC is recognised as a world leader in the field of marine warranty surveying.

Established in 1979, they have approved some of the largest and most complex offshore marine constructions projects with a team of over 400 qualified personnel around the world.

ADVICE AND SUPPORT IN THE NORTH EAST OF UK/EUROPE

The company has been actively involved in the North East of England, around the UK and Europe in providing advice, support and MWS for the transportation and installation of offshore windfarms.

Their involvement spans from providing marine warranty for Teesside offshore windfarm for EDF Energy, approving the positioning and jacking of the jack-ups that will be used to overhaul the turbines on Blyth for E.ON, to surveys, load-ins & outs of cables, OSPs and jackets on the rivers Tyne, Tees and Wear.

NEWCASTLE TEAM

LOC's Newcastle team is involved in planning for an upgrade to the cable laying vessel Cable Enterprise, which carries and lays 6000 tons of high voltage subsea cable. Her forward-looking owner asked them to help plan the vessel's upgrade from anchor positioning to dynamic positioning.

The new system of thrusters will hold the vessel in position with greater accuracy. This makes controlled manoeuvres close to offshore structures much easier and safer.

EXACT REQUIREMENTS

The company's role is to consult with the owner to identify their exact requirements. They also assess the best way to power the system which could be by diesel electric, direct drive or a combination of the two.

Fitting the new system into the hull is also a major consideration. Finally they will deal with classification and statutory rules governing this type of ship to ensure it is fully compliant.

BIGGEST CHALLENGE

The biggest challenge of the project has been to maintain Cable Enterprise's status as a barge while upgrading her systems and power plant to meet the US West Coast emission standards, which are the strictest in the world.

LOC Group (London Offshore Consultants)

STATE-OF-THE-ART TRAINING CENTRE, PAVES WAY FOR RENEWABLES SAFETY IN NORTH EAST

Safety Technology Ltd's recently opened state-of-the-art training facility in the North East of England is now offering some of the world's most advanced Wind Energy safety training programmes to the onshore and offshore sectors.

CENTRE OF EXCELLENCE

Located on the south bank of the river Tyne, Safety Technology's Centre of Excellence for Renewable Safety is partnered with South Tyneside College's high-tech Marine Safety Training Centre. From these purpose built facilities the two parties are now offering the complete package of onshore and offshore safety training for the Wind Industry, including the full suite of RenewableUK and GWO courses.

WORLD-RENOWNED

The world-renowned centre of excellence for marine education and training, and now renewables safety, in South Shields, is home to pioneering technology, including the most advanced navigational bridge simulators available in the market today. All of which can be configured to meet every aspect of bridge simulator training and research requirements, offering virtually limitless training possibilities.

FACILITIES

The Centre of Excellence is also home to a helicopter escape module, environmental pool, and RenewableUK specified training tower. These extensive and unique facilities in both onshore and offshore safety training, which include Europe's first offshore platform transfer simulator, enables Safety Technology and STC to recreate highly realistic working conditions for trainees.

RESPONDING TO THE NEEDS OF THE INDUSTRY

Head of Northern Operations for Safety Technology Ltd, David Martin, said of the South Shields based facility *"The Centre of Excellence responds to the needs of the renewable energy industry and provides quality assured training to support the development of the industry in the North East and beyond."*

STRONG PARTNERSHIP

The strong partnership between Wind Energy safety specialists Safety Technology and Marine experts South Tyneside College continues to grow, with new courses and training programmes in the pipeline.

Safety Technology Ltd

NORTHUMBERLAND COLLEGE AND PORT OF BLYTH ANNOUNCE NEW PARTNERSHIP

As part of an exciting new partnership, Northumberland College's renowned renewable energies training courses will be delivered from the Port of Blyth.

The college launched its renewable training courses in 2009, the first of its kind in the UK. The courses were developed by the college in partnership with several UK and European renewables training agencies and organisations to implement a European industry standard qualification for operational skills in the wind energy sector for both onshore and offshore.

The courses are validated by German based training institute BZEE (the pioneer of wind energy training) and the Global Wind Organisation (GWO).

BLYTH BASE

The college will run three renewables courses from the Blyth base. The Level 2 qualification is designed for those with no previous engineering background who wish to pursue a career in the wind energy sector. There are also two Level 3 courses aimed at trained electrical or mechanical engineers looking for a career change into wind energy, or engineers working in the wind energy sector who would like to upgrade their skills and qualifications.

The college has had a strong relationship with the Port of Blyth for a number of years, with the Port delivering several aspects of the renewables training including lifting and slinging techniques. This latest development may lead to a longer term relationship that it is hoped will complement current development plans for Blyth.

STATE-OF-THE-ART FACILITIES

The training facilities at the port include a state-of-the-art 27m high climbing tower for specific 'working at height' training and purpose built workshops housing two large dismantled turbines (Nacelles) for training student technicians in how to service and maintain the wind turbines.

Combining the college training centre with all these facilities in one place will create a ground breaking 'wind hub' training concept which will ensure graduates are job ready. The courses have a great success rate with over 90% of graduates securing jobs in the wind industry.

MEETING THE SKILLS NEEDS OF THIS GROWING INDUSTRY

Stuart Cutforth, Principal and Chief Executive at the college, said: *"This is a very exciting new partnership for the college. The renewables sector continues to be a growth industry and the college is dedicated to providing training to meet the skills needs of the industry. The new base at the Port of Blyth and the organisations skills in the sector will further enhance this."*

Martin Lawlor, Chief Executive at Port of Blyth, said: *"We are delighted that Northumberland College are moving to the Port which will only enhance Blyth's growing reputation as both a handling and training hub for the renewables sector."*

Northumberland College

Stuart Cutforth, Northumberland College Principal; Left - Martin Lawlor, Chief Executive at Port of Blyth, at the 27m high climbing training tower

PROVIDING SOLUTIONS

Tyne and Wear Marine Ltd (TWM) is proud of their abilities to think 'outside of the box' when it comes to designing and building bespoke products and services such as their latest development.

RIVER TYNE AND DOGGER BANK – A HUB FOR THE WIND ENERGY SECTOR

Increased traffic over the past few years has seen an expansion of vessels coming in and out of the River Tyne. Ships are getting larger in general and this can place a load burden on bollards and old quays and jetties which may be vulnerable to failure with the increased size of vessel.

BOLLARD FAILURES INCREASING WORLDWIDE

Reports of bollard failures are increasing worldwide. With this in mind the issue of health and safety and risk assessment in the Port of Tyne area was considered in relation to the load bearing of bollards and potential consequences of failure. This led to the seeking of a solution to check the integrity of the bollards on the north and south sides of the river.

CONSEQUENCES OF FAILED BOLLARDS INCLUDE…

- Vessels can break free leading to damage resulting in multi-million pound insurance claims
- Lost time and inconvenience in re-berthing the vessel
- Replacing bollards is very expensive if they don't require it and could be tested easily
- In the worst case, injuries and fatalities occur

PORT OF TYNE & TWM – A CASE STUDY

To minimise the above risks and to make sure that their 200 plus bollards were up to the job as intended found nothing that would meet their needs.

The Port turned to TWM for support in this task and has resulted in the design, manufacture and testing of a unique, first of its kind transportable hydraulic bollard load testing rig.

This process has taken a year and soon the work which will ensure that bollards are fit for purpose on the River Tyne will begin and the launch of a new service and product from TWM.

Tyne and Wear Marine Ltd.

Click to view more info

= Click to view video

IMPROVING VESSEL HANDLING TRAINING IN A FAST GROWING INDUSTRY

The Tyne sits strong in the fast paced and fast growing offshore renewables industry but amid the many opportunities and technological advances created in this sector, an archaic oversight exists that must be addressed.

This is the immediate need to improve the training of vessel handling, an issue highlighted by a series of accidents where human error has been blamed.

PROBLEM IDENTIFICATION

The industry has identified that skippers of boats transferring workers to offshore renewable energy facilities, including wind farms, often have not had the opportunity to improve their skills to ensure those workers' safety as they switch from vessels.

This gap has led to a series of accidents and near misses by those crewing ships miles out to sea, bringing into sharp focus the lack of specialist training programmes for those in such positions of responsibility.

INCREASED OFFSHORE WORK

Offshore renewable energy has brought a steep increase in people working offshore in often quite treacherous and variable weather conditions, and their training requirements are met to an extremely high standard.

BOAT TRANSFERS

An area where numerous challenges remain is that of boat transfers. The safe transference from vessels is an essential skill and training courses are in place for those whose work requires them to go from vessel to, for example, wind farms.

The industry has identified that many skippers have backgrounds in the fishing or leisure industries where they have been crewing vessels far smaller than those they now need to operate, yet there is currently no training in place to re-train or upskill them.

SIMULATION TRAINING

One way this can be rectified is through simulation training, which has been identified as a valuable training method and one which is expected to be used to great effect in the years ahead.

Experts fear their worst predictions of a major marine accident will come true unless improved training is quickly implemented.

Simulation training offers a valuable way forward for an industry that is fast-changing and must remain alert to every new challenge and danger.

South Tyneside College

TAILOR-MADE SOLUTIONS

A & P is a leading Marine Engineering Services and Fabrication Group providing tailor-made solutions for customers in the Global Marine and Energy Sectors. The company's two North East England facilities provide their customers with world class ship repair, conversion and fabrication services borne out of expertise, market-strength and dedication to delivering complex projects.

They provide robust, bespoke solutions and maintain a collaborative, open approach that inspires long-lasting and trusted partnerships with each of their clients.

CONTRACT SUCCESS

Having successfully delivered completed contracts including subsea structures into the UK North Sea Sector and projects off the coast of Africa the company is the natural engineering and fabrication partner for the Offshore Renewables/Oil & Gas sectors.

The major strength of the business is its personnel; both their workforce and sub-contractors are able to meet their customer's demands on a genuine 7 day a week service.

CUSTOMER FOCUS

The A&P North East business is focused on delivering a safe, quality, cost effective and efficient service for all of their customers. The Tyne yard boasts the largest commercial dry-dock on the east coast of England supplemented with two deep water berths and a significant modern fabrication facility complete with panel line, rolling, plasma and gas burning machines, which are complemented by a highly skilled and flexible workforce. There is extensive storage and load-out capability with fully equipped workshops covering all trades required to carry out projects from relatively simple ship repair to major complex ship conversions.

CUSTOMER BASE

Among their customer base the company boasts a number of oil majors and their key contractors as well as the UK Ministry of Defence as well as some well-known national and worldwide shipping groups. In addition to major marine projects their fabrication facilities lend themselves to building offshore modules, subsea structures, and new ship sections.

Having successfully delivered completed contracts including subsea structures into the UK North Sea Sector and projects off the coast of Africa, A&P Fabrication is the natural engineering and fabrication partner.

Typically their involvement has included - vessel mobilisation/demobilisation work for construction and installation activities, major ship conversions, for example FPSO/FSO deployment, module fabrication, subsea structure fabrication, ship repair to the OSV market and ship repair to the product tanker market.

A & P

20 QUESTIONS

ANDREW OLIVER FROM ANDREW JACKSON SOLICITORS

WHO ARE YOU?
Andrew Oliver, Head of Renewables, Andrew Jackson Solicitors (Hull, York and Grimsby).

WHAT BROUGHT YOU INTO THE INDUSTRY/YOUR POSITION?
Interest developed from my practice as a solicitor in Marine Environmental Law.

WHAT ANNOYS YOU/MAKES YOU ANGRY
Obsessive political correctness and the failure of many regulators to use common sense the most?

WHAT WAS YOUR BEST HOLIDAY?
Long holiday in Italy after finishing my A-levels. Developed my love of all things Italian particularly wine and food.

WHAT WAS YOUR WORST HOLIDAY?
Caravan holiday in Scotland – non-stop rain and non-stop midges.

WHAT IS YOUR DREAM HOLIDAY?
A remote tropical paradise with no mobile phone signal or internet access.

WHO WOULD YOU NOT LIKE TO BE?
A politician – universally mistrusted and never able to win any argument!

WHAT IS THE BEST ADVICE YOU HAVE EVER BEEN GIVEN?
Work hard as a student – the foundation for my career.

WHAT IS YOUR FAVOURITE SMELL?
Fish and Chips cooking in a chippy.

WHAT DO YOU DO IN YOUR SPARE TIME?
Sail my Wayfarer dinghy and drive the safety boat for the Scout Water Activities team.

WHAT SPORT DO YOU PARTICIPATE IN/WATCH THE MOST?
Season ticket at Hull City with my son – so spend every other week at the KC during the season watching Hull City!!!

WHAT IS THE MOST BIZARRE QUESTION YOU HAVE EVER BEEN ASKED …. APART FROM THIS ONE!?
What is the legal procedure under Scandinavian law to adopt a dolphin? – my apologies to the Scandinavian lawyer I referred the prospective client to!

WHAT IS YOUR FAVOURITE RECORD/ CD/ARTIST/MUSIC?
Very broad taste from rock/pop to classical. I will listen to anything apart from opera and country and western, depending on my mood.

IF MONEY WAS NOT A FACTOR WHAT WOULD YOU BUY TOMORROW?
A large motor yacht moored in an Italian marina in the Med.

WHAT 3 WORDS WOULD BEST DESCRIBE YOU?
Down to earth.

WHAT TALENT WOULD YOU LIKE TO HAVE?
To play a musical instrument. My mother was a piano teacher but her skills skipped a generation to my daughter.

WHAT LAW/LEGISLATION WOULD YOU LIKE TO SEE INTRODUCED?
Compulsory custodial sentencing for metal thieves – I write this a day after having my Wayfarer's mast stolen!!

WHAT BOOK ARE YOU READING AT PRESENT?
Dan Brown – Inferno.

WHAT CAR DO YOU DRIVE?
Skoda Superb 4x4 Estate.

WHERE WOULD YOU LIKE TO BE 10 YEARS FROM NOW?
Retired and on that remote tropical paradise with no mobile phone signal or internet access.

Andrew Jackson Solicitors

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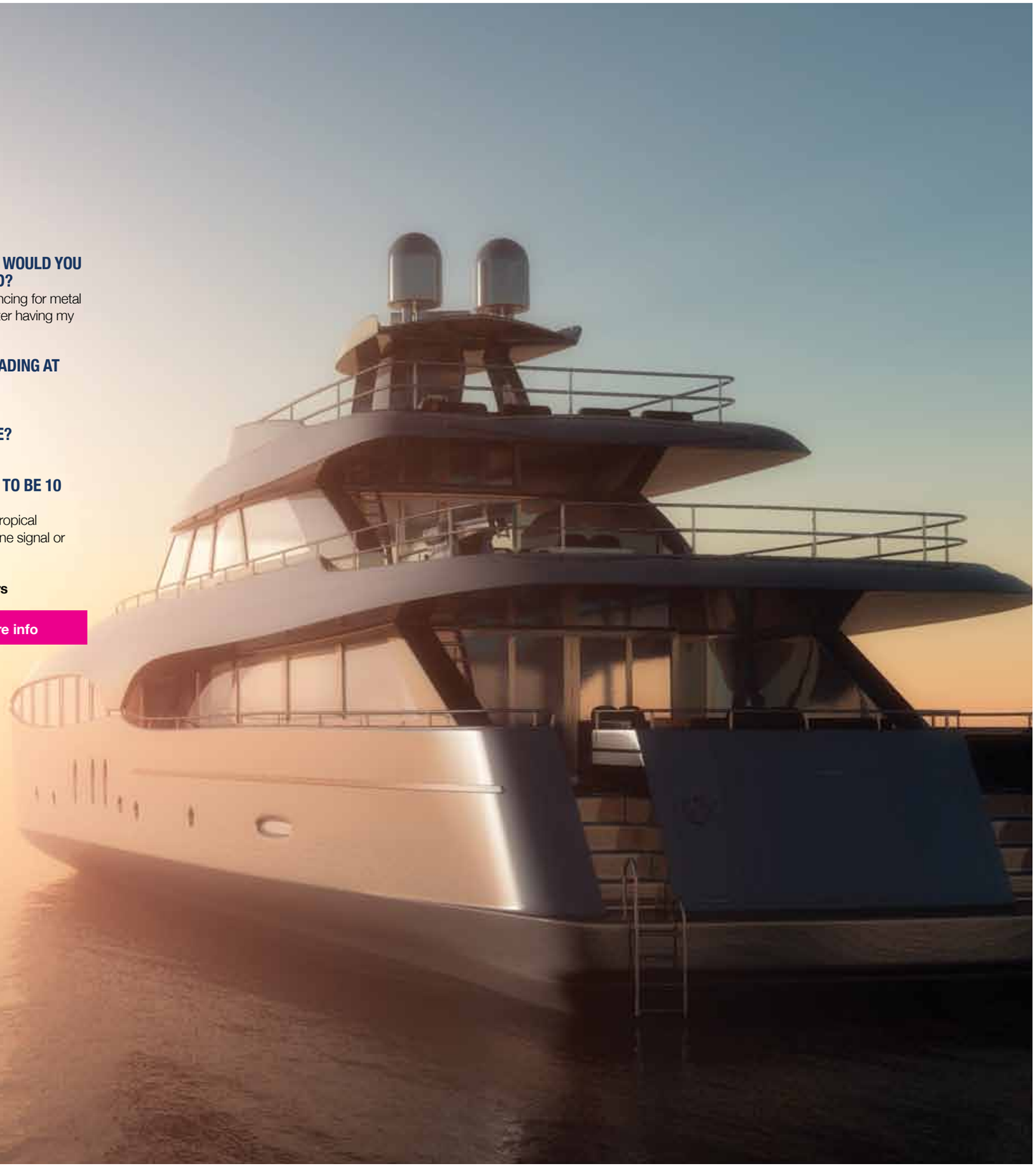

Andrew Jackson The Law Specialists FEATURE SPONSOR LEGAL EAGLES

INTERFACE RISK

WHILE EVERY WIND ENERGY DEVELOPMENT IS DIFFERENT THERE ARE SEVERAL KEY FEATURES AND KEY RISKS THAT ARE COMMON TO THE VAST MAJORITY OF PROJECTS.

Turcan Connell were the legal advisors to some of the first onshore wind farms in Scotland, and have been involved in hundreds since then. As a contracts lawyer, I regularly find that while developers, consultants and contractors can see the same risk in significantly different ways, they will often find common ground in developing contractual solutions to the seemingly intractable problems which can arise on-site.

One such problem is that of interface risk – with multiple parties involved on-site, there will be numerous potential areas where there may be a gap in liability (no-one is being paid to pick up a risk) or an overlap (the client may be paying twice to cover the same risk). Sensible and thorough contract management from the outset can reduce this risk.

For larger projects, alliancing arrangements and interface agreements are par for the course. Parties involved tend to be experienced in establishing and limiting their liability for the various risks posed by the project. For the smaller development however – and particularly in many onshore wind projects – these methods are not feasible or cost-effective.

PRACTICAL STEPS

Help is at hand though. There are several practical steps clients can take (be they experienced developers, family businesses, or one-off landowners diversifying into renewables for the first time)…

1 Structured tendering

Consider passing responsibility for setting contractor or supplier tender criteria to the project engineer. Particularly if your project is your first, having a consultant (backed up by insurance) define the main contractor's scope reduces the risk of key items being missed, and allows recourse if critical elements need to be added by variation later on.

2 'Wrapping' contracts together

One of the key solutions can be to merge contracts, to allow interface risks to be dealt with at contractor level through sub-contracting. Although there may still be multiple parties on-site, responsibility for integrating programmes, delivery schedules and access to key areas will be for the contractor to sort out. 'Single-point responsibility', while costly, can improve the client's commercial position when it comes to dealing with delays and risk events during the construction phase.

3. Disclosure of contracts

If the developer owes contractual obligations to others (to neighbours, land-owners, or others), include that contract in the various contractor / consultant tender packages. Consider obliging those appointed to meet the criteria as a condition of their contract with you, not your contract with the neighbour. This also applies to the planning conditions – suppliers should price for the risks associated with meeting the appropriate planning conditions, rather than leaving the developer to pull strings together (and possibly instruct variations or additional work).

4 Be wary of over-burdening contracts

Having said that, clients and developers should be choosy about which obligations to pass to contractors and consultants. If, for example, electricals works need to be capable of adoption, is there a benefit to having additional 'take-over' conditions?

If the network operator is happy, the odds are the developer may be happy too. Over-burdening contracts can attract a risk premium, and almost as importantly, can mean the project commences with parties in a defensive mindset.

CONCLUSION

Renewables contracts of all sizes present contract risks, but good advice and a clear approach to the management of risk can benefit both the client and its team.

Andrew Fairlie
Turcan Connell

Click to view more info

= Click to view video

THE OUTLOOK FOR OFFSHORE WIND
THE NEED FOR CERTAINTY

Certainty and stability are the key issues for the offshore wind industry. How can this be achieved? Discussion in the industry on these issues is essential.

THE OUTLOOK FOR OFFSHORE WIND SEMINAR

UK commercial law firm Dundas & Wilson were therefore delighted to host The Outlook for Offshore Wind seminar at their Edinburgh office on Thursday 6 March. They were joined by three guest speakers who are at the forefront of the sector, Ian Marchant (Chief Executive, SSE (2002 – 2013) and as of May 2014 Chairman, John Wood Group plc); Finlay McCutcheon (Director of Offshore, SSE Renewables); and Nigel Slater (Director, Offshore Wind, UK Green Investment Bank).

PRESSING CHALLENGES

The presentations and discussion looked at some of the pressing challenges currently facing the industry including the impact of government policy, the challenges for developers, and the current financing climate….including 'taking the temperature' of the room on whether those attending had an optimistic outlook about the future….with the outcome being cautiously optimistic.

COMMITMENT

Developers have committed and continue to commit significant sums (tens of millions) of risk capital towards obtaining the necessary consents to build the next round of large offshore wind farms.

However, uncertainties around construction costs, access to low carbon support mechanisms and availability of sufficient finance to fund the construction phase make the final investment decision very challenging for these developers. To an extent this is a chicken and egg issue.

ECONOMIES OF SCALE

To get costs down lots of turbines need to be installed quickly in order for the supply chain to respond and deliver economies of scale. Scotland and the UK want to create a mirror of our oil and gas industry with globally transferable skills in offshore wind. To achieve this, we need to maintain momentum by resolving these uncertainties sooner rather than later.

CERTAINTY AND STABILITY

Certainty and stability are the orders of the day. At the heart of the discussion on ensuring further confidence in the outlook for the industry are therefore issues such as the need to see projects consented (which obviously brings a number of benefits including the scale necessary to drive and demonstrate meaningful cost reduction), a political climate that continues to be supportive, and clarity as to support mechanisms.

Mark Kirke, a partner at Dundas & Wilson, who chaired the seminar, commented: *"Our event was a great opportunity for a discussion of the burning issues facing the sector as it looks forward and we were very grateful for the extremely valuable insights provided by our speakers – Ian Marchant, Finlay McCutcheon and Nigel Slater – all leading industry figures."*

FUTURE

Looking to the future, Dundas & Wilson is becoming part of CMS on 1 May 2014, the world's tenth largest law firm spanning 57 offices and 31 countries.

Isla MacLaren
Dundas & Wilson CS LLP

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MARITIME
FIRST AID TRAINING

The mandatory requirements for familiarisation and basic safety training and instruction, and the standards of competence to be achieved, are set out in Regulation VI/1 of the Annex to the 'Standards of Training and Certification of Watch Keepers' (STCW Conventions), as amended in 2010, and corresponding sections of the STCW code.

AGREED SPECIFICATIONS
The UK's Maritime and Coastguard Agency (MCA) has agreed with the Merchant Navy Training Board (MNTB) the specifications to satisfy those requirements for approved training undertaken in the United Kingdom.

REQUIREMENTS
The Elementary First Aid course is one of the four compulsory commercial courses required to work on commercial vessels ranging from fishing vessels to super tankers and including super yachts. The training must be undertaken before new entrants are assigned to any such shipboard duties. The other three courses include; Personal Safety and Social Responsibilities, Fire Prevention and Fire Fighting and Personal Survival Techniques.

INTERNATIONALLY RECOGNISED
The First Aid course is internationally recognised and provides an introduction to the principles of basic first aid to all persons intending on going to sea. It shows how to take immediate action upon encountering an accident or medical emergency aboard ship, and respond to the most common medical emergencies such as Cardio-Pulmonary Resuscitation (CPR), breaks & splints, bandaging, drowning, hypothermia and transporting a casualty.

4 MODULES
The Elementary First Aid course comprises 4 modules…

- **Module 1** – introduction to elementary first aid - how to carry out a first assessment of the needs of a casualty and an assessment of any threats to the person delivering first aid. It also includes a basic understanding of human anatomy.
- **Module 2** – emergency treatment - demonstrates how to place a casualty in the recovery position, how to administer resuscitation techniques and how to control bleeding.
- **Module 3** – shock and burns - explains what to do for immediate treatment of a burn or electric shock and provides an understanding of the effects of shock and the appropriate treatment. It also covers the appropriate measures to be conducted in the event of scalding.
- **Module 4** – rescue, transport and emergency kit materials - This shows how to apply different kinds of bandage and how to prepare a casualty for medical evacuation.

PROGRESSION OPPORTUNITIES
On successful completion of the Elementary First Aid course, and depending on the responsibilities on board ship, individuals may want to progress to the next level of 'Medical First Aid' (MFA) course or even expand further and undertake the 'Proficiency in Medical Care' certificate.

Andrew Hodgson
Business Development Consultant
Whitby & District Fishing Industry Training School

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FREE OFFSHORE WIND TRAINING COURSE FOR LOCAL RESIDENTS

MAERSK TRAINING EXTENDS THEIR COMMITMENT TO LOCAL COMMUNITY
Local unemployed people in Tyneside are being offered free places on a new training course designed to help them take advantage of job opportunities in the thriving offshore wind energy market. The course is open to people who are unemployed, a UK resident for the past 3 years, aged 19 or over and live in the Tyneside region. Subsidised places are available for those that don't qualify.

DEVELOPMENT
The course has been developed by Newcastle based Maersk Training and lasts approximately ten weeks. The Diploma covers essential safety skills people need to work in an offshore wind turbine environment, including: Safety Passport, confined space, electrical awareness, working at height, manual handling, sea survival, fire awareness and an industry related project. Everyone who successfully completes the course will receive a Maersk Training Diploma in Staying Safe in the Wind Turbine Environment (Onshore and Offshore).

ASSISTANCE FOR THE UNEMPLOYED
David Bowyer, Head of Training & Education at Maersk Training said: *"Tough economic times mean unemployment rates are high in our region. Encouragingly, the offshore and wind energy sectors are expanding at a very fast pace, so there are great opportunities out there for people seeking employment. We are committed to helping those who are less financially able, improve their prospects, by gaining a valued qualification."*

PROACTIVE MOVE
Adrian Yeaman, Operations Manager of Boston Energy said: *"The Diploma is a very proactive way of bringing new technicians into the industry and Maersk Training should be commended in introducing this qualification. It allows us to draw technicians from the local community and support our clients with the best turbine technicians who know how to work safely."*

Maersk Training

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= Click to view video

INDUSTRY EVENT

INDUSTRY EXPERTS GATHER TO DISCUSS THE FUTURE GENERATION OF OFFSHORE WIND FOUNDATIONS

UNIVERSAL FOUNDATION

Nearly 100 international delegates congregated in Hamburg recently for the first technical conference led by Universal Foundation, focused on knowledge sharing for offshore wind suction bucket foundation technology.

TECHNICAL WORKSHOP

The technical workshop brought together industry specialists, developers, turbine suppliers, certifiers and approval bodies, engineering, fabrication and installation contractors, authorities as well as academic experts to discuss and share experiences in an open forum and reflect on lessons learnt in the evolving offshore wind sector as well as experiences that can be taken from the well-established oil and gas sector.

ENCOURAGING OPEN SHARING

"The workshop was designed to encourage open sharing which is something we firmly believe that we should be doing more of as an industry," said Torgeir Ramstad, Managing Director of Universal Foundation Norway. *"The industry must find new ways of working together if we are to reach the required cost reductions, which are essential for ensuring a sustainable industry and to address the increased technical challenges with turbines being installed further offshore in deeper waters."*

Universal Foundation technical conference

SUCTION BUCKET TECHNOLOGY

The Universal Foundation technology is an innovative application of suction bucket technology learned from over 30 years of experience in the oil and gas sector. The technology is a hybrid design combining the benefits of a suction anchor, monopod and gravity based foundation once installed.

Delegates heard from Tor Inge Tjelta, Geotechnical Specialist from Statoil, regarding their vast experience with suction bucket technology dating back to the 1980s and many delegates were surprised to hear that more suction buckets of different kinds have been installed globally, than monopiles in the offshore wind industry.

BASIC CONCEPT

"The basic concept behind Universal Foundation is not new technology, the innovation is in its application to offshore wind foundations and the controlled installation system which ensures that the turbine can achieve true verticality, eliminating the requirement for a separate transition piece with challenging grouted connections and reducing the number of marine operations," said Otto J. Nielsen, Managing Director of Universal Foundation (DK).

The foundation technology is already proven, with two foundations installed last year for met masts on Dogger Bank in the UK, as well as a near shore turbine demonstrator installed in Frederikshavn in Denmark in 2002 and another met mast installation at Horns Rev in Denmark in 2009.

SUPPORT

The Carbon Trust, together with industry partners Statoil, Statkraft, E.ON and DONG are supporting the next steps to commercialisation of this next generation of WTG foundation, with the trial installation demonstration project which will test the installation of a Universal Foundation suction bucket at a number of sites in the North Sea; proving the technology in a wide range of seabed conditions and also demonstrating the noise-free installation and reverse installation procedure, which allows for complete removal of the foundation.

MOST MATURE TECHNOLOGY

According to a presentation made by RWE Innogy, the Universal Foundation is seen as the most mature technology of all deeper water foundation concepts.

Demonstration by Tor Inge Tjelta, from Statoil

The engineering house Grontmij added that according to results from a large rotor study, the Universal Foundation is well suited for the world's largest turbines in water depths from 25-55m.w.d.

NEXT STEP

The next major step for Universal Foundation is to secure a full scale demonstrator site for a large turbine in deep waters. This is a challenge facing the whole industry right now and Universal Foundation urge developers, turbine manufacturers and governments to support technology innovation and open up opportunities for test sites if we are going to reach set cost reduction targets.

INVALUABLE LEARNING OPPORTUNITY

The two day event held at the Radison Blu Hotel in Hamburg was an invaluable learning opportunity for all involved and is something which Universal Foundation is keen to repeat in due course.

Fred.Olsen

A PROBLEM SOLVED FOR SSE RENEWABLES

STAYING IN TOUCH WITH LONE WIND ENERGY WORKERS

SSE Renewables owns and operate multiple wind farm development and operations sites across the UK & Ireland.

In 2008, they sought out a lone worker system that would fit the bill, be efficient, be reliable and be easy to set up with multiple users. Their teams work across rural and remote sites, often in areas where channels of communication can be difficult and their staff may work in mobile phone black spots, with minimal and unreliable mobile phone coverage.

ISOLATED WORKING ENVIRONMENTS

The challenges of working in such areas includes isolated working in often rugged and mountainous environments, sudden changes in weather and limitations of access by the emergency services. They sought out a system which featured a 'buddy system', a facility for checking in and most importantly, for summoning help in case of emergency in locations where other communications devices may not work.

SOLUTION

After examining their options, they found that the SPOT Satellite GPS Messenger from Globalstar suited their needs. Following a field trial period, they provided their staff with the devices, which were easy to use and so were well received.

They have seen others who work in the renewables sector and have also considered the risks who similarly opted to use these devices. It seems the SPOT Messenger has grown to be recognised as a useful tool in the management of health and safety during remote work.

PROLONGED SECTOR GROWTH

The past decade has witnessed prolonged growth in the renewable energy sector. Targets set by the EU and national governments have encouraged the development of a new sustainable renewable energy industry. Furthermore, innovations in technology and significant effort by developers have made a positive impact on creating jobs and growth in employment and business conducted in remote areas.

DIVERSITY OF TRADES

It is also important to consider the welfare and safety of people working in the industry and the diversity of trades and professions involved in working in this sector. This includes engineers to ecologists, installation crews to construction workers and of course maintenance personnel and operators who work on wind farms on a regular basis.

There are multiple phases in wind farm development: Planning, site investigation and environmental surveys are followed by construction and wind farm live operation.

UNIQUE CHALLENGES

Many of these sites are located in remote and difficult to access areas. This creates interesting and unique challenges with regard to the management of lone and remote working. Communication and consideration for the management of the safety and wellbeing of employees is critical.

It is therefore essential to consider the communication options when employers set people to work in such areas and to consider the vulnerabilities created by either the environment and/or a break in communications.

SUMMARY

The most useful feature that users of the GPS-enabled devices have found are the text feature and 'checking in' facility. And of course, there is the overarching safety benefit of using a device which, when necessary, can summon the assistance of emergency services.

ADAPTED FROM A TESTIMONIAL BY
Paul Whelan
SHE Manager
SSE Renewables (Ireland)

WHO IS ALSO…
Chairman
Safety Strategy Group
Irish Wind Energy Association

Globalstar

Click to view more info

SPECIALIST BOLTING TOOL DIVISION DELIVERS SAFETY IMPROVEMENTS AND CUTS COSTS

Worlifts were contacted to see if their bolting division could assist with an emergency requirement which involved the assessment, test and on-site calibrations at a new client's remote site which was undertaking unplanned emergency maintenance work.

The equipment in question was hydraulic low profile torque wrenches with associated AF cassettes and standard manual square drive torque wrenches and all associated equipment i.e. electric hydraulic power packs, hydraulic hoses and various special reaction attachments.

ON-SITE INSPECTION AND CALIBRATION

Their dedicated fully equipped on-site inspection and calibration vehicle was mobilised and attended the customer's site within 24 hours. One of their Bolting Engineers, Rob Chatley, then set about putting an inspection and test plan into action.

ALL TOOLING THEN WENT THROUGH THEIR STANDARD PROCESS…

- Initial Visual Examination
- Log Manufacturer Name, ID Number & Model
- Carry out Full Appropriate Function Test
- Carry out Calibration Process
- Log Manufacturer Name, ID Number & Model
- Affix Dated Examination Decal
- Create Equipment Register
- Issue Appropriate Certification ON-SITE, Hard Copy & Electronic Copy

Testing was carried out over a 3 day period, much longer than was anticipated, but the customer once familiar with the process being carried out and understanding the improved safety benefits decided to get other tools brought in from other remote locations.

ON-SITE SERVICE ADVANTAGES

- Correct Safe Operation of Equipment
- Verifies Torque Tool Output
- Reducing Operational Risk
- Reduction of Tooling Downtime
- Reduction of Bolting Workflow Disruption
- Immediate Minor Repairs
- Traceable Certification
- On-site Application Assistance

Following an on-site visit by one of their competent engineers, who have extensive experience in specialist tooling, gives reassurance to equipment owners and users that the tooling will be safe to use having been subject to visual inspection, operational tests, pressure tests and calibration if required, utilising the latest on board tool inspection and testing equipment.

TRAINING AND DEMONSTRATION

Training for 'safe and correct use' of both Powered and Manual bolting tools is available and demonstration of a whole range of torque wrench equipment is available on-site ensuring suitability of tooling.

Worlifts

SCOUR MONITORING SERVICES IN DEMAND

Increase in storms and flood incidents can destabilise structures with foundations underwater.

The devastation caused when the UK was hit by some of the worst storm surges in 60 years was evident for all to see. Thousands of homes and businesses across the country were flooded, roads were damaged and sea defences were battered.

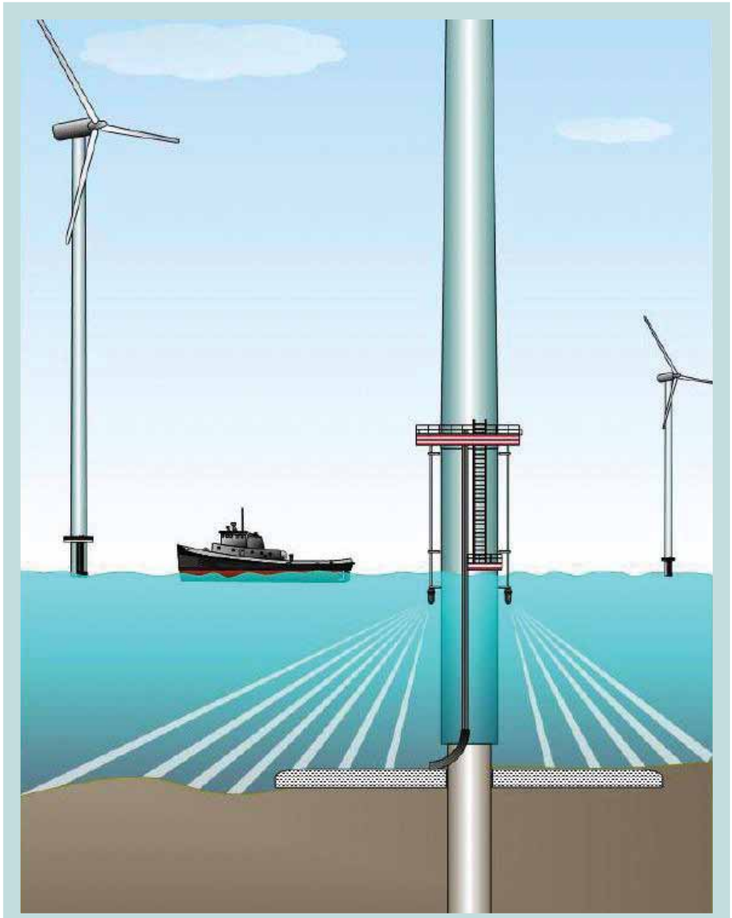

Mark Baldwin

But while the clean-up continues on land, the potentially devastating impact of the tidal surges underwater is not so clear. Flooding and swiftly moving water is one of the main causes of scour: the erosion of sediment and soils from the base of underwater structures which can lead to destabilisation.

With scientists predicting that flooding will increase, especially during winter as a result of water vapour known as atmospheric rivers, loss of integrity and damage to structures such as offshore wind turbines, bridges and piers, could also escalate.

SUBSEA ENVIRONMENTAL MONITORING SOLUTIONS

It is an issue that marine technology specialists Kongsberg Maritime Ltd believes will become increasingly prevalent in the years to come. The company, which is based near Aberdeen at Westhill - the hub of Europe's subsea industry – saw the potential for scour monitoring services as a result of its involvement with the offshore renewables sector.



It has a strong track record in delivering solutions for subsea environmental monitoring for the development of offshore wind turbines and tidal and wave power installations.

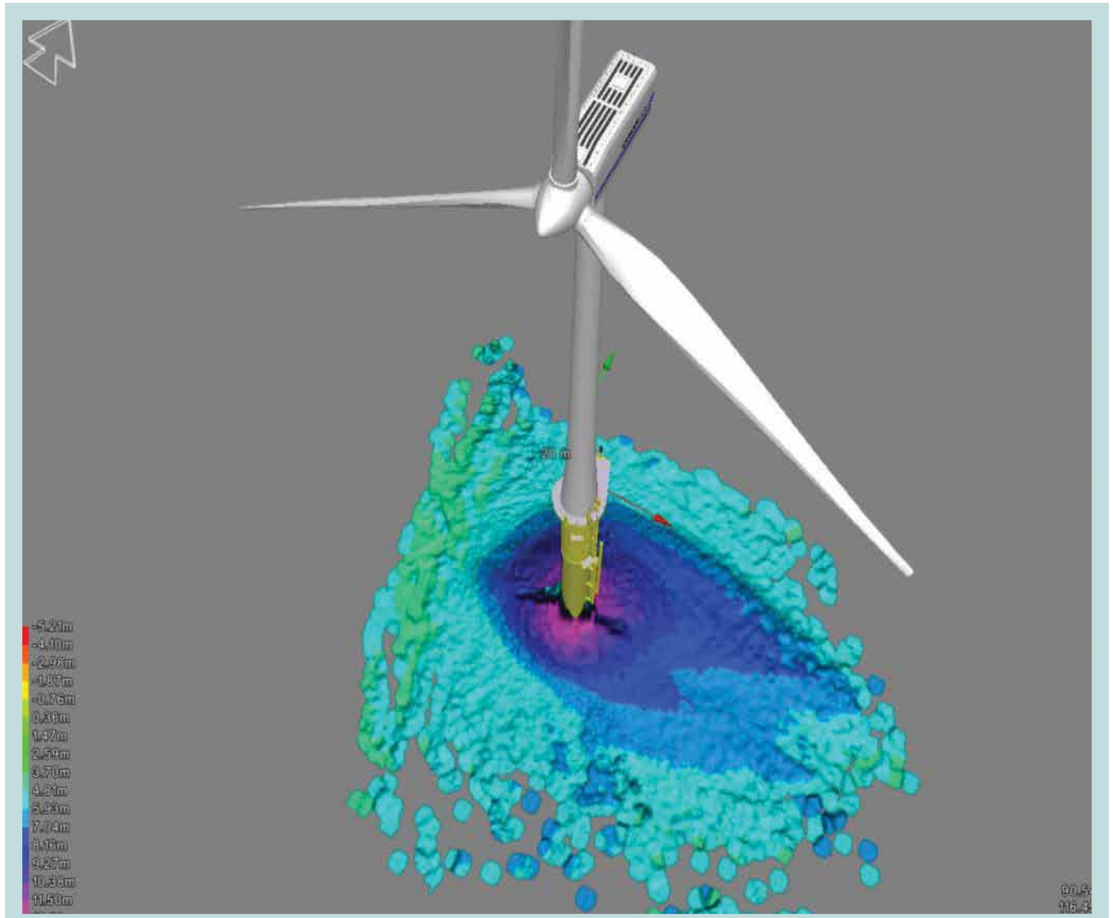
He explains, *"Scour is an issue affecting structures which have been constructed both on the sea bed and river bed or river bank, and it is fair to say that it is perhaps not an issue which has previously been given much consideration.*

This has by and large involved provision of acoustic monitoring for environmental impact assessments that are required as part of the feasibility and planning process, however the company has realised the potential to harness its technology for subsea inspection and long-term scour monitoring.

AWARENESS

Business Development Manager Mark Baldwin says that more clients are now becoming aware of the potentially devastating consequences of scour and are responding by implementing a programme of regular inspections on structures with underwater foundations.

SCOUR MONITORING



"Essentially, scour holes around the base of underwater structures are caused by storms, fast flowing water or wave action. These can happen over a significant period of time or, especially during very extreme weather, can occur instantaneously.

"Therefore, we recommend that a long term programme of inspection and monitoring is undertaken as this allows for ongoing assessment and early warning on the potential loss of integrity. Most organisations will carry out post-storm surveys of structures, but evidence or scour holes are not always apparent in the immediate aftermath of a storm."

PROFILING TOOL

As part of its scour monitoring operations, the company uses the Kongsberg Mesotech Dual Axis Scanning sonar as a profiling tool. It is deployed to detect possible erosion around the structure and potential loss of integrity. This continuous real-time data can be transmitted and displayed at a remote monitoring station via wireless telemetry infrastructure.

The information gathered by DAS, which is designed to cover a large area of approximately 300m, provides a snapshot of the dynamics of scour and sediment aggregation. It also provides a 3D profile point acquisition for digital records.

Mark adds, *"The fact that the DAS can be deployed on a wide range of structures, for example, bridges, piers and offshore wind turbines, has meant that we are also now working with clients that are not in Kongsberg Maritime Ltd's traditional markets, such as civil engineers, local authorities and highways agencies to provide monitoring services.*

"While diving inspections can be costly and there are often inconsistencies in the data being reported, the DAS system accurately visualises the base of the underwater structures and relays that information to engineers to allow them to make a full assessment as to the loss of supporting capability in the sea bed.

"The continuous monitoring of the structure is extremely important as sediment may quickly refill the scour hole, but, as it is not consolidated, it will have very little or indeed no load-bearing capacity. The ongoing assessment allows operators to take immediate protective measures such as rock dumping.

"Not only is DAS more cost-effective than frequent diving inspections, the continuous monitoring results in lower intervention costs for maintenance and increases the lifespan of the structure."

Kongsberg Maritime Ltd

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RAME ENERGY PLC
FIRST DAY OF DEALINGS ON AIM

Rame Energy plc, international energy consultant, engineer and power generator, is pleased to announce the admission of its issued share capital to trading on AIM. Dealings commenced on 4th April 2014.

This follows the completion of a placing of 7,222,223 million new shares at 18 pence per share and the issuance of £800,000 of convertible loan notes to raise £2.1 million before expenses, giving the Company a market capitalisation of approximately £17.1 million on Admission.

WIND PROJECTS IN CHILE

The funds raised will be used to fund Rame's equity participation in, and technical work on, near-term development wind projects in Chile. The company is working with Santander Investment Chile Limitada ('Santander') to develop its first two wind power sites totalling 15MW which it expects to be operational by the end of 2014. Northland Capital Partners Limited is Nominated Adviser and Broker to the Company.

OVERVIEW

- Established revenue generative global supplier of cost effective, technically optimised and reliable power generation solutions including wind, solar and diesel to blue chip clients such as Akzo Nobel, Anglo American, Barrick Gold and BHP Billiton
- Rame has executed its first joint venture agreement with Santander to co-finance its first two wind projects totalling 15 MW in which Rame will have a 20% equity participation with an option to increase to 100% - project debt package is being provided by Chilean bank, Banco BICE
- £2.1 million raised to finance…
  - Rame's equity participation in the next near-term wind project in Chile with a capacity of 9MW;
  - completion of the final technical work on a further two sites with a combined capacity of 84MW;
  - potential investment in other energy projects including diesel, biomass and solar; and general working capital
- Rame aims to become a niche Independent Power Producer ("IPP") targeting an operational portfolio of 300MW in Latin America within three years
- The Company plans to build and operate a portfolio of power projects, capitalising on its proven track record of delivering power in South America - Rame has been involved in the development of approximately 23% of Chile's installed wind power capacity (as at 31 December 2013)
- Pipeline of 28 Chilean wind assets with a potential installed capacity of over 1.4 GW - well-placed to take advantage of large mining and industrial companies outsourcing their power requirements to reap cost benefits
- Vertically-integrated model with multiple revenue streams - power production revenues complemented by the provision of technical consultancy and downstream operating and maintenance services
- Highly skilled board and management team with a proven track record in providing project management and Engineering, Procurement and Construction ("EPC") services to both global conventional and renewable energy markets
- Chile's strained energy dynamic provides Rame with significant growth potential and yield opportunities to generate and sell power to its established client base

HIGH RETURN/ LOW RISK BUSINESS MODEL

Rame CEO Tim Adams said, *"Rame offers exposure to a high return/ low risk business model focused on developing, owning and operating power projects, initially in Chile. As evidenced by the high level of repeat business won over the last decade, our core competencies, primarily in the provision of bespoke power solutions to a blue chip customer base, are proven.*

"Having already accumulated a pipeline of data on wind power projects in Chile with a combined capacity of over 1.4GW, we now intend to build Rame into a leading, vertically integrated niche IPP, encompassing all stages of power generation from project design to energy sales, thereby securing as much of the value as possible for the Company.

SUPPORTIVE PARTNER

"To achieve this, we are a 20% equity partner with Santander, a well-funded, supportive partner, with project finance being provided by Banco BICE to build our first two projects that we expect to be operational by the end of 2014. With the option to buy out Santander when the sites are operational we consider this a balanced risk approach to building our production portfolio.

"Subject to reinvestment of revenue from producing assets and financing, our target is to install an asset base of approximately 300 MW of energy projects over the next three years. We are confident that this strategy will allow us to rapidly develop and monetise our pipeline and, in the process, generate considerable value for shareholders."

Rame Energy

INVESTMENT IMPACT TAKING AN HOLISTIC VIEW

As a resident of East Yorkshire who lives about 8 miles from Hull City Centre I've watched the Siemens/ABP developments closely and like most other residents on 25 March was delighted at news of the progression.

My thoughts turn to the impact such an investment will have, not just this deal in this city region but the broader impact and value created by a progressive expansion of renewables.

TRUE VALUE QUESTIONED

With line drawn on all sides of the political and media spectrums, the true value of renewables seems to be constantly questioned from one side or another. Not that surprising when the financial reporting is based on a centuries-old system that really hasn't changed with the times. We're all so used to the traditional metrics and measures of valuation and success that we rarely question their appropriateness to different situations.

DO THESE METRICS REALLY IDENTIFY THE FULL IMPACT OF SUCH INVESTMENTS?

At an organisational level the results of our CEO pulse poll on total impact suggest that many companies now want to follow a different direction. Of the 187 CEOs we surveyed, 85% thought a total impact approach (taking into consideration their company's economic, environmental, tax and social impacts) would provide more insight into their business than conventional reporting. And 93% thought it would help them manage their risks better.

AN HOLISTIC VIEW

So what do we mean by 'total impact'? It's all about taking an holistic view of a company's overall impact. By measuring business success beyond financial analysis, and calculating a value (and a cost) for the social, environmental, tax and economic activities of a company, business can see at a glance the total impact it's making.

It's a more innovative approach that also means companies can see the trade-offs between choosing different strategies, allowing them to make the optimal decision for themselves and all their stakeholders.

SOCIAL VALUE ACT

If total impact sounds so attractive, you might think everyone must be using it – and in truth with the Social Value Act now in place it does seem likely that its adoption will spread rapidly over the next couple of years.

That said we found that while 72% of CEO's measure economic impact and 62% measure environmental impact as part of their board level decision making, less than 25% of CEO's measure their total impact. So we asked them why? 89% of CEOs were put off by the lack of availability of data and 85% by the lack of a robust framework.

CHANGING TIMES

But times are changing. With new research and methodologies in place to turn qualitative into quantitative data and to put a value on it, it feels like there's a new way to do business. Certainly, some companies are already embracing a total impact approach to better understand the value they create beyond the balance sheet.

If we adopt such an approach at the level higher for multi-stakeholder infrastructure and resource investments, then we can start to answer questions raised in some quarters as to the true 'impact' of renewables once and for all.

Rich Hall
Director
PwC

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EVOLUTION AND THE IMPORTANCE OF PAST EXPERIENCE

We visit many companies who were set up to serve the burgeoning offshore oil & gas industry and have seen opportunities in the offshore renewable sector. These companies have an unbelievable breadth of knowledge and expertise to bring to the industry and it would be rather foolish to ignore that fact.

With that in mind we aim to focus on this subject area as a feature in its own right in a future edition

Our company profile focuses on one such company Sembmarine SLP, based in Lowestoft, UK and spoke to Andrew Thompson their UK Managing Director

EVOLVING WITH THE UK'S ENERGY FOCUS

Sembmarine SLP limited started its humble beginnings as a pipeline construction support company (Sea & Land Pipelines Ltd) for the then emerging gas industry in 1968, after the discovery of commercial natural gas by BP near Bacton off the Norfolk coast in 1965.

DIVERSIFICATION

After a period of only five years, SLP had begun diversifying into other industry related construction projects including offshore modules and topsides design. By the 1990's SLP had become a full EPC (Engineering, Procurement, and Construction) contractor involved not only in oil & gas, but also providing structural steel components for the Sizewell B nuclear plant.

RENEWABLES

The introduction of a then subsidiary company - SLP Energy was an important step into the renewables market and in 2002, SLP built its first offshore meteorological measurement masts.

Not to be left sitting with traditional substructure designs for offshore wind, with the assistance of notable energy industry partners such as Shell Renewables, GE Wind, Vestas Wind systems amongst others, SLP led a study to test the concept and design of suction caissons for use in turbine foundations.

INDUSTRY FIRST

2003-2005 saw its busiest ever involvement in the renewable energy sector by building & installing the 2.75mw Ness Point onshore wind turbine "Gulliver", now situated adjacent to Orbis Energy Centre, Lowestoft. The company also provided engineering and construction support for the Scroby Sands offshore Wind farm development, off the Great Yarmouth coast, which consists of 30 turbines.

The Ness Point turbine was an industry first and at 126m high was the tallest onshore wind turbine in the UK at that time, providing enough electricity to power approximately 1500 homes.

THANET & THORNTON BANK

In November 2009 SLP completed its first offshore high voltage AC electrical substation for the Thanet Wind Farm, followed by the jacket substructure for the Thornton Bank substation in 2010.

MANAGEMENT BUYOUT

A Dutch company, Smulders Group acquired SLP Engineering in 2010 and thereafter a management buyout occurred in September 2012 with the assistance of one of the world's largest offshore construction companies - SMOE Pte Ltd of Singapore, who now owns 70% of the company.

GROWTH

From that time Sembmarine SLP has grown from 36 employees to over 380. So from its roots in natural gas, to oil, to nuclear, to offshore wind, what lies ahead for a company that is keeping pace with the changing demands for energy?

UK OFFSHORE WIND ENERGY

With its yard currently full of offshore oil projects nearing completion, Sembmarine SLP is very confident about its future involvement in the UK offshore wind energy projects on the immediate horizon.

Andrew Thomson explains; *"We have recently completed FEED studies for HV. AC Substations for UK clients and have submitted tenders for several major offshore wind projects due to be announced in the coming months. We are gearing up for the O&M support roles that are required for not only existing offshore wind farms, but also the new long term developments that are planned for the East of England.*

"We see ourselves as supporting all types of energy development projects, as the UK cannot afford to rely on one single energy stream for electricity generation, but requires a balance of sources, including tidal energy which is currently only generating some 9mw of electricity, and yet has potentially greater cost savings per kwh installed and reduced O&M costs than many of the other renewable sources of power generation."

CHALLENGES?

Deep water offshore wind continues to have serious cost challenges and implications, regarding substructures and eventual O&M support and even with the introduction of larger, heavier, but more efficient turbine nacelles, this adds additional stress loading on the tower support and substructures.

Deep water structures are becoming bigger, heavier, and are therefore at a substantially higher cost to construct and install, compared to their shallow water counterparts.

Tidal energy designs in current prototypes are proving that the theoretical stresses and strains are not always what they seem and are providing valuable lessons for the newer recent developments coming through. The siting of these projects will always have environmental, navigational and fishing industry impact and concerns.

WHAT WILL BE SEMBMARINE SLP'S INVOLVEMENT?

The main key element to the success of any energy project moving forward, is one of cost control. Spiralling supply chain costs, including materials, personnel and services are endangering not only offshore wind projects, but also tidal energy, and oil & gas, primarily due to relying on the same materials and services for all.

For example rolled tubular steel, steel plate, bearings, copper cables, aluminium sections, electronic controls, environmentally friendly lubricants, umbilical's, are to name but a few of the high demand items that are synonymous across the energy disciplines.

Some offshore wind operators are attempting to control costs by implementing and insisting on unworkable standards and procedures, not only during design, but also during the material selection, fabrication and construction phases. This is possibly based upon previous poor project performance resulting in implementation of a quick fix lessons learned solution, but is more probably due to a fundamental misunderstanding of existing standards and quality procedures - which again ultimately results in driving up project costs.

LONG TERM PLANNING AND ACHIEVING RESULTS

Our involvement is one of pursuing weight reduction, standardisation of design and construction and selection of the optimum materials to achieve these results. What is fundamental to achieving this is close engagement with the supply chain, in terms of planning, improvements in, or the use of alternative materials, but more importantly to impart our considerable EPC experience with energy operators.

Sembmarine SLP is planning on the long term and ever changing needs of the Energy industry. Similar to predicting the direction of the wind, you know it's going to blow, but how and when, you need to have all your bases covered!

Sembmarine SLP

Click to view more info

WIND TURBINE GEARBOX DESIGN, TEST AND OVERHAUL

To ensure smooth and reliable operation in the field, wind turbine gearbox components require high-precision manufacturing and careful handling during assembly and pre-testing.

QUALITY CONTROL

To maintain full control over quality at all stages of production, ZF Wind Power has invested in critical core manufacturing technologies. As a result, all production steps including machining of housing and planet carrier, gear cutting, grinding and hardening are precisely controlled within strict tolerances.

Product designs combine planetary and helical gear stages, optimally dimensioned bearings and shafts and continuous oil circulation through the bearings. These technologies ensure high strength and torque capacity, excellent surface durability and low noise performance as well as optimum bearing life under specified loads, all of which contribute to a long and trouble-free working life for the gearbox. The planetary gear designs combine advanced and proven concepts to produce gearboxes that are compact and optimised for torque density and power-to-weight ratio, without compromising performance.

THOROUGH TESTING PROMOTES RELIABILITY AND LONG SERVICE LIFE

ZF has a unique global load testing capacity of around 60 MW across its service and production facilities, which can validate all prototype and serial gearboxes. The newest test rig represents an investment of more than €10m and is designed to maintain test capabilities in line with the market's continuous increases in wind turbine power.

Located at the company's Lommel production facility in Belgium, it is one of the world's largest dynamic gearbox test rig test facilities with a nominal power rating of 13.2 MW and peak power handling of up to 16.8 MW.

To replicate actual wind turbine operating conditions, the test gearbox is driven at varying speeds by a motor on the 'wind/rotor' side of the rig to correspond with variations in wind speed. It is also subjected to varying torque levels by a motor on the 'grid/generator' side to simulate loading from the grid. Using this test rig, ZF Wind Power can validate gearboxes under realistic wind turbine operational loading conditions and carry out accelerated life testing to identify and solve potential technical problems before a design is deployed in the field.

POST-WARRANTY REPAIR AND OVERHAUL SERVICES MINIMISE NETWORK DOWNTIME

A wind turbine gearbox must be maintained in first-class condition to ensure that it is capable of delivering its rated performance safely and reliably under heavy and fluctuating loads. If the gearbox sustains damage, the turbine's condition rapidly deteriorates, often rendering it inoperative and no longer generating revenue. Catastrophic turbine failure may lead to a major shutdown of all or part of a wind farm and as the number and size of offshore installations grows, the cost of such a shutdown will continue to increase.

Wind turbine operators are therefore dependent on a sound support infrastructure, which the company is ideally positioned to provide via its worldwide network of dedicated wind service resources within the ZF Services business unit.

CAPABILITIES

These include maintenance and repair of multi-brand current and legacy gearboxes to OEM standards, repairs to rotor shafts, yaw gears and ancillary items such as brakes, oil coolers and torque arms.

Over £1m ZF Group stock of bearings means high availability of replacement parts on demand. Video endoscopic gear analysis and oil analysis can be performed in the field, both onshore and offshore, and up-tower bearing changes and OE upgrades are also undertaken. Fully tested gearboxes complete with ancillaries are provided with a 24 month warranty, and a gearbox exchange pool is accessible with availability contracts.

Most importantly, service provision is flexible and tailored to customer requirements.

Partial load testing of wind turbine gearboxes is available at the Nottingham, UK service centre. Where full load testing is required, this can be carried out at the ZF Services' repair and overhaul facilities in Dortmund, Germany and Vernon Hills, North America.

SUPPORTS OPERATORS IN HOME MARKET

To provide support to the UK's wind energy industry, in 2009 ZF Services UK Ltd set up a new wind turbine gearbox repair and overhaul facility at its Nottingham headquarters.

Every wind turbine gearbox overhauled here undergoes a rigorous test procedure of around eight hours' duration before being released to the customer. The Nottingham site houses the only purpose-built wind turbine gearbox validation test rig in the UK, designed for partial load testing of gearboxes from turbines of up to approximately 2.4 MW generating capacity.

TEST RIG

The test rig is adaptable to different size gearboxes and capable of delivering up to 60,000 Nm of torque via a slave gearbox and output motor. The equipment can analyse oil flow and pressure, gearbox temperature, tooth contact pattern, and noise and vibration profiles. Thermal imaging is used to ensure that there are no local hot spots in the gearbox. Current draw, temperature, vibration and torque figures are recorded on the test rig's human-machine interface (HMI) panel and a fully automated system collects all data with a logging frequency of at least 10 Hz.

Cleanliness of the gearbox oil is a critical factor in component longevity. The oil filtering unit checks for correct oil flow and filters oil down to at least 14/11 cleanliness code as defined by the ISO4406:1999 standard, ensuring that the gearbox is free of any particulate contaminants prior to despatch.

EXPERTS IN WIND TURBINE GEARBOX DESIGN AND MANUFACTURE

In 2011, ZF Friedrichshafen AG acquired Hansen Transmissions International NV, the global leader in wind turbine gearbox manufacturing. Headquartered in Lommel, Belgium, Hansen now trades as ZF Wind Power, adding its wind turbine expertise to ZF's long-established competencies in driveline technology.

ZF Wind Power

Click to view more info

= Click to view video

BRIGHT FUTURE AHEAD
HOW PREDICTIVE MAINTENANCE CAN DRIVE VALUE FOR THE WIND INDUSTRY

The European wind industry today faces challenges around energy and wind power costs, in light of the squeeze on operating budgets.

Typically, 75 per cent of operational expenditure is related to the site's operation and maintenance (O&M). These costs are significant, especially for offshore where the cost and availability of vessels and site access due to weather conditions are critically important, and it is therefore the role of the O&M managers to identify ways of reducing costs.

UNLOCKING THE VALUE OF BIG DATA
Installing monitoring technologies on wind turbine drivetrains is a widely known way to address cost issues.

The key to enabling higher ROI in monitoring technologies is unlocking additional value from existing data sources. Vast volumes of data from condition monitoring systems (CMS), SCADA, inspections and maintenance frequently exist in 'siloed' systems.

It is not common practice today to process all of this within a single platform. However, only by so doing can the true value of the data be fully exploited.

GETTING THE MAINTENANCE BALANCE RIGHT
Determining the optimal maintenance strategy for a wind farm is a delicate balance between O&M costs and the potential consequential costs of any failure.

The maintenance strategy for a site generally falls into one of three categories…

1. Reactive maintenance (run-to-failure) which is easy to implement but can be expensive due to high repair costs
2. Preventive maintenance involves proactively replacing parts before they fail and minimises potential repair costs
3. Predictive maintenance lies at the 'sweet spot' between preventive and reactive maintenance and can be performed as and when required, before expensive and potentially catastrophic failures occur

DISPARATE TECHNOLOGIES
In order to enable predictive maintenance, wind turbine monitoring technology needs to deliver predictions of future component failures with at least 6-12 months lead-time.

To do this means combining many disparate technologies including…

- Vibration condition monitoring
- Oil monitoring
- Remaining useful life models
- Inspection and maintenance data
- Measured load data from the turbine

Typically, each of these datasets are considered in isolation and not analysed together using a single predictive model. Only by analysing them together can the current and future health of the machinery be truly understood.

SOLUTION
To answer these challenges, Romax has developed several specific technologies for drivetrain monitoring that help operator's move towards a predictive maintenance strategy.

The company provides operators with a range of software and services to monitor their assets. Romax's InSight software provides a platform for analysing data from CMS, SCADA, inspections and maintenance and utilising predictive models to provide key actionable information to O&M staff and asset managers.

Dr John Coultate
Product Marketing Manager
Romax Technology Ltd

Engineer monitors wind turbine

OIL ANALYSIS AND VIBRATION MONITORING PROVIDE EARLY WARNING TO PLANT OPERATORS

Today, modern lubricants are regarded as 'high end construction parts' that play an integral role within the equipment or machine on which they are used. It is therefore critical that any systems set up to monitor the condition of a machine are also capable of monitoring the condition of the lubricant.

The latest generation of condition monitoring systems do just this, enabling plant operators to monitor both the condition of lubricating oils and the vibration of critical components such as gears and rolling bearings, on a wide range of heavy duty rotating plant and machinery.

Industrial gears and gearboxes, for example, are critical to the smooth operation of heavy plant, including wind turbines. If excess wear or damage is allowed to develop within a gearbox, this could result in secondary damage to other drive train systems, leading to high repair costs and costly downtime.

FAG WEAR DEBRIS CHECK OIL MONITORING SYSTEM
Fixed (online) condition monitoring systems can be set up to monitor both the condition of the lubricating oil and the vibration of rotating parts, enabling the early detection of damage to heavy duty, oil-lubricated industrial gears.

Schaeffler's FAG Wear Debris Check oil monitoring system indicates damage or wear to bearings, cages and gears within a gearbox or other industrial gear unit. The system requires no calibration and is suitable for use in almost every industry sector, including wind turbine gearbox drive trains, providing plant operators with a reliable system for preventing unplanned downtime and reducing MRO costs.

The system's oil monitor works by utilising an inductive particle counter (sensor), which is able to distinguish between ferrous and non-ferrous metal particles that are present in the lubricating oil. On a typical gearbox application, the particle counter or sensor is installed in the oil flow, directly before the oil filter, or as a separate circuit. The sensor operates on the principle that any wear to a component such as a bearing or gear tooth will result in small metal particles being rubbed off into the oil, often several months prior to an actual failure.

The sensor provides information on the number of particulates present in the oil, and then classifies these according to their physical size. Analysing the oil in this way enables damage and wear to the gears to be detected much earlier, even in planetary gearboxes used on wind turbines.

INTEGRATION
In addition to oil analysis, the FAG Wear Debris Check can be set up to operate in conjunction with online condition monitoring systems, including Schaeffler's FAG WiPros, a system dedicated to the condition monitoring of wind turbines. This means that companies can also monitor the vibration behaviour of the machine and its components, including rolling bearings and gear wheels. By using special interfaces, these systems can be easily integrated with online vibration monitoring systems, which can be adapted or retro-fitted to suit customer requirements. By installing vibration sensors on the machine or gearbox that needs to be monitored, changes in the operating behaviour are detected, indicating early signs of damage.

This enables the plant to start suitable repair work or plan some scheduled maintenance in order to prevent failure of the machine, resulting in costly production downtime.

Schaeffler

GEARS
REVOLVING & EVOLVING

A teenager in court for dangerous driving is asked by the attorney for the prosecution… *"What gear were you in as you turned into the high street?"*

"A hoody, jeans and trainers" replied the teenager.

GEAR, GEARS, DRIVETRAIN, GEARBOX

A gear is normally but not exclusively a rotating machine part with teeth or cogs.

When two gears mesh in a rotating machine they impart motion from one to the other, the motion will change direction. Rotation speed and torque can remain the same, increase or decrease depending on the gears relationship to each-other.

When two gears mesh in this way we have a transmission or a drive train. Put a number of these gears into a housing, with an input shaft and an output shaft and what we have is generally known as gearbox.

TYPES OF GEARS EVERYWHERE

There are many types of gears and they are used in infinite number of applications. Without even knowing or thinking about it we use gears in our everyday lives and we have done so for hundreds of years. Wrist watches are probably closest to home for most of us, food mixers or the gearbox in our car.

There is not a day goes buy in our modern lives where we are not directly or indirectly affected by gears. So, for a technology that's been around for so long why all the song and dance when it comes to the wind turbine?

WIND POWER - HISTORY

Windmills have been around for thousands of years. The Greeks as far back in the first century is one of the earliest known instance of using a wind-driven wheel to power a machine.

I can't guarantee there were gears involved but changing rotation speed, direction and torque through pulley wheels and belts is a similar principle. The gear tooth and mesh replace the belt but the mechanical advantage gained from different sized wheels or gears is the same basic principle.

If you ever get a chance to visit a more recent working windmill used for grinding grain it is well worth the trip. In these you can see on a massive, open and expanded scale how motion is imparted from the sails through the main shaft and a series of wooden or iron gears depending on the vintage of the machine, to drive the grinding stones.

WIND TURBINE GEARBOX

This is just an expanded version of what takes place in a wind turbine gearbox. The gearbox is the heart of the turbine it converts the slow rotation and the high torque on the rotor side of the gearbox through the transmission in the gearbox to high speed low torque at the generator side.

UNDERSTANDING TORQUE

If you have difficulty understanding torque, visit one of the gear manufacturers stands at a trade show. If they have a demonstration gear on display, try to rotate the input shaft by hand. Once you have exhausted yourself and suffered a hernia, move around to the output shaft and try the same. This you will find incredibly easy.

You are still moving the same components, weighing exactly the same but due to the low torque at the output shaft and the mechanical advantage of the drive train you are able to do this easily.

We can now see clearly why a gearbox is used in the wind turbine's drive train and what it does let's take a look at how it has developed in the very short time that our industry has existed as a real producer of energy.

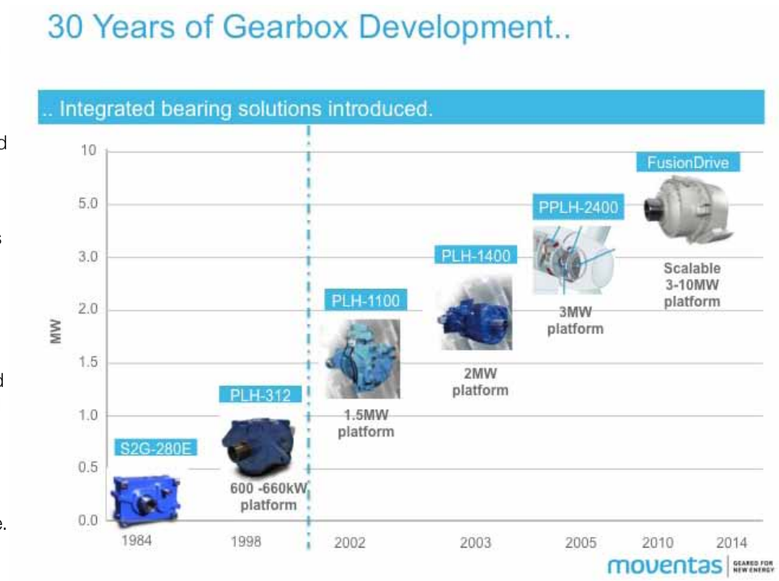
WIND TURBINE HISTORY

In the very early part of the 1980s wind turbines went into what could be really called serial production for the first time to be used as commercial generators of energy.

At the time the industry was an infant and in many ways still is when compared to others. Many gearboxes were little more than adaptions of gearboxes used in industrial or agricultural applications. These gearboxes were relatively simple affairs with two or three stage spur gear drives between input and output.

These worked but were not without their problems, size, weight, noise and reliability being among these. As our industry has progressed, turbine size increased and regulations have become more stringent, the development of the gears and the gearbox has needed to keep pace and adapt.

GEARBOX DEVELOPMENT

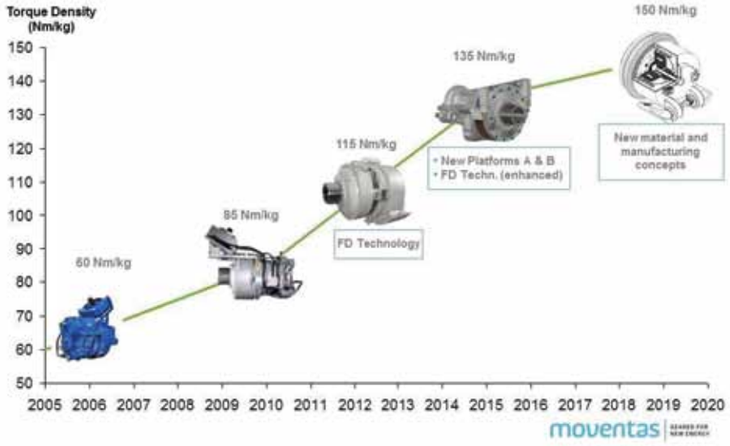


FIRST MAJOR CHANGE

The first major change in kW class gears was the move towards using a planetary gear arrangement coupled to a double helical stage. The net effect of this was to reduce weight and increase torque density.

A good example of this was the reduction in weight of a straightforward helical gear used in a V44 660kW turbine from around 5.5 tonnes to 4.4 tonnes, a massive weight reduction of 20%.

TORQUE DENSITY



Torque density is the relationship between the weight of the gear and the torque it is capable of handling. As gear designs and materials become more efficient the torque density figure rises.
So we can see that in the relatively short time that our industry has existed turbine size and the gearboxes within these turbines have had to cope with the size increase while in real terms reducing in size themselves.

Gearboxes now exist as single planetary with two helical stages, double planetary with one helical stage and even three planetary stages. (Hybrid gearbox and generator arrangements are available too. Google Moventas Fusion Drive) Modern gearboxes are now complex and highly efficient drive train systems and there reliability in recent years has significantly improved.

A DOUBLE PLANETARY STAGE GEAR WITH A SINGLE HELICAL STAGE

Reliability has always been a stone thrown at the gearbox and some of the stone throwing was certainly justified in the early days, however as the industry has grown, learned the lessons from other industries and developed itself, reliability is an ever improving area.

MAINTENANCE REGIMES

Better maintenance regimes, condition monitoring/management, better oils and oil care have all played their part. Significant development by gearbox manufacturers, more powerful design software modelling, better manufacturing technology, improved materials and understanding of the turbine operating environment have all been crucial in this area. A prime example of where these factors have combined along with the prevalence of the planetary gear arrangement is the adoption of the integrated bearing within the planet wheel.

GEARBOX FAILURE

Bearing failure in planet wheels has been a major cause of gearbox failure in the past and still exists today where non-integrated bearings or badly designed integrated bearings are used. These failures are almost impossible to correct in the nacelle and are always costly when it comes to a factory service.

A double planetary stage gear with a single helical stage

EXAMPLES

The three examples shown above are planet wheel bearing inner races from a kW class, a 1.5MW and 2MW gearboxes.

The problem manifests itself in the same way irrespective of the turbine/gearbox size. The root cause of the problem was identified by Moventas over a decade ago and is a lecture in itself. However the solution that is proven to work is to use a planet wheel with the bearing outer race form ground into the planet wheel.

This is generally referred to as an integrated planet wheel bearing. Moventas has been using this in serial production on all gears at 850kW and above and has pioneered the upgrade to existing gear designs to integrated planet wheel bearing during workshop service.

NON-STOP DEVELOPMENT

The previous examples are just a few of the many changes made to wind turbine gearboxes over the last thirty years. The development never stops and at Moventas we strive for ever increasing quality and with that quality ever increasing reliability.

In a world where wind is one of the only energy generation forms where the cost of generation is reducing, we aim to make a difference. By being better we can reduce the cost of generation further.

Dave Moss
Moventas

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= Click to view video 1

= Click to view video 2

THE EFFECT OF RESIDUAL STRESS ON THE FATIGUE STRENGTH OF HIGH PERFORMANCE GEARS

Transmission components are subjected to alternating loads as a function of their purpose, and so fatigue failures (root bending and contact) are an on-going problem.

High performance gears are normally made from good quality materials and have optimised design profiles, so to achieve good fatigue life and strength when increases in load carrying and lifetime performance are required, the residual stresses in the gear root and contact surface must be considered.

The existence of tensile residual stresses of unknown magnitude, as a result of manufacturing processes, are detrimental to fatigue performance and will give rise to premature failures. Surface treatments such as Controlled Shot Peening and Isotropic Finishing (CASE Superfinishing) remove these harmful tensile residual stresses, impart beneficial compressive stresses and reduce contact stresses at and below the surface of the component thus offsetting a portion of the applied load.

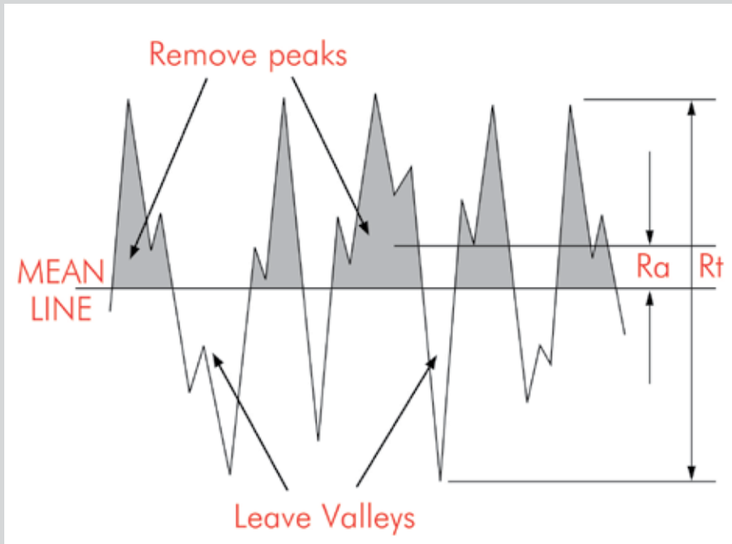
APPLICATION OF CONTROLLED SHOT PEENING AND SUPERFINISHING

Controlled Shot Peening is a proven process that improves the root bending fatigue performance of transmission components. In combination with CASE Superfinishing, the contact fatigue performance is also improved, significantly reducing the likelihood of micro pitting and achieving improved gearbox efficiency by reduced frictional losses, typically resulting in a 20°C drop in lubricant temperature.

CONTROLLED SHOT PEENING

The process of Controlled Shot Peening involves directing a stream of spherical particles, that possess specific material characteristics, at critical areas on the component resulting in a compressive residual stress that can be modelled and gives a good estimated value of magnitude and depth.

The action of impingement at the surface yields the material locally and a surface residual compressive stress results. The magnitude of the compressive stress is directly related to the component material yield strength and is approximately equal to 70% of that value in compression.
All engineering materials can be shot peened, and heat treated steels (including carburised and nitrided) demonstrate consistently good high cycle fatigue strength performance improvements.



C.A.S.E. SUPERFINISHING

Superfinishing is a technique of 'final machining' in a controlled non-abrasive manner to reduce surface finish Ra. The particular technique of Superfinishing uses oxidising chemicals and non-abrasive vibrofinishing stones to preferentially remove surface asperities.

The chemicals oxidise the surface which causes the asperities to be more susceptible to micro honing with the result that the most positive (peaks) surface areas are removed progressively. The vibrofinishing stones are selected to suit the geometry of the component and span the machine lay, therefore cutting of the negative (valleys) surface areas is avoided to retain lubricity.

Consequently the symmetry of the roughness profile can be altered producing a negative skew, which is ideal for contact (rolling contact) conditions, peaks are removed and valleys retained, thus maintaining the integrity of the lubricant film. The gear tooth profile remains consistent as there is no root-to-tip preferential material removal.

CONCLUSIONS

Surface treatments of gears using the Controlled Shot Peening and CASE Superfinishing processes, tailored to suit the application appropriately, will result in an optimised residual compressive stress and surface texture.

Practical experience in processing transmission parts for a wide array of industries has shown significant improvements in root bending fatigue, contact fatigue and surface pitting negating the detrimental influence of variations in manufacturing techniques which can be reduced or eliminated enabling improved performance and life.

Jeremy Allen
Technical Services Manager
Metal Improvement Company

CATAPULT AND NAREC JOIN FORCES

The Offshore Renewable Energy Catapult and the National Renewable Energy Centre recently announced that they are merging to form a national champion for the development and cost reduction of offshore wind, wave and tidal energy across the UK.

A PERFECT COMBINATION

The move will see the world-class research, development, demonstration and testing facilities of Narec combined with the leadership, industrial reach and engineering expertise of ORE Catapult.

It will accelerate the design, deployment and commercialisation of renewable energy technology innovation, helping to attract overseas investment and to realise the enormous opportunity presented by the UK's offshore renewable energy resources.

RETURN ON INVESTMENT

Andrew Jamieson, Chief Executive of the Offshore Renewable Energy Catapult, will lead the combined organisation. Commenting on the merger, he said: *"Narec and the Offshore Renewable Energy Catapult will together create a world-leading innovation and asset assurance business, serving the entire offshore renewable sector returning value on Government investment many times over.*

"We will play a leading role in ensuring the UK replicates the success of the oil and gas industries, creating many thousands of skilled jobs, contributing billions of pounds to the economy and ensuring that the UK has a major influence on European policy, funding and offshore renewable energy development in the decades to come."

INTEGRATION

Andrew Mill, who steps down as Narec Chief Executive and will join the board of ORE Catapult as a Non-Executive Director, said: *"Integrating Narec's world-class facilities and expertise with the ORE Catapult will create a unique and growing organisation, ensuring that regionally and nationally the UK is in the best possible position to capture the huge opportunity presented by wind, wave and tidal energy."*

POWERFUL SECTOR CHAMPION

Iain Gray, Technology Strategy Board Chief Executive, said: *"Combining Narec's outstanding research, testing and development facilities with the Catapult's leadership and expertise will create a single, powerful champion for the development of the UK's offshore renewable energy industries.*

"The Technology Strategy Board is committed to long term investment to promote technology innovation, drive down the cost of renewable energy and realise the enormous economic potential of the UK's offshore wind, wave and tidal resources."

100M BLADE TEST FACILITY AWARDED UKAS ACCREDITATION

Narec's 100m blade test facility has recently been awarded accreditation by UKAS for structural testing of wind turbine blades; complementing the existing accreditation for blades up to 50m in length as well its ASTA/ Intertek and UKAS accredited electrical and materials laboratories.

The 100m facility, which opened in 2012 to accommodate larger blades for the next generation of offshore wind turbines required for round three sites and beyond, undertakes dynamic and static tests in accordance with IEC and ISO17025 standards.

TESTING

Various tests are undertaken, such as, the determination of natural frequencies, modal analysis, post-fatigue and collapse assessments helping to ensure the desired level of reliability and prove manufacturing processes prior to installation and operation.

CERTIFICATION

Peter Hope, Blade Test Facility Manager, commented, *"This is excellent news for Narec, and combined with our track record, independence and quality systems provides our clients with robust assurance that our certification work is carried out to the required standard."*

ORE CATAPULT AND NAREC MERGER ADVICE

Leading UK law firm, Shepherd and Wedderburn recently advised the Offshore Renewable Energy Catapult on its merger with Narec to form a national champion for the development and cost reduction of offshore wind, wave and tidal energy across the UK.

A large multi-disciplinary team from across Shepherd and Wedderburn, led by renewables Partner Liz McRobb worked closely with ORE Catapult and Narec to complete the merger within a very short timeframe. Commenting on the merger, Liz said; *"We are delighted to have advised on the merger. Bringing these two organisations together will strengthen the UK's capability and enable significant development in the sector."*

SUPPORT

David Currie, Business Services Director at ORE Catapult said; *"The team at Catapult are thankful for the excellent support, advice and input from Shepherd and Wedderburn during the merger. This has been a challenging process and we were reliant on their first class support. Having worked with the firm previously, we have come to expect this level of professional and technical excellence."*

ENORMOUS OPPORTUNITY

The merger will accelerate the design, deployment and commercialisation of renewable energy technology innovation, helping to attract overseas investment and to realise the enormous opportunity presented by the UK's offshore renewable energy resources.

EDITOR'S NOTE

We will be revisiting the merger in future editions with a view to monitoring progress – this can only be a very positive development in the industry.

Narec

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= Click to view video 2

RESEARCH & DEVELOPMENT FEATURE SPONSOR narec

PARTICULATELY INTERESTING....

(PARTICLE) COUNTING YOUR BLESSINGS! ....

No one knows better than my next guest Geoff Grant, Company Product Manager, (a master in this field) at MP Filtri UK, one of the world's leading manufacturers in contamination control.

The importance of utmost cleanliness in hydraulic fluid power systems is paramount to maintain optimum performance and reliability of a system and I was fortunate to catch him to find out more, before he flew off to an overseas conference.

LIFE BLOOD

In hydraulic fluid power systems the power is transmitted and controlled through the 'life blood' under pressure within an enclosed circuit, being both a lubricant and also a transmitting medium.

Systems can be contaminated with solid, liquid and gaseous particles, generated through a number of sources, be it through leaking seals, moisture ingress, even fresh new fluids and a host of other sources.

Contaminants in the liquid interferes with the fluid and efficiency of the lubrication of components is compromised, which ultimately can lead to wear and damage, resulting in costly repairs and downtime.

It is a well known fact that contamination is the cause of 70 – 90% of faults occurring in equipment and that is why Geoff goes on to say *"It is imperative that we constantly and consistently educate companies within the sectors the importance of prevention and training of product awareness."*

WORLD LEADING SPECIALISTS

MP Filtri is a world leading manufacturer of hydraulic filtration products having been established for over 50 years with offices in the UK, Italy, France, Germany, USA and Canada, China, Russia and India.

The group of companies has the facility to design, develop and manufacture, as well as distribute, hydraulic filters and Contamination Monitoring Products. They can also boast laboratory facilities supplying specifically wind, wave and tidal energy applications.

A large part of Geoff's' remit is to travel the globe and bestow the virtues of how prevention is better than cure when it comes to cost effectiveness and increasing the component life and increasing maintenance and more efficiency.

That quotable quote *"can I afford contamination monitoring products? .... "can you afford not to?"* says it all really.

DETECTION OF CONTAMINANTS & TECHNIQUES

The human eye can only see a particle size 40 µm and greater (micron or micrometer) therefore detection and a quantitative determination of contamination requires precise analysis and samples need to be acquired.

In detection of the particles, various techniques may be used based on: light scattering, light obscuration or direct imaging (high energy light source to illuminate through the detection channels via laser or LED.)

Automatic Particle Counters work on a light extinction principle, this method of analysing samples is a much faster method. Sampling can be undertaken in a variety of methods, by installing sampling test points in a pressure or return line at an appropriate point under constant flow or turbulent conditions; reservoir sampling or bottle dipping (least preferred method due to possible high ingression of contamination)

FILTRATION

I am finding this to be quite a science tutorial as Geoff continues: using the analogy of life blood in turbines, the hydrocarbon based control fluids which facilitate efficient operation. At the heart of the nacelle the gearbox is housed transferring high torque from the blades to electricity producing speed at the generator, therefore it is essential this performance is maintained.

The company has devised a product to equip the turbine with an inline particle counter (ICM In-line Contamination Monitor) which allows analysis of the system 24/7 initiating internal and external alarms should the levels of contaminants change, thus eliminating costly down time.

MP Filtri offer numerous products for predictive maintenance, namely: LPA 2; CML2, ICM and ACMU (most popular with Wind Turbines) and auxiliary units.

VISCOSITY

In the majority of gearboxes the viscosity of the fluid is usually 320 cst (centre stroke thickness) of oil, the general rule is the colder the temperature the heavier and thicker and slower the fluid circulates.

Gearboxes have no pressures within them, i.e. an 'open case' lubrication oil has to circulate a large area, heavy oil, i.e. 320 drawing out with an ACMU. With heavy viscosity of the fluid there is a tendency for a lot of air bubbles, when there is no pressure this can alter the readings, the ACMU Creates a high pressure across the optical path which suppresses the effects of air this will result in accurate contamination measurement on aerated systems.

With the ICM (within the ACMU) it has the option to take samples over a period of 0 – 24 hours, even varying the sample time, over days, weeks or months, this then allows the client to glean a full trend analysis of the system remotely. The ICM has an internal memory of 4000 readings.

THRIVING ON CHALLENGES

There is no doubt that Geoff and the team are utterly enthusiastic and passionate about the importance of the monitoring of contaminants in systems and thrive upon challenges, I for one have been thoroughly educated and look forward to following the continued success of such an innovative company.

Interview by Fliss Chaffer
Wind Energy Network

Geoff Grant
MP Filtri UK

Click to view more info

IS SYNTHETIC REALLY BETTER?

As a lubricant supplier, one of the questions we are most frequently asked by our customers is *"are synthetic lubricants really better?"* The answer is usually yes and in the case of wind turbines, here's why.

Wind turbines are inevitably operating in harsh environmental conditions with extremes of temperature and weather conditions having an impact on performance and lubricant selection. In these operating environments, synthetic lubricants have many benefits which improve turbine performance compared with those utilising mineral based lubricants. As a supplier of ExxonMobil lubricants, we know that specially engineered synthetic lubricants really do make a difference to performance and can reduce the Total Cost of Ownership for operators.

EXTENDED SERVICE LIFE

Synthetic lubricants are engineered to offer extended service life of equipment components and extended oil drain intervals. These benefits help operators to reduce maintenance on turbines and essentially, reduce downtime. For any wind turbine operator, downtime can be disastrous as a turbine not turning, is a turbine not generating any profit.

Synthetic lubricants are engineered to provide long term bearing and gear wear protection, excellent oxidation stability, rust and corrosion protection and exceptional filterability. The synthetic base oils also offer a much wider operating temperature range compared to mineral lubricants and this is an essential feature for the wind energy sector.

OFFSHORE IMPORTANCE

For offshore wind turbines, the properties of lubricants become even more important. Corrosion and temperature variances are real issues in the offshore environment and some mineral based lubricants struggle to maintain performance in these conditions. In the offshore sector, unscheduled maintenance causes additional problems with access being that much more complicated and costly.

VARIED RECOMMENDATIONS

While we recognise that the main gearbox is an essential component and is often the focus for lubrication, it's not just synthetic gear oil that we would recommend for use in wind turbines. There are hydraulic oils and greases manufactured with synthetic base oils, some of which are manufactured specifically for wind turbine applications.

By utilising synthetic technology throughout your turbines, you are offering better protection to all the equipment components most at risk.

COST CONSIDERATIONS

In our experience, the main reason that operators will not move to a synthetic lubricant is the additional cost associated with the technology. We work very closely with our customers and with ExxonMobil to show that in almost every case, the additional cost is outweighed by the benefits of switching to a synthetic lubricant. In most cases, we can demonstrate maintenance savings to our customers in a relatively short space of time.

EMBRACING ADVANCED TECHNOLOGIES

In a growing industry where technology is advancing all the time, it is important to move with the times and embrace new, advanced technologies in every aspect of your wind turbine operation. Synthetic oils and greases are at the forefront of lubrication technology and the benefits are clear to see.

The Lubricant Company

NEW RESEARCH CENTRE IN CHINA FOR SHELL

The Shanghai facility becomes the company's third global centre dedicated to lubricants and oils.

Shell formally opened a new technology centre recently in Shanghai, China dedicated to research and development into lubricants and oils. The centre (Shell (Shanghai) Technology Limited) will focus on lubricant product development and application for China and the wider Asia region covering countries such as India, Indonesia, South Korea, Thailand and Vietnam.

GETTING CLOSER TO CUSTOMERS

Matthias Bichsel, Shell's Projects & Technology Director, said, *"The Shanghai facility will proudly bring Shell's technology leadership even closer to customers and partners in the region. Shell has long been at the forefront of lubricant science and technology. We recognise that better oils and greases can lead to energy savings and improved machine performance."*

CHINA'S LONG-TERM GROWTH STRATEGY

The centre will become a part of Shell's network of lubricants laboratories, working closely with the other two centres, in Hamburg, Germany and Houston, USA. These are part of a wider 10-centre strong global network of Shell R&D centres.

"The new centre reflects the direction of the Shell Lubricants business today and the central role that China plays in its long-term growth strategy," said Mark Gainsborough, Executive Vice-President Shell Lubricants. *"We are well-positioned to meet the anticipated growth in demand in the region. Locating in Shanghai will help us work more closely with our customers and shape mutually beneficial collaborations."*

WIDE RANGE OF SECTOR SERVICES

The research work in this 8,600 sq m, nine storey building will cover a wide range of product applications including passenger car motor oils (PCMOs), motorcycle oils (MCOs), heavy duty engine oils (HDEOs), transmission fluids, as well as industrial and speciality oils and greases. It will also cover oils for the shipping sector.

HANDS-ON TECHNICAL SERVICES TO CUSTOMERS

It will provide hands-on technical services to customers. Staff at the centre will also liaise with original equipment manufacturers (OEMs) and academic institutions in the region. Its laboratory facilities will enable the running of field trials, performance demonstrations and bench-testing.

"Shell wants to be the most competitive and innovative energy company in the world so it is natural for us to set up a key lubricants technology establishment in this 'innovation incubator'. We will be able to explore competitively advantaged technology solutions for business growth and we can establish a forum for technical collaboration with original equipment manufacturers and research institutes in China. We aim to be able to attract the best talent in China." stated Huibert Vigeveno, Executive Chairman of Shell Companies, China The new centre is located at Shanghai Zhangjiang High-Tech Park – one of China's most high profile technology and innovation parks.

LEADING ROLE

This was established 20 years ago and has played a leading role in boosting innovation, nurturing talents and promoting R&D collaboration in Shanghai and more widely in China.

Shell Lubricants

ENSURING A RELIABLE SOURCE FOR SPARE PARTS

A comprehensive servicing and maintenance programme is important for wind turbine operators, but in order to protect revenue and reduce costs it is vital to have a reliable source of spare parts close at hand. Fluctuating lead times from OEMs make a partnership with a third party component supplier very attractive.

"We're constantly working on ways of ensuring that our clients have access to spare components and service consumables when they need them" says Renewable Parts founder and Managing Director Ewan Anderson, *"We're happy when our clients are happy, and they're happy when their turbines are working."*

INVESTMENT

With significant private sector investment over the last 12 months, and a business development grant of £150,000 from Highland and Islands Enterprise, Renewable Parts Ltd has invested extensively in Vestas, Siemens, Bonus and Gamesa components and is able to offer a next day delivery service, direct to site, for parts and consumables across the UK and into Ireland.

YIELD LOSS

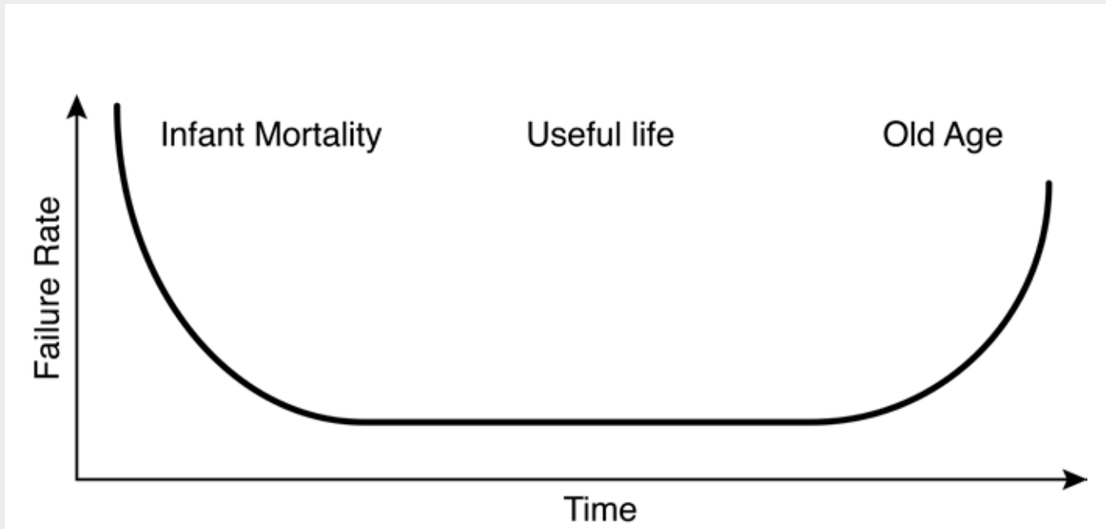
Recent extreme weather has thrown up reports of wind turbines catching fire, broken yaw linkages, as well as more minor types of wear, damage and failure. Without the spares to carry out immediate repairs, long periods of down time and lost yield can become a problem. Yield loss can cost around £800 per MW per day.

A cubic metre of air weighs 1.225kg (assuming 15oc at sea level) and with wind speeds fluctuating in a second or two by up to 5 metres per second, intense stress forces can be inflicted on the component parts of wind turbines.

Does it make sense to have a million pound asset, subject to an uncontrolled input power source, with significant penalties for downtime, not supported by instantly available critical spares back-up?

2010 STUDY

In their 2010 study, Spare Part Logistics for Optimisation for Wind Turbines – Methods for Cost Effective Supply and Storage, Linqvist and Lundin clarify the problem with commendable simplicity:



"Inadequate spare part stocks can lead to WT unavailability and loss of revenue if subsystems or items fail and cannot be replaced. When a spare part is needed but missing in stock, it has to be ordered from a supplier. Depending on the lead time of the spare part this causes operational downtime. On the other hand, handling and storage of spare parts can be a cost driver for any company operating and maintaining wind farms. Hence it is important to find a strategy which can balance these problems; optimising spare part investments and logistics."

Furthermore, they state that critical spares should include:

"About 30 - 40 items of each WT model, that cost more than EUR 100 and are critical for the WT to function. That is, if there is a failure on one of these items the WT shuts down and becomes unavailable until it is repaired (and the faulty item is replaced by a spare part)."

REDUCING THE BREAKDOWN RATE

In practice component failure is a mixture of random stochastic behaviour combined with the age effects of infant mortality and old age, characterised by the classic bathtub curve. Reducing the breakdown rate is a function of effective maintenance.

Traditionally, maintenance has either been corrective or preventive – reacting to failures and breakdowns, or servicing and changing parts at fixed intervals based on historical need or rates of failure. However, increasingly SCADA and condition monitoring data can be used to carry out predictive maintenance using dynamic information that indicates approaching failure – the so-called flickering light bulb effect.

REDUCING YIELD LOSS – THE CRITICAL FACTOR

However, the critical issue for reducing yield loss is less how often failures occur, but how long it takes to source the parts and labour to carry out an effective repair.

Developing a spare parts strategy that includes a third party parts supplier, such as Renewable Parts - effectively a bolt on parts department - is a cost effective way of getting the best, most professional, help at the lowest cost.

PROPRIETARY APP BASED INVENTORY MANAGEMENT SYSTEM

Renewable Parts cannot only rapidly supply parts and consumables direct to site, nationally and internationally, but it also offers a proprietary app based inventory management system that allows onsite engineers to effectively control (and so find) stock.

Working with clients, critical parts lists are developed, and the stock shipped to site. Holding these critical parts has limited effect on P&L, particularly when compared to the devastating effect on net margin caused by prolonged down time through not holding critical spares in the correct location. In theory critical spares should be earmarked to a particular asset, but in practice, expensive parts can be shared across more than one turbine, if lead times are not such a problem.

SPARES STRATEGY

However it's achieved, the key thing is to have a spares strategy that guarantees minimum down time at minimum cost.

Renewable Parts Ltd

Click to view more info

Renewable Parts Ltd FEATURE SPONSOR SPARES & REPAIRS

AN INSEPARABLE RELATIONSHIP

The maintenance strategy of any engineering provider must always give consideration to the inseparable relationship between 'spares and repairs'

SATISFYING THE ASSET OWNER'S EXPECTATIONS

Delivering wind farm O&M services to meet contractual obligations and satisfy the asset owner's expectations is never easy and in an ever challenging environment will be impacted by many different elements.

Some of these will be environmental, which we have little or no control over, but most aspects of the management of this service are controllable by planning and by introducing constructive measures to eliminate future problems. The 'spares and repairs' aspect is no different.

PRE-PLANNING

Initial pre-planning, using the wide range of predictive maintenance techniques now available, from online CMS to periodic inspections, to help identify component failures at an early stage is a key step in this process.

These systems are becoming increasingly sophisticated with the ability to give accurate early warning of failure which allows the Asset Manager time to assess the condition in detail and pre-plan the repair techniques involved. This will dictate the spare parts needed to facilitate the repair or even the replacement of the failing component. Having this kind of knowledge, or not, will greatly impact on the spares strategy implemented by the owner/O&M provider.

MANAGING NEEDS

The management of spares needs careful consideration as it can have a significant financial impact on the overall performance of the wind farm. The main area for consideration is the trade-off between the level of spares holding and turbine downtime.

CATEGORISING SPARES

Keeping turbine downtime to a minimum is always desirable but it is not feasible to hold all items of spares on the off chance they may be needed.

There are 3 main criteria by which to categorise spares…

- **Critical, Low value items** – these are items which need to be readily available, preferably on site so that a repair can be implemented immediately. These low value items can have the same devastating effect on turbine downtime as the higher value items but the cost of holding in stock is much more feasible
- **Critical, High Value items** – these are items which will be required at short notice should a failure occur but are of such a value that holding a stock level on site is not feasible. Such is the value of some of these items that an acceptable amount of downtime can be justified against the costs of stock holding. Off-site supplier agreements can be utilised to ensure availability and reduce lead times when this category of spares are required
- **Non critical items** – these are items which would be less critical because they won't cause downtime. There would be more time available to source and immediate supply agreements won't be a requirement.

POSITIVE IMPACT

Giving a high level of consideration to spares holding will reduce the downtime incurred due to component failure and will have a positive impact on turbine availability and production outputs which are obviously key measures by which any owner will assess their maintenance company.

Brian McDaid
Engineering & Maintenance Manager
B9 Energy (O&M) Ltd

SOURCING AND SUPPLYING WIND TURBINE PARTS

Global Wind Alliance Supplies is dedicated to and specialises in the sourcing and supply of wind turbine spare parts globally. Kevin Donovan and Clifford McSpadden saw that there was a niche in the market for a company who not only offered competitive prices and lead-times, but could also be trusted to respond to customers' requirements quickly and effectively.

30 YEARS EXPERIENCE

With over 30 years experience in supplying parts and logistic solutions across a diverse industry portfolio Kevin and Clifford know what it takes to be the first choice partner in the Wind Industry.

Kevin has completed over 10 years pioneering work in sourcing and supplying wind turbine spares. He says: *"After 20 years of supplying spare parts across a range of industry sectors in the UK we stepped out into this amazing new market. We went to every conference that was run back then and met the movers and shakers in the industry, making many new friends along the way."*

GWA SUPPLIES

When Kevin and Clifford formed GWA Supplies it combined this in-depth knowledge with best practice from the Aerospace industry. *"By using the vast amount of data that is available to the wind farms owners, we have been able to create valuable management information which is the foundation of every effective supply chain strategy," says Clifford. "We have expanded our supply chain capabilities to incorporate over 8000 parts, across more than 600 suppliers, covering the leading turbine models in operation today."*

GLOBAL EXPANSION

The company is expanding as they provide supply chain solutions to a growing portfolio of clients across the World. *"One of our founding principles is 'to treat others the way we want to be treated' which is why we ensure we are responsive to our clients' calls"* says Kevin.

CASE STUDIES

Case Study 1 - S.O.S. for a pair of offshore yaw drives; delivered within 24 hours

Downtime on any turbine costs money; therefore it is vital that response times and delivery schedules are kept to an absolute minimum.

GWA Supplies received a call from one of their customers saying that they were in desperate need of 2 yaw drives; 1 left and 1 right; for one WTG of their V80 fleet.

The phone call was taken at 3pm in the afternoon and the yaw drives were delivered to the wind farm by 10am the following morning.

Case Study 2 – International Car Manufacturer needs turbine blades to be replaced

A V47 turbine had to be shut down due to excessive cracking around the root of the blades. The company was contacted to see if they could offer a solution.

Within 2 weeks a refurbished set of blades was found. GWA Supplies arranged for the blades to be re-painted, polished and delivered to the customer. This was all completed in 6 weeks, which was 2 weeks ahead of schedule.

QUO VADIS CONFERENCE

Now in its 8th year, Quo Vadis Conference has become one of the most respected and important events in the wind industry. Quo Vadis is by-invitation-only and is run exclusively for owners and operators. Last year's conference was held in Berlin and 95 people attended. There were 23 utility companies represented from all around the World, including New Zealand.

GWA Supplies regards this as giving something back to the industry as it is the only conference that we know of that is free of charge for invited guests.

This year's Quo Vadis Conference will be held on the 22nd and 23rd October in Hamburg with another excellent line-up of presentations and valuable networking time.

Global Wind Alliance Supplies

AN INVITATION ONLY EVENT DEDICATED TO OWNERS AND OPERATORS

When we started working in the wind industry some 8 years ago and visited all the exhibitions and conferences that were run at that time we learnt from our conversations with the utility companies and O&M providers that they were missing a conference that was solely dedicated to owners and operators and their problems and issues.

QUO VADIS CONFERENCE – A HISTORY WITH RELEVANT AND VARIED LOCATIONS

So we created the Quo Vadis Conference which is for invited guests only, and the only guests invited are owners and operators.

It was also the first time that an exhibition area was attached to the conference which provided interested companies a great opportunity to meet a substantial number of industry movers and shakers.

In 2009 the Quo Vadis Conference welcomed 68 delegates to the Crowne Plaza Gatwick Hotel in Crawley. To provide free access to the conference to a growing number of participants was again only possible with the help of sponsors and exhibitors.

METOFFICE

The following year conference followed an invitation by the MetOffice to hold the event at their facility in Exeter. The pre-event dinner was given at the local Mercure Hotel where most of the delegates stayed.

LEEDS CASTLE

In November 2012 the delegates were invited to Leeds Castle near Maidstone in Kent which provided a spectacular backdrop for another successful convention. The number of owners and operators represented had grown to an impressive 22.

BERLIN

The seventh Quo Vadis Conference travelled to mainland Europe, namely Berlin. A large number of delegates participated in the guided bus tour of Berlin City on Wednesday afternoon. This was followed by the pre-event dinner held 207 m above ground in the rotating restaurant of the Berlin TV Tower. The conference proper was held at the Park Inn by Radisson on the Alexanderplatz in the centre of Berlin with 29 owners and operators represented.

Berlin 2013 event location in 2013: Park Inn by Radisson on the right with the TV Tower in the centre

SKF FACILITY

The first Quo Vadis Conference was held in November 2007 at the SKF facility in Luton with 38 delegates.

ORBISENERGY CENTRE

The following year saw the newly built OrbisEnergy Centre in Lowestoft as the event's location. This was the first time that a pre-event dinner was provided for the participants who had already travelled to the location the day before the conference.

BELFAST HARBOUR AND THE TITANIC QUARTER

The fifth Quo Vadis Conference saw 98 delegates convene at the splendid Harbour Commissioners Office in Belfast.

As an additional attraction a tour of Belfast Harbour and the Titanic Quarter was arranged on the afternoon before the conference. The main sponsor for this event was Invest NI.

2014 – HAMBURG

This year's Quo Vadis Conference will take place on 22nd and 23rd October in Hamburg.

Invitations to eligible participants will be sent in late spring/early summer.

Quo Vadis Conference

FEATURE SPONSOR Renewable Parts Ltd

WHY IS COMPONENT REFURBISHMENT AN INCREASINGLY POPULAR OPTION FOR TURBINE MAINTENANCE?

The wind turbine sector uses a range of rubber-to-metal bonded components including gearbox bushes, generator mountings, direct drive torque reactors, nacelle hood mounts, and couplings.

After a number of years service these parts are often removed from the turbines for inspection during maintenance and turbine overhaul and refit programmes, although they may still meet the original specification.

REFURBISHMENT POSSIBILITIES

However as part of its ongoing commitment to this increasingly important industry, Aegis Rubber Engineering Ltd identified the possibility of refurbishment for existing products during these programmes.

With the emphasis on product condition and life cost this presented an opportunity to challenge some of the ongoing issues in manufacturing, including raw material cost, availability and the associated environmental impact of metal and raw material production.

By developing techniques to remove the old rubber, the metal parts can often be recovered and reused for a defined new service period, which in some cases will be at the end of the turbine's working life.

EXPERIENCE

With a history of supplying components for nearly twenty years to OE wind turbine manufacturers, the company's understanding of the application and the demands placed upon the parts has also provided them with important technical experience and data.

Products can therefore be evaluated at various stages of their operational lifecycle prior to refurbishing.

COMPREHENSIVE TESTING

As part of this inspection process, it is possible to identify those parts in which all or part of the metalwork can be re-used. A comprehensive testing regime assesses the performance of the component to understand any failure mechanisms or whether the part still achieves its original specification.

REFURBISHMENT PROCESS

Assembled units can then be deconstructed in-house. The metal components are individually recovered by removing the original polymer, either mechanically, or chemically at a specialist reclaim facility.

Both techniques result in the original rubber-to-metal bonding interface being separated. The metalwork can then be re-processed, remoulded with new rubber and re-assembled prior to entering a new service period. Due to the nature of certain applications and length of service requirements, damaged metalwork and parts with critical dimensions can be replaced where necessary.

OTHER OPPORTUNITIES

Whilst the work so far has predominantly involved gearbox bushes and mountings, these techniques could be applied across a whole range of rubber-to-metal bonded products used in wind turbine technology. Part refurbishment and reconditioning offers a number of advantages over complete product replacement in terms of environmental impact, financial cost and potentially reducing maintenance turn-around times.

SERVICES AVAILABLE

The company, based in West Sussex, specialise in the design, development and manufacture of rubber-to-metal based anti-vibration and shock isolation systems.

They supply a range of technical solutions to the Renewable Energy industry and the products that they manufacture for the Wind Turbine sector include gearbox bushes, generator mountings, direct drive torque reactors, nacelle hood mounts, and couplings.

Aegis Rubber Engineering Ltd

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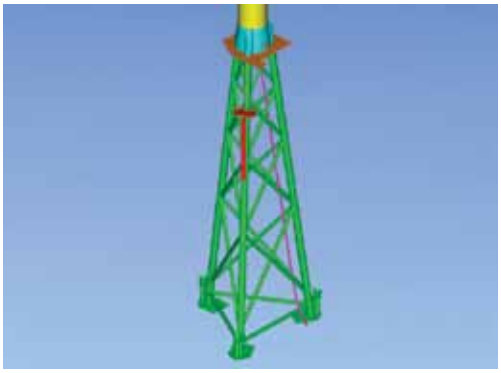

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