



WindEnergy

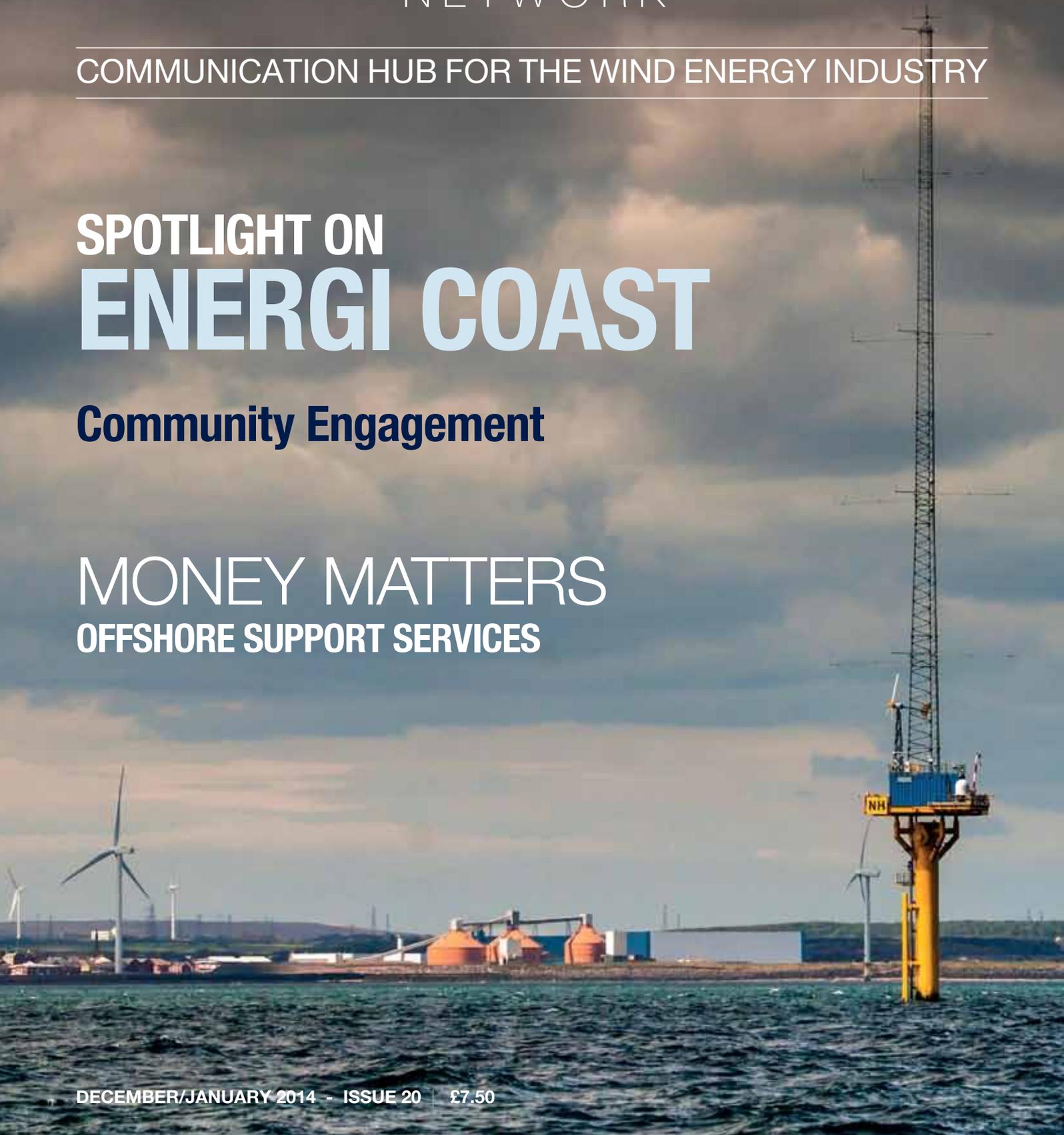
NETWORK

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

SPOTLIGHT ON ENERGI COAST

Community Engagement

**MONEY MATTERS
OFFSHORE SUPPORT SERVICES**



LEAD ARTICLE COLLISION RISK AT SEA

TÜV SÜD Industrie Service GmbH uses computer models and simulations to determine and assess the potential risks of a collision for people, ships, turbines and the environment.

We feature their important work within the lead industry article in this edition on pages 4 & 5 and further information is available online through their micropage link.

ENERGI COAST

Our 'Spotlight on...' feature focuses on Energi Coast, one of the many regional organisations which have evolved to serve the needs of the industry.

Energi Coast is the representative group for the North East of England's offshore renewables sector; promoting the extensive offshore renewable energy sector expertise from the region and North East England's unique offering to the industry.

The leading offshore renewables supply chain companies in North East England have been brought together by NOF Energy to form the group.

COMMUNITY ENGAGEMENT

A number of leading experts comment on the importance of community engagement in the energy sector within our feature.

There appears to be a continued focus from both politicians and the business press on the industry. Recently however this focus has become more intense and reached a more mainstream audience, as coverage increases.

This scrutiny will undoubtedly increase interest in projects at both a national and local community level in future and therefore Community Engagement will become even more important in the future.

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 online. Those planned for the next issue are detailed on our events and whats new pages. See page 19.

MAGAZINE AND WEBSITE INTERACTION – QR CODES

Yet another reminder that we use 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.



D. McGilvray

Duncan McGilvray
Editor | **Wind Energy Network**

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NATIONAL RESEARCH ENERGY CENTRE

The cover image was supplied by Narec, longstanding sponsors of our Research & Development feature, situated in Port of Blyth.

Narec is the UK centre for renewable energy and low carbon technologies which develops prototypes, tests renewable devices to international standards and is involved in installing low carbon technologies

We are planning to focus on Port of Blyth in our 'Spotlight on...' series in the February/March edition.

REGULAR/ONE OFF FEATURES

Amongst some 12 features within this edition we also focus on Energi Coast, Community Engagement, Money Matters and Offshore Support, to name but a few.

Duncan McGilvray
Editor | **Wind Energy Network**

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COLLISION RISK AT SEA

SEA-GOING VESSEL VERSUS WIND TURBINE

Wind turbines off the German coast generally represent obstacles in the traffic routes of ships. What if a large sea-going vessel, unable to manoeuvre, were to impact an offshore wind turbine?

COMPUTER MODELS AND SIMULATIONS

The analyses used to determine and assess the potential risks of a collision for people, ships, turbines and the environment are currently based on computer models and simulations. However, these models do not adequately consider important aspects – such as routine landing operations by service boats. Do we have to alter the course of collision analysis?

GUARANTEEING SAFETY

As the authority in charge of the approval of German offshore wind farms, the Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie, BSH) must ensure that Germany can guarantee the safety of international maritime transport at all times. To do so, the distance between a wind farm and any shipping routes must be at least 4.5 kilometres.

In addition, the authority requires evidence of the collision-friendly design of wind-turbine foundations for each offshore wind project. Given this, as part of the approval process, the project owners must go through the worst-case scenario and simulate events, i.e. a ship hitting an offshore wind turbine or a transformer platform.

BREAKING NEW TECHNOLOGICAL GROUND AT HIGH SEA

However, the required simulations and analyses confront the wind power industry with numerous challenges as they are largely based on pioneering work and there is no long-standing practical and operational experience to fall back on. So far, the offshore sector is still lacking an adequate range of clear and straightforward frameworks and standards. While some of the pilot projects that have been realised off the coast are delivering

initial findings that can be used in future projects, many aspects indicate that the methods established today are not fully suitable for identifying and specifically assessing all hazards and risks involved.

'INTENTIONAL' COLLISIONS

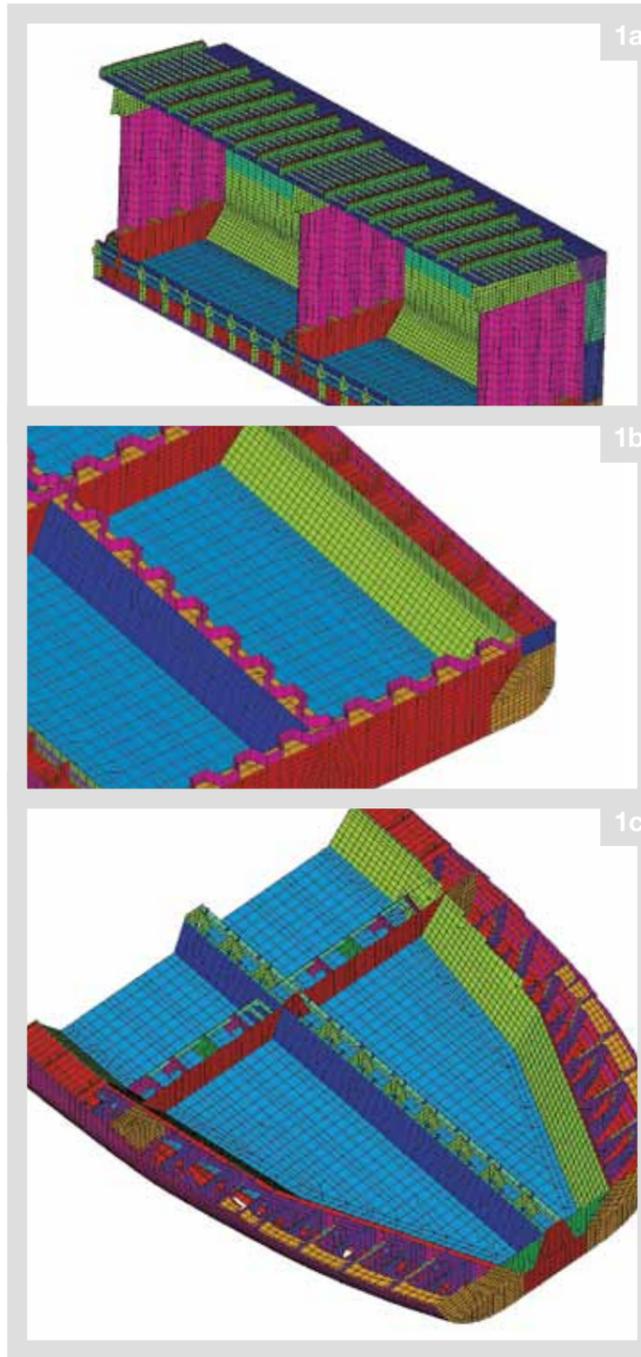
The same also applies in particular to the recurrent 'intentional' collisions, when a moving service boat first makes contact with the fixed, but flexible offshore structure. The coincidence of only one boat-landing position and unfavourable wave direction generates the biggest risk of higher impact loads.

The ongoing landing operation of the service boat, where the pilot maintains forward thrust – even in high stern waves – to keep the ship in contact with the boat landing platform do not typically apply higher loads.

Today's methods of static analysis work with estimated figures for a single static equivalent load (= Ultimate Limit State). The results of these calculations cannot be absolutely exact and, even worse, cannot be used for structural stability of the wind-turbine foundation and the components of the boat landing platform in the long term (Fatigue Limit States). The question now is whether wind turbines are designed in such a manner that safe servicing and

maintenance operations are ensured on a long-term basis, while the risks in the case of a collision are kept to a minimum.

At present, the BSH only requires the usual structural analysis plus a calculation of the consequences in the case of a collision. Both the calculation model and the analysis are based on a reference ship representative of the sea area in question and on the foundation structure of the



1a - Tanker FE model middle cargo holds
1b - Tanker FE model double hull and transv bulkhea
1c - Tanker FE model fore cargo hold

planned offshore wind turbine. Collision-friendly design is proved if the calculations demonstrate that an individual wind turbine is 'weaker' than the reference ship, i.e. that the turbine would fail first in the case of a collision. In concrete terms this means that the hull of a ship (or, in the case of double-hull ships, the inner hull) will not tear.

DOES THE MODEL ADEQUATELY REFLECT REALITY?

Given this, the BSH does not require collision analysis to supply exact quantification of the extent of damage, but to give qualitative answers to the following questions: (1) what will fail first, the ship or the turbine, and (2) will the possible

damage caused by a collision be minor, moderate, major or catastrophic? Of course the assumptions on which a collision scenario is based and which are included in the calculation models significantly influence the analysis results and their informative value. These are: Which type of ship is selected as reference ship? At what speed will the vessel hit the turbine? While the BSH defines the key parameters, experts are given plenty of leeway in the preparation of the finite-element models (FE models) that are needed for the analysis and the simulations.

CONSERVATIVE ASSUMPTIONS FOR SIMPLIFICATION

Simplifying the very complex models and analyses by using assumptions suggests itself and is acceptable and expedient, provided the experts use conservative data and values. When this is done, the results are always on the safe side because a wind turbine that fails in a collision with a 'weaker' reference ship in the calculation model will definitely fail in a collision with a ship that is more robust in reality.

The offshore wind industry has shown a tendency to adopt this approach, i.e. the ships modelled in calculations so far have been more 'fragile' than they are in reality. However, as the standard does not define comprehensive requirements as to which parameters must be taken into account and how; the various scenarios cannot be compared to each other. Given this, we do not know the extent to which the individual models actually reflect reality. This shows that – in the medium term – the development of standardised models and procedures is necessary and that all stakeholders should work together to develop a safety-focused strategy.

BINDING STANDARDS

Within the framework of a harmonisation process, stakeholders would benefit considerably from binding standards and directives in terms of safety, sustainability and not least profitability.



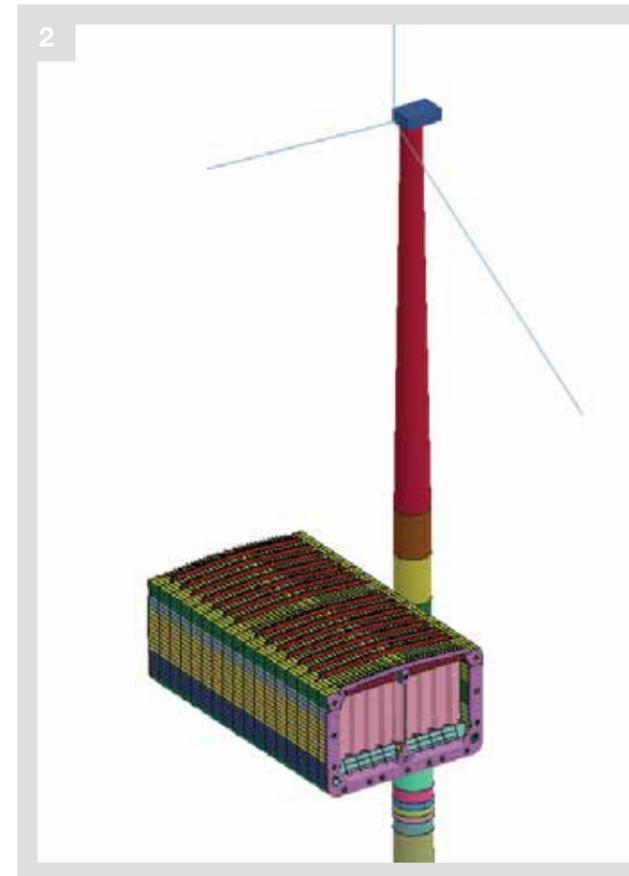
Björn Kramer
TÜV SÜD Industrie Service GmbH

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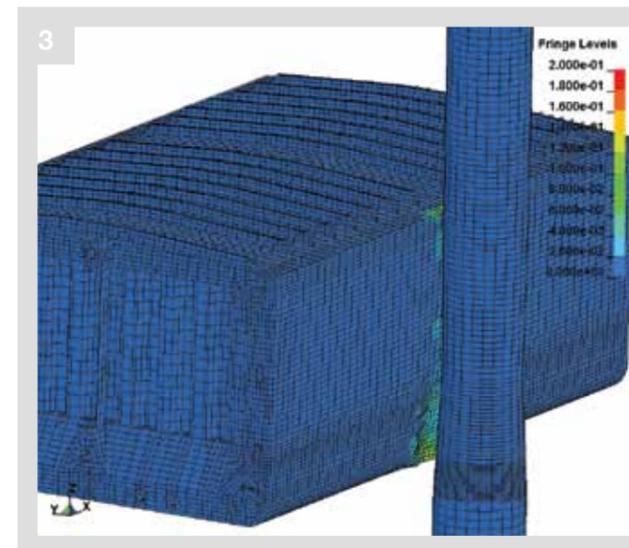
ED'S NOTE

This is an abridged version – please view the full article through the QR Code below or link online including...

- Further aspects at a glance
- The reference ship
- Where does the ship hull hit the turbine or platform?
- What forces are developed by the displaced water mass?
- Will the nacelle stay in position?
- Are operating loads relevant?
- Loads caused by service boats
- Accepting challenges



2 - Collision Ship vs Monopile



3 - Collision Ships vs MP results plastic strain after 7.4sec

IT'S ALL ABOUT YOU!

GLOBAL ENERGY SERVICES (GES) INSTALLS GAMESA'S OFFSHORE PROTOTYPE

The turbine is in the Arinaga Quay in the Canary Islands

As part of its offshore strategy, Gamesa has recently developed its first offshore prototype. GES has provided services for the installation and commission of the wind turbine for Gamesa, the Spanish manufacturer.

SPECIFICATION & LOGISTICS

The G128-5.0 turbine has been assembled in the Arigana Quay. The different components of the 5 MW were produced in Spain and shipped to the Canary Islands. The 62.5 metre rotor blades are the largest ever produced and transported in Spain and one of the largest in Europe.

EXPERTISE

GES has an unmatched track record in turbine installation projects which include offshore wind operations. This project reinforces the company's expertise as an offshore service provider.

... AND ALSO APPOINTS NEW CEO

Thorsten Kramer is the new top executive at the world's largest construction and services company in renewables.

CHALLENGES AND OPPORTUNITIES

With 17-years experience holding management positions in global companies, Thorsten Kramer has been appointed top executive by the company's board with the goal to expand international operations and lead the organisation through the upcoming challenges and opportunities.

LEADING POSITIONS

The new CEO has held leading positions in turbine manufacturer Nordex for more than 7 years, where he has been CEO of Nordex Energy and Head of the Europe region.



Grosch, "but now it is time to look ahead and Thorsten's deep understanding of our industry, including sales and services in this global market will prove invaluable for GES."

He succeeds Hans Joern Rieks, who has been the top executive on an interim basis during 2013. "I thank Hans Joern for his commitment and contribution to GES during this phase," remarks Chairman Peter

20 YEARS EXPERIENCE

GES has been active in renewables for more than 20 years, providing construction of wind and solar plants, installation of turbines and O&M services. Main customers are turbine manufacturers, energy companies and financial investors worldwide.

EXCITING FUTURE

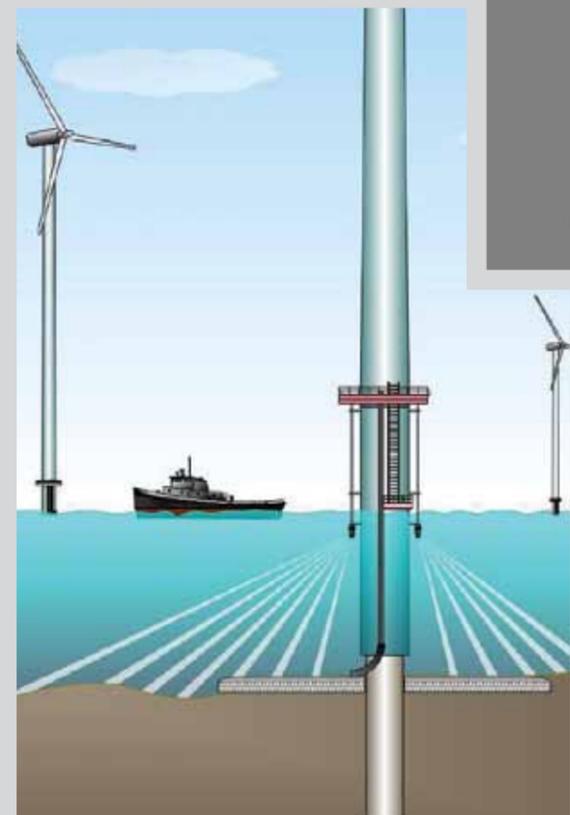
"I am proud and excited to join the #1 service company in renewables." says Mr. Kramer, "Our industry is undergoing unprecedented changes: from market regulations to risk sharing along the value chain to outsourcing strategies by customers. Through teamwork, efficiency and quality, GES will make the best use of the new opportunities that are arising."

Global Energy Services

KONGSBERG MARITIME LTD STRENGTHENS RENEWABLES SERVICES WITH KEY APPOINTMENT

Mark Baldwin will grow clients in sector through role as Business Development Manager.

Marine technology company Kongsberg Maritime Ltd has appointed Mark Baldwin to the post of Business Development Manager as part of its drive to strengthen its service offering for the offshore renewables sector. He will be responsible for developing the company's portfolio of environmental monitoring capabilities for offshore windfarms and tidal energy projects.



EXPERIENCE

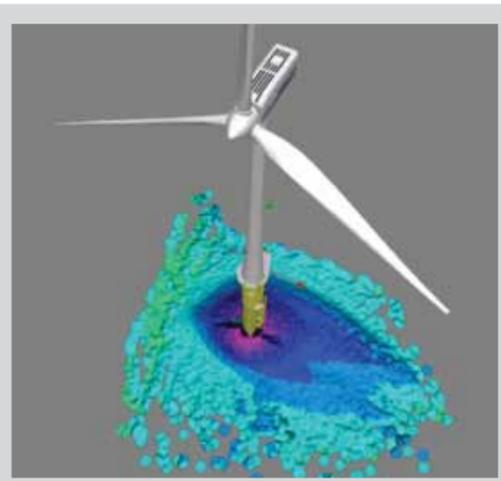
Mr Baldwin has joined the company – the UK-based subsidiary of Kongsberg Maritime – from Kongsberg Oil and Gas Technologies, where he spent five years as Sales Manager. He will oversee the company's operations in Southampton,

and will lead a team of engineers and scientists responsible for delivering services including underwater acoustic studies and scour monitoring.

EXCITING FUTURE

Mr Baldwin says, *"It is exciting to be joining Kongsberg Maritime at a time when the company is making a strong advance into the renewables market. We have built up a huge level of expertise over many years with clients in the offshore sector, but renewables offers an opportunity for serving a wider and growing client base."*

"The global offshore renewables energy sector is experiencing a period of unprecedented growth, and I believe



there is huge potential for Kongsberg Maritime Ltd to utilise its knowledge and product portfolio to support clients as they move forward in developing this industry and the challenges that it creates."

With over 100 offices globally, Kongsberg Maritime is well positioned to support a renewables project anywhere in the world.

ACOUSTIC MONITORING BUOY SYSTEM (AMBS)

The company is currently a leading provider of

underwater acoustic monitoring systems and has experienced an increase in demand for its AMBS, which clients in renewables, shipping and oil & gas sectors can utilise to assist in the production of environmental impact assessments for offshore developments.

AMBS is a sensor or module within the Kongsberg Integrated Environmental Monitoring System, which is currently being developed in partnership with Statoil, IBM and DNV.

AMBS carries out acoustic monitoring of a proposed development site, providing baseline figures as to noise levels prior to any work taking place.

SPECIALIST TEAM

Kongsberg Maritime's specialist team is also able to give an assessment of any likely impact that any subsequent construction or operational noise would have on marine life. Kongsberg Maritime has also recently developed a new innovative sonar for scour monitoring of structures with underwater foundations, such as bridges and wind turbines. The new Dual Axis sonar is used to assess the impact that scour has on the integrity of structures, and gives an early warning on the likelihood of potential damage or loss of integrity.



Mike Baldwin

Mr Baldwin adds, *"We believe there is a significant market for scour monitoring activity within the offshore renewables sector, however we are also now working with clients that are not in Kongsberg Maritime's traditional markets, such as civil engineers, local authorities and highways agencies to provide monitoring services."*

Kongsberg Maritime

[Click to view more info](#)

[Click to view video](#)

MINISTER TO OPEN NEW CONSTRUCTION HALL IN HAVEN WATERWAY ENTERPRISE ZONE

Economy Minister Edwina Hart recently opened the new construction hall for Mustang Marine (Wales) Ltd at Pembroke Port as part of the planned expansion for the Company.

GROWING INDUSTRY DEMAND

The new £1.5million boat building construction hall, is the first major investment in the Haven Waterway Enterprise Zone. The hall has been built in response to growing demand for workboats, pilot boats, wind farm support vessels and passenger vessels from around the world. This expansion has doubled the size of workboats construction operations at the Pembroke Dock facility, and will ultimately create jobs at Mustang Marine.

"This marks the next step in the planned growth of Mustang Marine and it is a chance for us to thank our investors, suppliers and employees for all the hard work they do." commented Kevin Lewis, Managing Director for Mustang Marine.

WELSH GOVERNMENT SUPPORT

The completion of the construction hall marks the end of the second and most ambitious part of the phased development. Mustang Marine was awarded Skills Growth Wales funding of £100,000 from the Welsh Government in February this year to train more than 100 employees. They have also received support from the Welsh Government's Business Rates Scheme offered to businesses in Wales' seven Enterprise Zones.

Mrs Hart said: *"I am very pleased to open this new facility which represents a major step forward in Mustang Marine's expansion plans. It is encouraging to see a local company doing so well and taking advantage of the support available to them in the Haven Waterway Enterprise Zone."*

"The support we have provided demonstrates our commitment to helping Welsh business to grow and creating high quality jobs."

MULTI-PURPOSE VESSELS

Currently in build at the new Mustang Marine is the first in class of a range of multi-purpose vessels the SMV24 by Supacat. In build also is an Enforcer 40, a highspeed interceptor boat for police and custom services, in collaboration with Cougar Marine, a Nelson 48/50 for ABP Humber Estuary Services, and a new river trip passenger boat for Thames River Services Ltd. In addition they have a range of planned maintenance and service work currently in progress across the Pembroke Dock and Milford Haven sites.

CENTRE OF EXCELLENCE

"This is an exciting day for Pembroke Port and a great way to celebrate its upcoming 200th anniversary. We are very proud to be partners with a business like Mustang Marine and the skills they employ, coupled with these excellent facilities, are bringing more jobs and prosperity to the area. This is our chief aim as a Trust Port with a responsibility to invest to promote growth in the local economy."

"There's great potential now to build on to this centre of excellence in marine fabrication and shipbuilding, particularly by focusing on opportunities around the coastal renewable energy sector for which we are perfectly located." commented Alec Don, Chief Executive Port of Milford Haven.

Mustang Marine



ECOLOGY SURVEYING FOR BATS

We continue our ecology feature and turn our attention to surveying for bats, commencing with sound advice from our regular contributors Royal HaskoningDHV

Please have a look at our forthcoming features on the magazine tab within our website or listed on page 19 of this magazine. We are covering a different ecology feature in each over the next year. Feel free to suggest more.

METHODS, GUIDELINES AND BEST PRACTICE

Onshore wind farm developments can have potential negative impacts on bat populations.

Such potential impacts, which require consideration include...

- Direct collision of individual bats with blades
- Damage to bat tissues caused by a difference in pressure (barotrauma)
- Habitat loss and/or fragmentation as a result of onshore wind farm developments

ADVICE AND STANDARD GUIDANCE

Consequently these impacts have driven the need for advice and standard guidance sheets to be developed. Interim guidance and technical information notes were initially developed by both Natural England and Scottish Natural Heritage in 2008 and 2009.

BEST PRACTICE

More recently in 2012, specific best practice survey guidelines for bats (Bat Conservation Trust, 2nd Edition, 2012) were developed. This guidance was produced in consultation with a range of stakeholders and is now the adopted 'standard guidance' for pre-construction surveys for single large wind turbine developments.

CASE STUDY

Royal HaskoningDHV, working on behalf of DONG energy for the onshore element of a wind farm development in Walney, Cumbria has implemented the principles of these best practice survey guidelines to inform the ecological impact assessment and in turn provide a well informed and robust methodology to aid the planning inspectorate's decision making process for this development.

THIS INVOLVED...

- Undertaking a specific desk study for obtaining records of bats (both roosting and activity records) within the proposed working areas
- Undertaking detailed daytime inspection surveys to note features and areas of interest within the proposed working areas
- Undertaking monthly bat activity transect surveys of the proposed working areas

No potential bat roosting sites were noted within the proposed working areas.

MONITORING

Hedgerows were noted to be a dominant feature within the local landscape and were subsequently assessed as having value to foraging and commuting bats. Using ecological professional judgment, monitoring of bat activity within the proposed working areas was recommended.

This involved undertaking monthly bat activity transects surveys, particularly at specific locations where risks to bats were thought to be of highest concern. The findings of the monthly transect revealed that the proposed working areas supported a low number of bats using the hedgerows and ditches within the site.

SUMMARY – CONTINUOUS OBSERVATION AND ASSESSMENTS

Potential impacts of wind farm developments on bat populations are still being understood, despite increasing amounts of research and evidence being obtained.

Therefore it is imperative that surveys and subsequently assessments in respect of bats are undertaken in accordance with best practice survey guidelines to ensure transparent, well informed and robust assessments to inform the decision makers for such developments.

Royal HaskoningDHV

[Click to view more info](#)

MOBILE MARINE RADAR SYSTEMS

The National Wildlife Management Centre (NWMC) at the Animal Health and Veterinary Laboratories Agency uses mobile marine radar systems, equipped with specialist software, to monitor the movements of birds and bats.

They use X-band radar to detect bat movements, with bird and insect targets filtered out of the raw radar data and used an x-band radar in a vertical plane to monitor altitudinal distribution of bats (see figure 1).

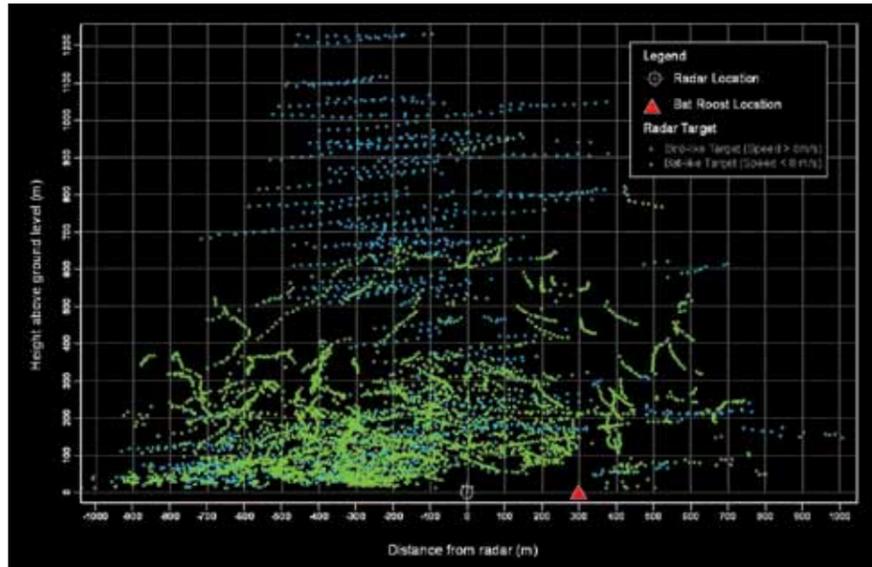
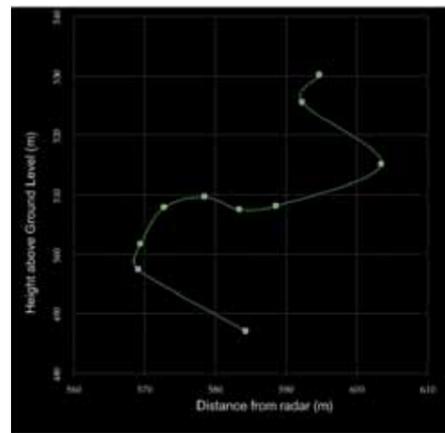
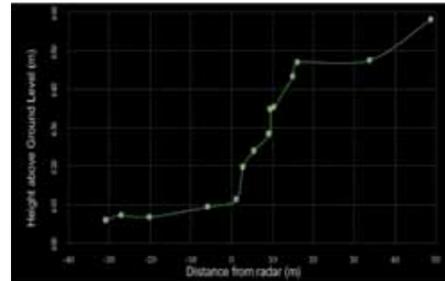


Figure 1 – Spatial distribution of bat targets.

This work looked at two areas adjacent to Noctule *Nyctalus noctula* maternity roosts. Bats were detected up to a height of 800 metres. Data showed trends in use of the sites surrounding the maternity roosts, for instance, time of first emergence and peak usage of airspace surrounding a roost site.

EXACT FLIGHTLINES

Radar offers the ability to detect exact flightlines (see figure 2), and is able to monitor movements of several individuals at any one time. Radar can be combined with acoustic surveys in order to provide an indication of the species present.



Figures 2 & 3 – Individual bat flightlines.

NWMC operates two mobile radar systems and will be carrying out further work in 2014 developing new methods in radar bat monitoring, allowing further insights into spatial distributions and movements of bats around wind farms.

The National Wildlife Management Centre (NWMC)

THE IMPORTANCE OF PRELIMINARY ASSESSMENTS AND SCIENTIFICALLY ROBUST SURVEYS

A preliminary assessment of the habitat at a development site is crucial to establish the breadth and type of surveys required for bats as they use habitat in a variety of ways, and this knowledge has to form part of any scientifically robust survey.

PROTECTION

Bats are protected by law from any reckless or deliberate damage or disturbance, to their roosts, as well as killing or injury to individuals. Evidence from North America and Europe suggests that interaction with rotor blades has killed bats, particularly where turbines have been inappropriately sited. Therefore, despite the lack of data for such incidents in the UK, it is essential that the correct level of assessment be applied.

Initially, data trawls are gathered of any known roosts or recent survey data. Surveys can then be designed based on the importance of the area to bats, be it high, medium or low. For example, a site with a mosaic of suitable habitat types and previous evidence of bat presence can be regarded as being of high importance.

RISKS

Noctule bats are known to fly early in the evening and at significant height, often over

to five days and programmed to record bat calls each night. The data can then be analysed using suitable software, allowing identification of calls to species level, a vital aspect of the assessment.

The SM2s are placed in areas of suitable habitat close to the proposed turbine locations, and can be paired up in certain circumstances to assess how bats are using the habitat around the turbines.

These two primary methods can be augmented by a variety of other methods such as vantage point and 'at height' surveys if necessary.

PROPER ASSESSMENT

In this way, proper assessment can be made of the potential impact on bats in the vicinity of any proposed development and, if necessary, suitable mitigation designed and implemented.



BAT SURVEYS GOOD PRACTICE GUIDELINES

The bat ecologist's gospel is the Bat Surveys Good Practice Guidelines, 2nd edition. Updated in 2012 by the Bat Conservation Trust, it now includes a chapter on surveying proposed onshore wind turbine schemes. The chapter builds on current recommendations outlined by EUROBATS. Natural England is responsible for interpreting this guidance in a UK context, supported by Countryside Council for Wales and Scottish Natural Heritage.

open ground; this may well put them at greater risk of collision with turbines. Other species can be attracted to linear features such as hedgerows, as well as water bodies and buildings. In any case, turbines cannot be placed within fifty metres of a linear feature.

DETECTION

In each month that bats are regarded to be most active (April – October), both automated and transect surveys (using handheld detectors) should be carried out. Baker Consultants has pioneered the use of the Song Meter 2 (SM2) automated detector, which can be left in situ for up

IS THIS APPROACH CORRECT?

The question that remains is: Is this approach correct?

Post construction monitoring must form part of the overall ecological impact assessment so that data on wind turbine impacts on bats will grow and continue to inform future developments.

Richard Hall
Senior Ecologist
Baker Consultants



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Powerskills UK (part of the Selby College Group) Abbot's Road, Selby, North Yorkshire, YO8 8AT

CURRENT BAT CONSERVATION TRUST

SURVEY GUIDELINES

Current Bat Conservation Trust (BCT) survey guidelines may not, strictly speaking, have statutory force, but they are the de facto rules. It is these guidelines that Natural England, Scottish Natural Heritage, Natural Resources Wales, and the Northern Ireland Department of Environment agencies will refer to when advising on a planning application.

Adhering to the survey guidelines should also ensure that developers and their consultants have the information they need to minimise the impact on bat populations. Typically, for wind developers, this involves considering where to place turbines to avoid roosts and 'flight paths' between roosts and feeding/foraging hedgerows. Another approach to mitigation, which can be detailed in planning applications, is curtailment - where a development proceeds as planned but operations are curtailed at certain times when bats are more active, for example the hours just after sunset or before sunrise, or when wind speeds drop below a specified level.

BEST PRACTICE

Adherence to BCT survey guidelines demonstrates best practice that benefits developers in a number of ways...

- It provides the assurance that the survey effort is proportionate to the risks to local bat populations, enabling accurate predictions of survey costs to build into project programmes
- Developers can be confident that the data collected will be sufficient to allow a robust assessment on potential impacts to be undertaken
- A robust data set about the use of a site by local bat populations can lead to proportionate and cost-effective mitigation strategies to be developed that meet the requirements of planning decision makers and comply with local and national planning policies



BEST ADVICE

This is the view of Atmos Consulting Ecologist Amelia Hodnett, "Wind developers will almost certainly have to consider the potential effects on bat populations, but with the right information these need not be a major constraint, or involve a heavy cost."

Amelia continued, "Our SPIDA application is a highly visual front end that we have specifically developed for our GIS (Geographical Information System). This gives our clients a clear and instantly comprehensible picture of populations and behaviour that is far more useful than a series of tables and charts; and allows us to give the best advice on site design and mitigation."



The consultancy also has experience in assessing potential impacts on bats from the very early stages of a scheme through to planning submission, as well as providing expert witness advice at planning inquiries.

Atmos Consulting

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ALL IN A DAY'S WORK

NAME
Neil Collier

COMPANY
Reef Subsea Integrated Projects (RSIP)

OCCUPATION
Offshore Equipment Manager

HABITAT
Bergen, Norway

COMPANY EXPERTISE

As a global leader in providing specialist subsea services to the offshore renewable and oil and gas industries, Reef Subsea Integrated Projects' scope of expertise ranges from subsea construction, trenching of cables/umbilicals, inspection, maintenance and repair (IMR) and ROV/survey services. I was fortunate to catch up with Neil Collier, Offshore Equipment Manager to find out more about his role within this specialist industry.

THE YORKSHIRE CONNECTION

Having lived in Norway for the past 15 years, I was surprised to hear Neil's dulcet tones were still loyal to Yorkshire (hailing from Sheffield) which goes hand-in-hand with an imitable sense of humour! - Imperative to counterbalance the huge responsibility he has in maintaining all the equipment.

No stranger to offshore life, Neil worked for many years for Fugro, prior to being in the military. He undertook a short stint onshore, but missed the offshore life so he returned and joined Reef Subsea.

ORGANISATION & PLANNING

Neil's role upon commencement of a project is to organise the team, equipment and oversee the constant maintenance of all RSIP's offshore equipment (of which he adds is so much more efficient with the advent of the computer).

Such upcoming projects for RSIP includes the mobilisation of the 750kW Q1000 jet trencher for subsea trenching work on Bøyla with Technip in the early part of 2014, as well as the start of the Grane permanent reservoir monitoring (PRM) project, where RSIP will provide the installation and burial of seismic array cables at the Grane site offshore Norway for client Statoil. Neil's team is also responsible for the equipment support on the ongoing Gwynn y Môr Offshore Wind Farm project, which will see RSIP install inter-array cables in field 13km off the North Wales coast.

The very nature of the beast working subsea presents numerous challenges and each project demands precision planning. Neil was involved in the cable burial and laying of gas pipelines from Norway to Holland, which brought up its own challenges.

Needing to avoid damaging existing pipelines and cables on the seabed, it was necessary to build a bridge across them by placing concrete mattresses, creating a ramp, known as 'building a crossing'. Cables are tested when on the vessel as well as when laying, establishing any foreseen problems prior to laying.

ROV SHIFT

Due to short daylight hours in Norway, shifts are 12 hours (6am - 6pm). First port of call is to check in at the ROV shack for a handover. Connected by an umbilical to a winch onboard the ship, the ROV pinpoints its location on a navigation screen. Precise positioning of the vessel is calculated via satellites (within centimetres).



A sonar from the vessel to the ROV returns a ping, thus mathematically measuring the angle, the amount of time i.e. speed of sound in water (measured constantly) to pinpoint their exact location subsea. A pipeline/structure may be pinpointed by sonar on the ROV and can therefore be avoided.

FLYING THE ROV

Pilots 'fly' the ROV by sitting on a cyber-chair on the vessel, which comprises a joy stick on the arm, feet up in front, and a wall with huge monitors. The vehicles have 360 degrees visibility with cameras built into the arms, on top and below, which tilt up and down.

The ROV also provides sonar allowing clarity up to 200m which is as good as a video. Video with date, time and positional information overlaid is constantly recorded on hard drives and is known

as the Black Box (similar to aircraft). Upon completion of a project the DVD recording, together with a written log is presented to the client and includes cable laying detail e.g. time/date/depth etc.

THAT SHRINKING FEELING!

All of RSIP's ROVs have the capability of reaching 3000m, ambient pressure increases by one Bar per metre of depth. The phenomenal

pressure at such depths is illustrated by installing a polystyrene cup in the ROV. Having reached just 2000m and returning to the surface, the cup had shrunk to the size of a thimble! Quite a thought!

At such depths visibility can be very poor, with the seabed being disturbed by cable laying or even by fish. In fact Neil goes on to say fish create quite a challenge, predominantly bottom-feeders like cod.

SEABED SURVEYS

Many projects require seabed surveys. Imperative when planning installations subsea, likened to a lunar landscape there are hazards to overcome. Neil goes on to mention that at Ormen Lange, the seabed is very strange. During the ice age a huge chunk of Norway broke off and fell into the sea, known as the Storegga slide, leaving a huge underwater mountainous range - large blips on the sonar with that one!

Other high technology, such as multi-beam echo sonars, assist in surveying the seabed. These in simplistic terms are 60 'fingers' of narrow beams which illustrate/profile the seabed and illustrate the topography. Fibre Optic Gyros (FOGs) are used to calculate the altitude and heading of the ROV.

TAXIS!

ROV's are configured to be 'taxis' to take and operate tools and sensors to the depths.

All the data collected is date and time stamped then transmitted to the surface using Fibre Optics. However, latest developments are to reduce the subsea processing and do all this on the surface - the technology is ever-evolving.

It was a delight to speak to Neil, his modesty, dedication and enthusiasm is infectious!

Floss Chaffer
Interviewer
Wind Energy Network

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= [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 support. A more detailed listing is available online.

SCOTTISH RENEWABLES OFFSHORE WIND & SUPPLY CHAIN CONFERENCE, EXHIBITION & DINNER

WHEN 28 – 29 Jan 2014
WHERE Aberdeen
CONTACT www.scottishrenewables.com

WINTERWIND 2014

WHEN February 11 – 12
WHERE Sundsvall, Sweden
CONTACT www.winterwind.se

WIND ENERGY ASIA 2014

WHEN 19 – 21 February
WHERE Jeju, Korea
CONTACT www.gwec.net/wind-energy-asia-2014

RENEWABLEUK WAVE & TIDAL EVENT

WHEN 26 – 27 February
WHERE Belfast, UK
CONTACT www.renewableuk.com

EEEGR SNS 2014

WHEN 5 – 6 March
WHERE Norwich, UK
CONTACT www.eeegr.com

EWEA – ANNUAL EVENT 2014

WHEN 10 – 13 March
WHERE Barcelona, Spain
CONTACT www.ewea.org

SCOTTISH RENEWABLES ANNUAL CONFERENCE 2014

WHEN 18 – 19 March
WHERE Edinburgh, UK
CONTACT www.scottishrenewables.com

IWEA ANNUAL CONFERENCE 2014

WHEN 27 – 28 March
WHERE Dublin, Ireland
CONTACT www.iwea.com

NZ WIND ENERGY CONFERENCE & EXHIBITION 2014

WHEN 14 – 16 April
WHERE Wellington, New Zealand
CONTACT www.windenergy.org.nz

AWEA WINDPOWER CONFERENCE & EXHIBITION 2014

WHEN 5 – 8 May
WHERE Las Vegas, USA
CONTACT www.awea.org

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Issue 21 (editorial deadline 5th January 2014)

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- **LEGAL EAGLES**
Sponsored by Andrew Jackson
- **SPOTLIGHT ON STOKE-ON-TRENT & STAFFORDSHIRE**
Sponsored by Make it Stoke-on-Trent & Staffordshire
- **PROBLEM? – SOLVED!**
– SPONSORSHIP AVAILABLE
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CHANGING THE LANDSCAPE FOR WIND FARM DEVELOPERS

Detecting aircraft flying over wind turbines is a huge and growing problem – and one that current air traffic control radar systems are unable to solve. The inability of these systems to distinguish between flying aircraft and moving wind turbines means that air traffic controllers are often left with a patch of airspace above wind farms where they lose sight of aircraft, creating ‘no-go’ zones around airports which affect the safety and efficiency of airport operations. This has a knock on effect for wind farm developers as airports and other ATC radar sites can object to proposed wind farms, making it increasingly difficult for them to be built.

SOLUTION

However, radar technology is now available that has the ability to solve this issue and to ensure that wind farms and the aviation industry can co-exist. British technology company Aveillant has developed 3D Holographic Radar that has been independently tested and proven to provide an effective solution to the problems. It not only distinguishes between wind turbines and flying aircraft, but improves general visibility for air traffic control both inside and outside the wind farm – paving the way for safer air traffic management as well as development of more wind farms.

PROBLEMS WITH AIR TRAFFIC CONTROL RADAR SYSTEMS

A typical air traffic control radar works like a lighthouse, sweeping the surrounding environment every four seconds and providing an intermittent trail of an aircraft’s flight path. The radar systems in use today only provide range and bearing information about the location of an aircraft (or more accurately a radar ‘return’) and not its altitude, meaning it cannot distinguish between moving turbines and aircraft. These problems are compounded by the issue of additional ‘clutter’, which can be caused by a range of objects including buildings, clouds, moving vehicles and terrain.

When built in the line of sight of air traffic control radars, wind farms create a great deal of interference or ‘clutter’ that can adversely affect the air traffic controller’s view of the surrounding airspace. To the air traffic controller, the tips of wind turbines can appear like aircraft on the radar display and the resulting radar returns can cause confusion between blade rotations and real aircraft. These returns or ‘false plots’ caused by the wind turbine can also generate the effect known as ‘track seduction’ on radar screens. Track seduction is when the false plots generated by the wind turbine create a false track for an aircraft. The turbines can also create a radar ‘shadow’ behind the wind farm, meaning that air traffic controllers could miss aircraft over large areas of air space. Overall, wind farms can create a large amount of uncertainty in the air traffic picture and a solution is needed to benefit all parties involved.

IMPROVING THE PICTURE FOR AIR TRAFFIC CONTROL

The 3D Holographic Radar technology offers a major advance in surveillance radar. As opposed to ‘sweeping’ around every four seconds, it uses flat panel, phased array technology that identifies and differentiates every moving object’s signature by constantly measuring all the detailed characteristics of every individual radar return, providing a continuous and clear view of airspace. Not only does 3D Holographic Radar remove the turbine clutter from the display, but it increases the detection probability of aircraft both inside and outside the wind farm environment, increasing air traffic safety as a whole.

PROVEN TECHNOLOGY

The technology has now been independently proven to clearly distinguish between wind turbines and aircraft, exceeding recommended targets set by aviation authorities. Experts in air traffic control, Helios, conducted analysis of Aveillant’s 3D Holographic Radar in trial operation at Glasgow Prestwick Airport. The team found that the solution had a probability of detecting aircraft of greater than 99% and a ‘false plot’ rate of less than 2%. It also did not lose any aircraft tracks once detected. This greatly exceeds the CAA and Eurocontrol safety recommendations and was found to give air traffic controllers a consistent and accurate view of the aircraft the entire time it is in the vicinity of the wind farm and also its shadow.

3D HOLOGRAPHIC RADAR TECHNOLOGY TAKING OFF

Following successful trials at Glasgow Prestwick Airport, Aveillant is now in talks with many airports and wind farm developers and is currently in the process of obtaining a full Safety Case which will be assessed by the CAA. It has come a long way since Cambridge Consultants first began working on radar in 1980, when the initial focus was on short range radar systems specifically designed to provide maximum information on targets in a volume of interest. Aveillant was spun off from the business in October 2011 and since then 3D Holographic Radar Technology has been trialled and tested to great success. Having gained industry approval and independent verification, 3D Holographic Radar Technology is now set to revolutionise the renewable energy industry – and improve air traffic control and aviation safety in general.

BENEFITS FOR WIND FARM DEVELOPERS

- The technology is scalable and has no moving parts. It can be deployed at the airport or at the wind farm, onshore or offshore, meaning there are no range limitations
- There is no limit to the number, type or layout of wind turbines that can be mitigated
- The 3D nature of Holographic Radar (HR) means that data from one HR installation can be fed to multiple surveillance radars, a cost effective solution in situations where there are multiple aviation objections
- The air traffic picture delivered by 3D Holographic Radar over the wind farm is clearer than the standard Primary Surveillance Radar (PSR), meaning that the overall air picture for the airport is improved
- Start-up costs are generally much lower than for a complete new radar at an airport
- 3D Holographic Radar is in line with future CCA plans for surveillance radar and spectrum – it is fully future proofed
- Aveillant’s service model eliminates the issue of ‘who finances the new radar’. Instead developers pay only for the MW to be mitigated
- Holographic Radar solves the radar clutter problem at source, so it is rapid to install and integrate, meaning reduced project risk.

Aveillant

[Click to view more info](#)



 **AVEILLANT**

MAKING THE NEW HUMBER OFFSHORE WINDFARM SAFER

Hydrosphere has been chosen to supply lights and buoys for the new Humber Offshore windfarm.

Developed by E.ON, construction has begun at the 24.8 sq km site off the coast of East Riding, with the windfarm due to come on-stream in 2015.

LOCATION

The easterly and southerly boundaries to the 73 turbine site which will produce 219MW in capacity are bounded by the shipping channels leaving the Humber estuary. The northern boundary runs parallel to existing pipelines running into Easington.

FLEXIBILITY

The flexibility of Hydrosphere's service was fully utilised with five buoys initially rented while five bespoke buoys were being built. "Our rental facility provided a great short term solution for E.ON," said Hydrosphere MD, John Caskey. "According to the wind farm consent, buoys needed to be onsite for four weeks before vessels were allowed to start work."

HIGH VISIBILITY TOWERS

In addition to the buoys – Jet 9000QI with high visibility towers consisting of two East, two West and one South Cardinal – Vega VLB-36 stand alone LED lights were also purchased from Hydrosphere.

THE HYDROSPHERE SYSTEM

The system incorporates iridium monitoring on each buoy, developed by Hydrosphere to provide peace of mind for windfarm operators.

The system provides operators with the ability to check buoys have not drifted, the light is working and the power system is operating correctly. The buoys have been deployed in water varying between 25m to 30m deep with moorings – chains, swivels and shackles.

DEPLOYMENT

The rental buoys were initially deployed by Briggs Marine with Trinity House using THV Galatea removing the rental buoys and deploying the permanent buoys. Hydrosphere also supplied a basic set of spares.

The rental service was introduced to accommodate companies needing lights and buoys for short term projects and has proven popular with the company's wind farm customers including SCIRA, the developer of Sheringham Shoal Offshore Wind Farm. Earlier in the summer the company extended its rental of eight JET 9000 Q HV navigation buoys used to mark the site.

BESPOKE CONTRACTS

"Contractors often need temporary navigation aids for short-term, project based deployments, marking sites while construction is underway. We've designed our rental service to be as flexible as possible for our customers with a minimum rental contract of just three months."

COST-EFFECTIVE SOLUTION

Manufactured by Mobilis, the JET 9000 buoys provide a robust and cost-effective solution for offshore and deepwater applications, especially where high visibility is a must. As with all Mobilis buoys in the JET range, they are constructed from UV stabilised polyethylene components to withstand harsh sea conditions with colour retained within IALA guidelines for more than 15 years.

Hydrosphere



IMPACT OF WIND TURBINES ON RADAR

Turbines have the potential to affect radar and navigation systems because they interact with electromagnetic signals. This can impair the effectiveness of the system by altering the desired interaction of the signal with its target (in the same way walkie-talkies are ineffective if a building is in between them).

CONCERNS

When wind farms are proposed, they can present a risk to radar and navigation systems in their vicinity. This often leads to objections from stakeholders such as airports, the Ministry of Defence and the Met Office. Concerns over safety risks can delay projects at various stages within the planning system.



IMPORTANCE OF RADAR

Radar systems are used for navigation purposes across a wide range of industries worldwide. Radar is most commonly associated with aviation, where it plays a crucial role in detecting and managing aircraft movements. However, radar is also important for marine operations, where it is utilised for navigation and collision avoidance.

TECHNICAL DIFFERENCES

Meteorological radar networks monitor and predict weather patterns. There are numerous technical differences between radar types according to their function. However, the basic operational principle is common to all types. Electromagnetic pulses are emitted by the radar itself, these propagate through the atmosphere where they interact with the target of interest (e.g. aircraft, ships, or raindrops). Pulses that return to the radar following this interaction tell the radar operator something about the target (e.g. its proximity, velocity or direction of travel).

OTHER NAVIGATION SYSTEMS

There are other types of navigation systems that rely on electromagnetic signals to communicate information about a target. These include Instrument Landing Systems at airports, navigation beacons and radio communication stations.

AVOIDING ISSUES

In order to avoid issues, it is important that the potentially affected radar and navigation infrastructure is identified. Early consultation with the relevant stakeholders combined with reliable modelling of the issues is the best way to avoid issues or identify mitigation requirements and stop wind projects being derailed by these impacts.

Pager Power

AVIATION GUIDANCE FROM THE UK CIVIL AVIATION AUTHORITY

“...the aviation community must engage positively in the process of developing solutions to potential conflicts of interest between wind energy and aviation operations.... Those involved in addressing wind energy and aviation issues must do so in a positive, co-operative and informed manner.” (from the CAA’s published guidance)

In the medium to long term, within the context of the Government’s intention to release surplus public sector spectrum, the CAA is assessing the feasibility of emerging technologies to meet the safety and operational requirements of a future surveillance environment. A key element of this work is to identify the feasibility of delivering a strategic solution to the impact



assistance to planning authorities when assessing whether aviation arguments are considered, supportable and reasonable, in order to facilitate a fair process.

We strongly encourage early engagement by all parties to enable understanding and assessment of the issues and mitigation techniques. Our ultimate aim is to promote a positive influence with regards to wind energy and aviation being able to co-exist rather than conflict.

AVIATION EFFECTS

The development of sites for wind turbines have the potential to cause a variety of effects on aviation. These include (but are not limited to)...

- Physical obstructions
- The generation of unwanted returns on Primary Surveillance Radar
- Adverse affects on the overall performance of navigation equipment turbulence.

SUMMARY DOCUMENT

The CAA have published a summary of the issues that planners and developers should consider when assessing the impact of a proposed wind turbine development. This guidance is also designed to enable aerodrome operators and Air Navigation Service Providers to provide expert interpretation of what the impact will be on their operations, and how it will affect the safety, efficiency and flexibility of their specific operations. The document discusses the various mitigation measures available, providing a descriptive overview and an analysis of the different techniques.

GUIDANCE UPDATES

The CAA regularly update their advice to ensure it remains relevant and balanced and contains the latest information and most accessible explanations with regards to the effects and mitigation techniques. The aim is to ensure a positive approach to mitigation and the ability to overcome aviation issues. This includes new information on the next generation offshore wind developments - the scale of which is likely to increase in the coming years requiring additional considerations for stakeholders.

Sqn Ldr Kelly Lightowler,
Surveillance Operations Specialist
Civil Aviation Authority

BALANCED APPROACH

The CAA tries to promote a balanced approach to wind energy to enable the UK to meet Government renewable energy targets, whilst ensuring aviation issues, particularly safety concerns, are addressed.

RESPONSIBILITY

The CAA is responsible for safety regulation of civil aviation in the UK. On that basis, they have an obligation to provide assistance to aviation stakeholders to help them understand and address wind energy-related issues. However, it is acknowledged that other users such as planning authorities, wind energy developers and members of the general public may also need our advice.

of wind turbines on radar systems, thereby reducing the obstacles to wind turbine planning.

PROVIDING POLICY AND GUIDANCE

Our purpose, then, is to provide policy and guidance on a range of issues associated with wind turbines and their effect on aviation that will need to be considered by all interested parties when assessing the viability of wind turbine developments. The CAA does not routinely object or support planning applications for wind turbines and would not seek to unfairly influence the planning process. In addition, we cannot provide an arbitration service. Rather, we are able to offer regulatory advice and guidance to all stakeholders and impartial

WARNING TECHNOLOGY FOR OFFSHORE MET MASTS

Tideland Signal, the international specialist in aids to navigation, has launched a comprehensive integrated package of warning systems specifically designed to mark meteorological masts in offshore windfarms.

COMPLETE PACKAGE

The complete package includes both aids to navigation (AtoN) to warn shipping in the vicinity and also aircraft obstruction lights (AOL), all compliant with the relevant IALA (International Association of Lighthouse Authorities) and the UK’s DECC standards (Department of Energy & Climate Change).

As the leading OEM in its field, Tideland is also able to offer consultancy services, commissioning, training and applications engineering for specific user requirements. In addition, all equipment can be configured for solar power operation using photovoltaic panels and batteries engineered by Tideland’s subsidiary Tideland Power Systems.

Nova-250 which projects a 360 degree, high-intensity horizontal beam over a range of more than 15 NM at a transmissivity factor of 0.74.

The smaller Nova-65 may be used when ranges below 10NM are specified.

SOLAR POWER OPERATION

Manufactured from a marine grade of rugged, corrosion-resistant housing, these new lanterns combine low-maintenance, high reliability, advanced optics, power-conditioning circuitry and high-intensity LEDs, making them highly suitable for solar power operation. If required, an AtoN panel with back-up batteries and volt-free contacts for SCADA may also be included.

Standard features include side-lobe suppression, proportional scaling and normal traffic power consumption of only 0.75W, with a heavy traffic maximum of only 1.06W. The Tideland design also offers a high sensitivity of -50dBm in both X-and S-Band, meaning that the units will respond better to weaker interrogation from lower-power radars –or to radars at greater distances/ranges.

AOL ELEMENTS

The AOL elements of the package typically include a medium intensity beacon mounted at the top of the mast and low-intensity red lights, as necessary for the height of the tower, with a control panel and photocell at the bottom. The GPS antenna and Tideland’s type-approved Informer series AIS AtoN (Type 1 or Type 3) are also mounted at this level. The Informer unit broadcasts the position of the mast on which it is located and its status.

MARITIME TRAFFIC

Maritime traffic in the vicinity of the asset may also be monitored using the highly flexible Tideland AIS Viewer, TSD, on to which reporting lines and virtual exclusion zones can be easily configured.

As well as tracking all AIS fitted vessels, this also features a high-capacity recording database using the Tideland NavTerm system allowing easy access for historical, revenue or security purposes.

GENERAL MARKING FOR OFFSHORE WIND FARMS

With successful installations around the UK, Tideland Signal also has proven equipment and systems for the compliant marking of the offshore sub-station and the complete wind farm – in accordance with international and national authorities – both Temporary AtoN for the construction phase, and Permanent AtoN for the operational phase.

Tideland Signal



SPECIFICATIONS

The main AtoN items in the package are Tideland’s benchmark SeaBeacon 2 System 6 radar beacon, AB-560 fog signal, fog detector, Tideland Informer AIS broadcasting information to shipping and the latest generation LED marine lantern,

SEABEACON 2 SYSTEM 6

This racon most widely specified by name across the world, due not only to its technical capability, but also to the exceptional reliability and minimal maintenance requirements enhanced by the design’s inert gas protection system.

LIGHTWAVE RADAR AFTER FIVE YEARS IN THE MAKING, WIND TURBINE CLUTTER IS NOW OFFICIALLY OVER



In 2008, C Speed took a clean sheet of paper and designed a radar system to mitigate wind turbine clutter for the benefit of airports and wind developers in the United Kingdom.

Its engineering team focused on meeting the stringent requirements of governmental aviation regulators, commercial airports, and military aerodromes. In addition, while it would incorporate state-of-the-art technology, it would still need to be affordable for its aviation customers to acquire, integrate, operate and maintain - including many that were anticipated to originate from the wind development community where radar technology was unfamiliar territory.

LIGHTWAVE RADAR

After months of work the team agreed on a set of requirements that would result in an S-band, solid state, primary surveillance radar that would employ a traditional scanning antenna array. LightWave Radar was born.

In May 2013, nearly five years after setting out to design and build the world's first wind turbine clutter mitigation radar system, C Speed delivered, under contract, the first LightWave Radar production system to Manston, Kent's International Airport. Today, it remains the first and only mitigation radar system that does not require terrain screening that has been purchased, installed, and integrated in the United Kingdom.

INDUSTRY STANDARD

The team's decision to design a traditional scanning radar that operates at S-band was driven by the fact that it continues to be acknowledged as the industry's standard. It has been globally adopted for over sixty years by aviation customers around the world. As well, it is the most cost-efficient and least susceptible to jamming than any other type of radar.

S-BAND OPERATION

By operating at S-band, impacts from weather such as rain and snow are negated while X-band systems are significantly degraded. As well, X-band is not recommended for use at an airport location per the UK's Civil Aviation Authority's guidance on terminal surveillance.

OTHER TECHNOLOGIES

While some other radar providers in the market have attempted to adapt other radar technologies to the wind turbine clutter mitigation market, they have not seen success for several reasons. Firstly a 'flash bulb' type radar, one that transmits an omni-directional beam with multiple 'listening' or receive beams is designed to just look up from within a windfarm.

This involves locating one radar in each windfarm which generates a much higher cost, is handicapped by a severely limited range of only 5 nautical miles, and is massively challenged by requiring the airport to accept multiple data feeds which is highly undesirable.

It is also one of the most easily jammed radars that exist.

Another X-band provider has resorted to 'blanking' techniques to remove clutter where turbines are present, however, this creates holes in the coverage volume. And, as such, seems unlikely to be accepted by the regulators as you must demonstrate predictable performance.

SUMMARY

Today, with multiple installations in the United Kingdom and the United States, LightWave Radar is now allowing airports and wind developments to co-exist as was planned five years ago. With LightWave Radar, the issue of wind turbine clutter is now officially over.

**David Colangelo
C Speed**

[Click to view more info](#)

[▶ = Click to view video](#)

SAFETY TECHNOLOGY TO DELIVER RENEWABLES TRAINING TO SCOTLAND

RenewableUK approved training provider Safety Technology Ltd recently became project partners on the Energy Skills Partnership (ESP) drive to deliver demand-led training to the Wind Energy sector in Scotland.

COLLEGE COLLABORATION

The ESP is a collaboration of colleges across Scotland, with the main aim of establishing a high performing energy community. A new strategy focusing on pooling expertise and resources in the region will see industry specialists working together with the ESP to offer the qualifications needed for individuals to work on wind farms, onshore and offshore, across Scotland.

MARINE & WIND TRAINING NETWORK

This newly formed Marine and Wind Training Network has established 3 centres in the North, East and West of Scotland.

Safety Technology Ltd, a leading safety training provider for the Renewables sector, based just below the border in Tyneside, have been selected as training project partners for operations in the West of Scotland, centred in Dumfries.

RESPONSIBILITY

The UK based safety specialists will be responsible for the safety training aspect of the Marine and Wind Training Network, delivering industry required courses such as RenewableUK Work at Height and Rescue and Global Wind Organisation Basic Safety Training.

WORKING GROUP

By working with Industry to identify demands, ESP have created a working group which will ensure the Scottish Energy sector is supplied with the provisions needed for a fully skilled workforce.

Bob Dickens, Managing Director of Safety Technology Ltd said of their involvement in this new project from Energy Skills

Partnership in Scotland "We are delighted to have been selected to work with the prestigious partners on this programme and look forward to supporting this ground breaking training initiative."

VIALE CAREER CHOICE

The ESP's drive to develop the capability and capacity of training for this giant industry in Scotland is playing a key role in promoting the Wind Energy sector as a viable career choice for young emerging technicians, and ensuring the economic development of this sector.

TURBINE TECHNICIAN TRAINING

Now, after years in the making, this industry recognised Turbine Technician training will soon be available for individuals to take from colleges across Scotland.

Safety Technology Ltd are currently providing the accredited safety courses which will be part of this new training from their RenewableUK and GWO facilities across the UK, Ireland and US, with facilities in South Wales, Great Yarmouth, South Shields, Blyth, Killybegs and Michigan.

Safety Technology Ltd



L-R, Safety Technology Ltd's Technical & Business Development Manager Ben Williams and General Manager of Operations Mike Dickens

COHESIVE TRAINING PROGRAMMES



The dramatic growth of the offshore renewable energy sector has brought with it a steep increase in the number of people working in the industry and whose training requirements must be met.

It has taken time for the combined needs of industry and individual to come together in one cohesive training programme that gives them the skills and insight to work safely anywhere – both UK and worldwide.

COMBINED STRENGTHS

Renewable UK and Global Wind Organisation (GWO), whose training programmes have until now been mutually exclusive, have combined their strengths to create an accredited programme which will greatly benefit those whose careers depend on being able to work without geographical restriction.

NEW TWO-DAY COURSE

A new two-day course, which South Tyneside College's Tyne-based Marine Safety Training Centre (MSTC) is accredited to deliver, provides key qualifications for those looking to work in the sector and specialisms such as windfarms.

Devised by Renewable UK/GWO, it provides basic safety training and competence while addressing significant health and safety issues that relate to vessel transit and transfer under the requirements jurisdiction of European UK health and safety law. It is intended to ensure a common approach to basic training delivered by an approved training provider under controlled conditions.

HELPFUL INDUSTRY OVERVIEW

The course also gives an overview of the UK and European industry and facilities under construction, with other areas covered, include vessel transfer theory and practical training and vessel emergencies, theory and practical.

The MSTC has run courses by both organisations – Renewable UK's over two days and GWO's one-and-a-half day provision – but the beneficial ripples stemming from this important development of this one course will undoubtedly be felt by the many companies involved in offshore renewables.

PARTNERS

Marine Safety Training's other partners who will play a part include Safety Technology Limited, a Renewable UK and GWO-approved training provider and one of the UK's leading provider of safety training, equipment and health and safety for those working at height.

While their centre, where more than 100 companies and 3,000 students are trained each year, will continue to offer the GWO course, the combined module is an important new addition to a sector where growth continues to pour over the horizon.

Marine Safety Training Centre

MILITARY PERSONNEL CHECK OUT CAREER IN ENERGY

Eighty serving and ex-military gathered at Colchester Football Club recently to explore whether the energy industry would be suitable for a second career.

Ex-military speakers, currently working in the energy industry, recounted their experiences leaving the services and provided advice on how to make the transition as smooth as possible.



Attention! Military and ex-service personnel focus on a possible future career in the energy industry.

SKILLS FOR ENERGY PROGRAMME

The Military Energy Industry Awareness event was organised as part of the Skills for Energy programme, hosted by EEEGR (the East of England Energy Group), and sponsored by Essex Armed Forces Community Covenant.

AIMS

One of the main aims of Skills for Energy partnership is facilitate the access into the energy industry by the service leavers. Executive Director for EEEGR, Celia Anderson, who leads the Skills for Energy programme, said: "The number of service leavers approaching us is steadily increasing. They need advice on how they might fit into the industry and how best to sell themselves."

"Many jobs are secured through people you know and so we help them to build their networks with contacts that can help."

TRANSFERABLE SKILLS

Among the speakers was Ian Moulton, Operations Improvement Manager from Perenco, who spoke about how the equipment used in the energy industry is not too dissimilar to that used in the armed forces. Mr Moulton also highlighted the importance of using their transferable skills, but also demonstrating the ability to learn.

CV WORKSHOP

Also speaking was Kip Morton, Director for Forces4Energy who facilitated the CV workshop that took place in the afternoon.

"This was an excellent opportunity for experienced and motivated ex and serving military to gain valuable insight into the energy industry directly from those who work within the sector," he said. "It is rare to get an opportunity to discuss your own CV, skills and capabilities in an open forum such as this and it has proved invaluable to the service leavers."

**Skills for Energy
EEEGR**

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BOSCH UK OPENS NEW £1.2 MILLION STATE-OF-THE-ART NORTHERN FACILITY

Bosch UK has opened its new state-of-the-art facility designed to provide a single northern location for Bosch, which combines Bosch Rexroth, its industrial drives and controls company, and Worcester, Bosch Group, its heating and hot-water solutions company.

A major investment in the region by the global supplier of technology and services, this new facility will form part of the group's drive to provide enhanced service and support to the northern customers.

BOSCH COMBINED FACILITY NOW FULLY OPERATIONAL

The new facility, located at Devilliers Way in Normanton, near Wakefield, consolidates three Bosch sites in the North of England into a single location. The facility, built on a 3.6 acre site, equivalent to two football pitches, will provide customer service and support to its Bosch Rexroth mechanical engineering customers and training to its installers in the heating and hot-water sector.

Bosch Rexroth will design and manufacture hydraulic systems for many industry sectors, including marine, offshore and bulk materials handling, at its state-of-the-art Wakefield site. The site will also be a base for hydraulic training and courses which will be run throughout the year.

It has a fully equipped workshop and test site, to service and repair hydraulic equipment, both at the site and in the field, for customers in the UK and overseas.

DESIGNED TO BREEAM STANDARDS

The Wakefield facility, which has been built to BREEAM (Building Research Establishment Environmental Assessment Method) standards, the world's leading design and assessment method for



sustainable buildings, includes a 21,150 sq ft workshop; a 9,300 sq ft training area, including seminar rooms and office space.

In order to comply with BREEAM standards, the facility has been designed to minimise energy use through thermal loss, and includes a high efficiency boiler; intelligent low energy lighting systems, and motion sensor taps which reduce water consumption and wastage.

Opening Bosch's new site in Wakefield Mr Peter Fouquet, President of Bosch in the UK, commented: *"This new facility is a major investment for Bosch and represents not only our commitment to the region, but is also part of our continued drive to provide enhanced service and training to our customers. This new addition brings the total number of Bosch sites in the UK to 42.*

"At Bosch we are truly committed to skills development of the workforce and that is why we want to continue to invest in the UK, especially when it comes to service and training."

He continued: *"The opening of this site reaffirms our commitment. At the heart of the new facility is training and support for our customers. Whether our customer is a mechanical engineer, an installer or an apprentice at the very start of his or her career, this new facility will provide the comprehensive training and support programmes, which make a major contribution to an individual's professional skills development."*

MAJOR INVESTMENT

Mr Fouquet concluded: *"Our aim at Bosch is to pass on our knowledge and expertise to our customers, through our products and our after-sales support. I am delighted to open this new facility which combines our commitment to customer support and environmental sustainability in one location."*

EXPANSION DRIVE

This new site is the latest addition to Bosch's expansion drive in the UK. The company recently opened two engineering sites in the Midlands for its automotive business and another site in Uxbridge, Middlesex which is dedicated to providing training to the automotive aftermarket sector.

Bosch Rexroth

[Click to view more info](#)

[▶ = Click to view video 1](#)

[▶ = Click to view video 2](#)



Facility opening ceremony (L-R) Councillor Jacqueline Williams, Graham Rowell – Finance Director, Bosch Rexroth, Roger Marsh - Chair of Leeds City Region Local Enterprise Partnership, Peter Fouquet – President of Bosch UK and Carl Arntzen – Managing Director of Worcester, Bosch Group.

THE IMPORTANCE OF COMMUNITY ENGAGEMENT IN THE ENERGY SECTOR

For those of us working in the energy sector, there seems to have been a continued focus from both politicians and the business press on the industry for some time. In recent weeks however this focus has become more intense and reached a more mainstream audience, as coverage increases.

Rarely a day goes by without a news headline or political debate on cost, security or perceived failings in the market. Renewable energy often finds itself centre stage of the debate, with the usual pros and cons being aired. And this scrutiny will undoubtedly increase interest in projects at both a national and local community level.

ENGAGING WITH THE COMMUNITY CAN BE DIFFICULT

Engaging with the community can be a difficult, time consuming and resource heavy process, whether it's for a small scale renewables project, or for large scale offshore wind turbines or the manufacturing infrastructure required for these. Polarised views often prevail even in projects that bring great economic benefits to a community.



WINNING SUPPORT

Every project will bring its own challenges, but trust within an organisation and its responsible representatives are an essential ingredient for any project to find support within a community and overcome resistance. An organisation whose brand is trusted will have certain advantages to those either unknown or with poorer reputations.

BUILDING TRUST

Building trust means bringing local engagement into a broader corporate responsibility framework that considers the community, workplace, marketplace and environment, complete with appropriate, demonstrable governance structures. It also means being open and honest on the economic, environmental and social impacts to present a balanced and fair view that ultimately can be verified.

STRATEGIC LONG TERM THINKING

It's also important to think longer term, not just for the life of the project build, but continuing the dialogue on the benefits or impact that continues over the life of the site/assets and for the wider organisation itself. Previous projects that clearly show the continued benefits to a community provide useful reference points and advocacy for future plans and projects.

The result is a need to think more strategically about community engagement and how it can be supported by the broader, corporate responsibility or sustainability strategy. Too often community engagement gives the appearance of a short term, bolt-on procedure. Focus should also be given to setting up the governance, systems and process before any engagement happens, which will enable longer term collaboration, communications and integration. Road mapping and stress testing the likely impact and responses of your projects and communications should also be a priority well in advance of engagement.

Rich Hall
Northern Head of Sustainability
PwC



COMMUNITY CONSULTATION A TICK BOX EXERCISE?

‘The applicant of a proposed Nationally Significant Infrastructure Project (NSIP),must where relevant make diligent inquiries, carrying out their own investigations and taking their own legal advice, as appropriate. It is the responsibility of the applicant to ensure that their pre-application consultation fully accords with the requirements of the 2008 Act,’
(Advice Note Three version 5, The Planning Inspectorate. July 2013)

INCREASING REQUIREMENT

Consultation is now becoming an ever increasing requirement for both national and local planning applications. This includes both statutory and non statutory consultees as well as the host communities for a given project.

Decision makers put clear emphasis on consultation both through planning policy requirements but also through the inclusion of a consultation report as part of the suite of planning application documents. This document provides a timeline of your consultation but also how views of stakeholders and communities have been incorporated into proposals.

VITAL CONTRIBUTION

Community consultation has often taken a back seat when developers are progressing a planning application. However Royal HaskoningDHV believe that community consultation can make a vital contribution to the development of a successful planning application by considering the interests of affected parties, encouraging debate and explaining the benefits and appropriateness of the development.

PROMOTING TRANSPARENCY

Good consultation promotes transparency about project decision making. This provides a platform for accountability and helps establish trust between the developer and local communities. For consultation to achieve these desirable outcomes, it should be started at the beginning of the project lifecycle.



At each stage of consultation it is important communities need to understand their role and how their views are incorporated. Failure to consult, or doing it effectively, can harm relations between the developer and local community, this could impact achieving consent for the development.

KEY FEATURES OF EFFECTIVE CONSULTATION

There is no official guidance of what is best practice for community consultation, but Royal HaskoningDHV has a proven track record in effective consultation...

- **Programme consultation** – consult early, consult when you have something to say. Work with the project team to ensure information will be available for each consultation stage
- **Ownership** – the community should feel that they have ownership of any Community Consultation activity including a sense of participation where possible
- **Flexibility** – allow yourself to approachable & work with communities
- **Transparency** – consultation processes should be open and transparent, with clear objectives that are reported
- **Resources** – consultation processes should be adequately resourced, both by project personnel but also written material suitable for the audience

CONSULTATION FATIGUE

Consultation fatigue can occur, especially for a NSIP where the development programme can be protracted, with several required consultation stages built in. This further underpins the need to plan each consultation event providing adequate information to help stakeholders understand the key issues, and setting appropriate response times can all help to reduce fatigue.

It must be noted that often consultation over a lengthy period of time can be frustrating for local communities. It is therefore important expectations are managed to ensure all consultation events achieves its objective by clearly explaining its purpose prior to the event commencing.

COMMUNITY BENEFIT

A clear benefit of community consultation for NSIP is the requirement of developers to produce statements of common ground with affected interested parties. If engagement has occurred throughout the pre-application stage this can allow for these to be easily produced and also for quick agreement between the developer and the consultee.

This can save time during the lead up to planning submission and for NSIP during the examination phase, when resources are stretched and time is short.

INFORMATION AND COMMUNICATION

It is important to remember, consulting with the community does not necessarily mean that views have to be accepted or incorporated into a proposal. The purpose of consultation is to help inform communities about proposals and to obtain feedback. In a lot of cases it can save time and money by obtaining information first hand and in a more direct manner.

David Morgan
Royal HaskoningDHV

[Click to view more info](#)

PROVIDING SPECIALIST PLANNING AND ENVIRONMENTAL INPUT TO COMMUNITY WIND ENERGY PROJECT

Leading environmental firm SLR Consulting has been working with Valley Wind Co-operative Ltd to develop a community based wind energy scheme, near Slaithwaite, West Yorkshire in the UK.

The project will generate around 18 million Kwh of renewable electricity a year, the same amount of energy used by the local community. The low-carbon scheme will also save over 10,000 tonnes of carbon dioxide per year.

COMMUNITY-BASED CO-OPERATIVE OWNERSHIP

The development will be owned by the community-based co-operative and will include a significant community fund to fund other local projects.

SLR provided advice and guidance on the development of the planning application and Environmental Impact Assessment to the Co-operative including carrying out ecological, hydrological, transport, shadow flicker and cultural heritage assessments as well as preparing the Planning Statement.

CONSULTATION EVENT

The company also played a key role in pre-planning application submission discussions with the local planning authority and other stakeholders. This included a two day public consultation event, held in Slaithwaite, which was attended by almost 200 people. Attendees were asked whether they would support the community scheme of which a substantial 91 percent of respondents indicated that they would.

SLR Project Manager Clive Fagg said: *“This project is a great example of what an enthusiastic and highly organised local community can achieve. Community renewables is a key aspect of the Government’s energy policy and one which we see being a major growth area in 2014 and beyond. The project further strengthens SLR’s rapidly expanding list of community renewables project experience throughout the UK and Ireland.”*

PROFESSIONAL SERVICE

Steve Slator, Chair of Valley Wind Co-operative Ltd, said: *“SLR Consulting has provided a professional service to guide Valley Wind Co-operative through the planning and EIA process for our wind energy project. SLR has always been on hand to provide clear and concise support for us as people with limited experience of wind energy and the planning process.”*

SLR Consulting



ENERGI COAST

A VISION TURNS INTO REALITY

Energi Coast is the representative group for the North East of England promoting the extensive offshore renewable energy sector expertise from the region and North East England's unique offering to the industry.

The leading offshore renewables supply chain companies in North East England have been brought together by NOF Energy to form the group.

INVESTMENT

Energi Coast members have invested almost £400m to meet the demands of the renewables market. Its members employ 6,000 people in the region, which is forecast to increase by 30% as Round 3 activities gather pace.

Turnover of Energi Coast members is forecast to double to more than £400m in offshore wind, which will have a significant impact on the region's economy and supporting supply chain.

ENERGI COAST PROMOTES...

- The capabilities of regional companies in servicing the offshore renewables markets in the UK, Europe and internationally
- The key competencies of North East England's integrated energy supply chain
- The unique comprehensive 'balance of plant' offering from one geographical location
- Member companies with a strong track-record of collaborative working and a commitment to further strengthening those partnerships to serve offshore renewables

North East England's excellent infrastructure and logistics capabilities enabling it to become a global hub for the offshore renewables sector. Energi Coast also promotes the benefits of investing in North East England to aid the growth of the region's offshore renewables supply chain.

TEES VALLEY UNLIMITED - SPONSOR

We welcome Tees Valley Unlimited as our sponsor and hope you will enjoy the varied contributions from many of the companies and organisations involved in the area.

Tees Valley Unlimited is the Local Enterprise Partnership for Tees Valley – supporting the economic growth and development of Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton on Tees.

CENTRE FOR OFFSHORE RENEWABLE ENGINEERING (CORE)

Identified as a CORE, Tees Valley is a prime location for offshore wind investment with a long track record and strong reputation through delivering large scale projects in oil and gas, ship building, fabrication and decommissioning.

STRENGTHS

Tees Valley's main strengths are in its deep water ports, prime land availability, 12 Enterprise Zone sites and excellent supply chain. Tees Valley also has the world's largest cluster of subsea cabling and trenching companies, plus expert offshore fabrication facilities and port sites ideally located for three of the world's largest offshore wind projects.

COST COMPETITIVE LOCATION

Tees Valley has some of the lowest operating costs in the UK with rents and rates around half that of major UK cities and a quarter of those in London and the South East.

ENTERPRISE ZONES

Tees Valley has 12 Enterprise Zone sites with a total of 423 hectares available for new business investment. 4 sites have Enhanced Capital Allowances up to £100 million and simplified planning. These are South Bank Wharf, Hartlepool Port Estates, New Energy and Technology Park and Wilton International.

SUPPLY CHAIN

Tees Valley is home to over 200 companies in the offshore wind sector, including international sector leads...

- Fabrication – Heerema, TAG Energy Solutions, Wilton Engineering, MTE, AV Dawson
- Subsea – Deep Ocean, Modus, Reef Subsea, JDR Cables, Subsea Innovation
- Nacelle Panels – Millfield Composites

- Logistics – PD Ports, AV Dawson, ALE Heavylift
- Specialist Expertise – MPI Offshore, Tata Steel, The Welding Institute (TWI)
- Skills – Industry training providers including TTE & NETA (technical training), Faraday Centre (high voltage) and Falck Safety Services (offshore survival)

Unmatchable business support is available through Tees Valley Unlimited including the UK's only performance and warranty bond scheme which provides up to 100% of the cash security required for bonds to help local companies bid on the world's biggest projects.

Tees Valley Unlimited

[Click to view more info](#)



ENERGI COAST WELCOMES ENERGY MINISTER TO NORTH EAST ENGLAND

Energi Coast, North East England's Renewables Group, recently hosted a visit from Business and Energy Minister, Michael Fallon MP



THE VISIT, IN PARTNERSHIP WITH THE TEES VALLEY LOCAL ENTERPRISE PARTNERSHIP, PROVIDED AN OPPORTUNITY FOR ENERGI COAST TO BRIEF MR FALLON. IT EXPLAINED THE BACKGROUND OF ENERGI COAST, SHOWCASED THE STRENGTH OF THE REGION'S ENERGY SECTOR, AND HIGHLIGHTED BUSINESS DEVELOPMENT OPPORTUNITIES IN THE AREA.

Q & A SESSION

Following the briefing, there was a question and answer session, which enabled members of the steering group to comment and question Mr Fallon regarding the development of the North East of England's energy sector.

Michael Fallon MP, Business and Energy Minister, said: *"We need to produce more of the energy we require, here in the region. Being able to encourage British firms who are based on Teesside to do so, will be a major step towards achieving this, and could create a centre for the new energy investment we need."*

"There are also export opportunities, we should not just think of the wind farms being built along the East Coast, there is huge potential for firms to do this throughout the globe."

"The sector, supported by the Regional Growth Fund and other financial instruments, has benefitted from the techniques that have been developed in the North Sea for oil and gas exploration. Subsea technology is one of those, and an extraordinary range of technologies are now being applied around the world by British companies."

FALCK SAFETY SERVICES

The visit also featured a tour of Falck Safety Services, based in Billingham, which provide safety training for the offshore industry. Training can be delivered in areas such as offshore survival, medical and first aid, emergency and crisis management, and renewable energy. Among Falck's facilities is a 23.7m wind turbine, this allows for training to accurately replicate real situations, and further reinforces the region's ability to become the destination of choice for offshore wind supply chain activities.

STEERING GROUP

The Energi Coast group, consisting of a steering group of more than 20 companies was created to promote the extensive offshore renewable energy sector expertise from the region and North East England's unique offering to the industry. Steering Group companies have already invested almost £400m to meet demand in the renewables market.

UNIFIED VOICE

Joanne Leng, Deputy Chair of Energi Coast, said: *"The visit from Mr Fallon has enabled Energi Coast to demonstrate the capabilities of its steering group, and the region's strength and ability to serve the offshore renewables industry."*

Energi Coast ensures that the emerging offshore wind sector supply chain has a unified voice when highlighting its capabilities to industry and the Government. The group is just over two years old, and has already played a large part in putting the region on the offshore wind map. In addition to two very successful networking dinners, Energi Coast has appeared at numerous industry conferences and exhibitions, hosted a high profile event in partnership with NOF Energy, and even held a reception at the House of Commons to showcase the region's capabilities."

Joanne Leng added: *"The North East of England's energy sector is well prepared to step up to the mark and provide more of the region's energy needs. Members of our group are experts in the sector, and will be able to utilise their experience and expertise."*

Energi Coast

20 QUESTIONS

WHO ARE YOU?

Damien Murphy,
Technical Director, FoundOcean



WHAT BROUGHT YOU INTO THE INDUSTRY/YOUR POSITION?

After working as a Mechanical Engineer in an office based role I decided I wanted to see some more of the world beyond four walls and offshore was the obvious way to do it.

FAMILY STATUS?

Married 3 months ago. 0 kids, 1 puppy.

WHO IS YOUR HERO AND WHY?

Isambard Kingdom Brunel not necessarily for the things he designed but for the breadth of work he carried out across what would now be considered very different engineering disciplines.

WHAT ANNOYS YOU THE MOST?

Middle lane hoggars.

WHAT WAS YOUR BEST HOLIDAY?

Honeymoon in the Maldives a few months ago.

WHAT WAS YOUR WORST HOLIDAY?

Only the ones I've had to cancel.

WHO WOULD YOU NOT LIKE TO BE?

Any politician. Not a career path I think I could deal with.

WHAT IS THE BEST ADVICE YOU HAVE EVER BEEN GIVEN?

Focus on outcomes, processes are unimportant.

WHAT IS YOUR FAVOURITE SMELL?

Coffee and toast.

WHAT DO YOU DO IN YOUR SPARE TIME?

Tinker with old cars, lift weights and play with my dog.

WHAT SPORT DO YOU PARTICIPATE IN/WATCH THE MOST?

I compete in amateur strongman competitions and I also watch a fair bit of rugby.

WHAT IS YOUR FAVOURITE RECORD/CD/ARTIST/MUSIC?

That changes on an hourly basis! If I'm training then AC/DC and Foo Fighters.

WHO WOULD YOU CHOOSE TO SPEND A ROMANTIC EVENING WITH OTHER THAN YOUR CURRENT PARTNER?

I'm a newly married man! I can't answer that.

IF MONEY WAS NOT A FACTOR WHAT WOULD YOU BUY TOMORROW?

A 1973 Porsche 911 Carrera RS in guards red

WHAT TALENT WOULD YOU LIKE TO HAVE?

The ability to reduce my e-mail inbox.

WHAT PROMINENT PERSON WOULD YOU LIKE TO MEET?

Stephen Fry, would probably be quite an interesting conversation.

WHAT BOOK ARE YOU READING AT PRESENT?

Raising Steam, the latest Discworld novel from Terry Pratchett.

WHAT CAR DO YOU DRIVE?

An old Skoda Fabia VRs as a commuter car and I have an old 1974 MK1 Escort in Ireland that I brought home from Australia with me. It will only be a matter of time before I buy another old BMW as well.

WHERE WOULD YOU LIKE TO BE 10 YEARS FROM NOW?

Still a Director at a much larger FoundOcean and living in a nice house in the countryside with lots of room for old cars and strongman equipment.

FoundOcean

[Click to view more info](#)

[Click to view video](#)

Successful installation at Meerwind

After installing IBC monopiles and IBC transition pieces at the Meerwind Offshore Wind Farm, Seapacks are now installing turbines. To see footage of the installation process please visit seapacks.com/meerwind

+44 (0) 1493 841 400
email info@seapacks.com

BESPOKE ENGINEERING SOLUTIONS FOR COMPLEX OFFSHORE APPLICATIONS

IHC Merwede has been a core member of the offshore wind supply chain for a number of years and can provide developers with a comprehensive portfolio of products and services to meet the requirements of the sector.



developing an offshore access system that actively compensates vessel motions, which can be utilised by maintenance crews or during turbine installation.

Chris Jones, IHC Engineering Business Product Manager for Subsea Vehicles said: *"The broad and complementary range of services available through IHC Merwede offers a real advantage to developers. In addition to accessing IHC EB's products, our customers can utilise a comprehensive collection of suppliers, which can provide an integrated service."*

"Our exceptional experience in carousel manufacture, subsea trenching and cable lay enables IHC EB to be a valuable member of IHC Merwede's portfolio, which also includes,

among others, turnkey vessel solutions, blade installation tools and turbine access platforms."

IHC Merwede

The Group, based in Stocksfield, Northumberland, delivers bespoke engineering solutions for complex offshore applications including pipe and cable lay and subsea trenching. Its solutions are applied across the subsea sector, including the growing offshore wind market that is benefiting from the company's innovation and continual investment in research and design and product development.

The group's cable lay expertise includes its ability to design and build offshore carousels for power cables, umbilicals and flexible products.

HI-TRAQ

Complementing its lay systems is their range of trenching and cable burial systems. The company's engineers have developed a range of ploughs and trenching vehicles to support seabed cable laying activities. Its commitment to continually evolving its technology is evident in its latest trenching innovation, Hi-Traq.

Designed specifically to overcome the challenges of inter-array cable laying for offshore wind farm construction, Hi-Traq will apply next-generation technology that will improve manoeuvrability, traction and overall trenching capability.

SERVICES AND EXPERTISE

These services are an essential element of their products that can be used in foundation installation, turbine installation, cable lay and Operation & Maintenance markets.

The company's expertise includes the design, engineering and construction of vessels and equipment for all aspects of the installation, operation and maintenance of wind turbines. Equipment includes subsea piling templates and hydraulic piling systems used for the installation of monopile foundations.

CAPABILITIES

Among IHC Merwede's offshore renewables Operation & Maintenance capabilities is a range of equipment, including Inspection, Repair and Maintenance (IRM) tools. It is also

WORLD LEADING DESIGN & MANUFACTURE OF REMOTE INTERVENTION EQUIPMENT

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PD PORTS APPOINTED AS LOGISTICS HUB FOR TEESSIDE OFFSHORE WINDFARM

The Port of Hartlepool was appointed by EDF Energy Renewables Ltd as the main logistics hub for the Teesside Offshore Windfarm project in 2011. Located 1.5km off the coast at Redcar, and completed in July 2013, the project now generates enough green energy to power 40,000 North East households.

Since 2012, the Port of Hartlepool, which is owned and operated by PD Ports, saw 27 Siemens turbines and the associated monopiles, as well as transition pieces, pass through the port for installation.

FUNDAMENTAL IMPORTANCE

The extensive available land bank and deep water at the port was fundamental to the delivery of the project. The further provision of dedicated storage and pre-assembly areas for the massive structures with direct access to the load-out quays and on to the North Sea also proved a critical factor in the selection process.

RO-RO FACILITY

Wind turbine components were delivered through PD Ports' ro-ro facility at Hartlepool directly to a 20 acre site occupied by Siemens on the port estate, for pre-assembly work and testing.

Early in 2013 the wind turbines were taken out to site by the MPI Adventure one of the world's largest Offshore Wind Installation vessels, and the project became fully operational in July.

CENTRE OF EXCELLENCE

PD Ports' involvement in the successful installation of the Teesside Offshore Windfarm project further strengthens the position of the Port of Hartlepool and the wider Teesside region as a centre of excellence for the Offshore Wind energy sector. EDF Energy Renewables Ltd has also established the operations and maintenance base for the project under a 20-year contract with PD Ports to be operated out of Hartlepool.

Jerry Hopkinson, PD Ports' Managing Director Bunks and Port services, said: *"The successful completion of this project firmly positions Hartlepool as a major centre for the deployment of wind turbines in the North Sea and we continue to work towards securing further, similar work in this sector as the UK expands its offshore wind capacity."*

PD Ports

Blades being loaded out from the Port of Hartlepool as part of the Teesside Offshore Windfarm Project

MODUS AUV TECHNOLOGY REDUCING THE COST OF OFFSHORE WIND

There has been considerable focus on the subject of reducing the costs of offshore wind and there are a lot of ideas and innovations being presented and discussed.

However, due to a lack of investment these concepts do not always become a reality. Modus Seabed Intervention has, however, brought to market an activity that immediately offers significant savings to developers and contractors.

AUTONOMOUS UNDERWATER VEHICLE (AUV) DIVISION

In 2012 Modus began an investment programme into a planned fleet of AUV units; utilised for survey and inspection across the offshore field development life cycle. In the same year the company launched its AUV division and received its first equipment early summer 2013.

The AUV Division is led by the Richard Hill, The Royal Navy's former Officer in Charge, founder and driving force behind the inception of operating REMUS AUV technology for the UK Ministry of Defence. Richard has brought in his own team of AUV operational experts and the division is now fully operational.

PROJECT SCOPE

Modus has conducted extensive internal trials on the south coast and has recently undertaken a successful project for a windfarm client.

The scope of the project was to provide high definition mosaic imagery of export cables and mattresses in shallow water (less than 10m) within a construction site. The 2 man team operated from an existing infield vessel utilising its spare capacity on a non-interfering basis which proved to be highly successful and cost effective. The AUV surveyed more than 30Km of line survey in just over five hours in-water time.

Offline data processing was conducted remotely. Results from this demonstration have been provided to the end client and has allowed remedial works to be undertaken based on the detailed imagery provided.

OUTSTANDING IMAGERY

Nigel Ward, Commercial Director of Modus Seabed Intervention, said: "This recent



project has clearly demonstrated that this technology provides outstanding imagery, which is not normally available from vessel or ROV mounted systems. This, coupled with the significant savings achievable by deploying the technology during idle or standby time from vessels already operating at the worksite, for example, deploying the system from crew transfer vessels between crew changes, creates a tangible, immediately available efficiency saving for developers throughout the offshore field development life cycle."

Modus Seabed Intervention

CUTTING EDGE CRISIS MANAGEMENT FACILITIES

Falck Safety Services, one of the world's leading providers of safety training and offshore services, has invested more than £100,000 in cutting edge crisis management facilities near its existing training centre at Aberdeen airport.

The six-figure investment, based in Forties Road at Aberdeen Airport provides state-of-the-art training rooms for Major Emergency Management Initial Response (MEM IR), OIM Controlling Emergencies (OIM CE) and CRO Emergency Response. Working with its partner global risk and

emergency management specialists Altor Risk Group the facility features the latest Control Room Operator (CRO) software, which will replicate realistic offshore training situations and control room areas.

INCREASING DEMAND

Falck and Altor are able to offer the most up to date and advanced facilities and qualified instructors to meet the increasing demand for CRO training and assessments. In addition, the investment will continue to provide MEM IR, OIM Controlling Emergencies and CRO coaching and assessments all under the same roof.

With the new facility at the Fire Training Group (FTG) at Aberdeen airport, this will also enable the incorporation of real time scenario training during live exercises with fire teams.

PARTNERSHIP REINFORCEMENT

The investment at the Aberdeen site reinforces Falck's partnership with Altor Risk Group and its and Falck's, joint OPITO accreditations in CRO, MEMIR and OIM training, coaching and assessments.

Colin Leyden, Managing Director of Falck Safety Services, said: "We are pleased to be able to collaborate with a vital partner like Altor as we continue to expand, and improve, our training portfolio in the offshore energy sector."

"Our partnership with Altor reflects our capacity to supply digital control technology to meet the increasingly challenging logistical and workforce training requirements in the offshore energy sector in the region and throughout the world."

Falck Safety Services

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NEW CEO FOR TAG

TAG Energy Solutions has welcomed experienced marine and offshore construction specialist, Stuart Oakley, as its new Chief Executive Officer.

Stuart joins the North East England-based company from an emerging offshore accommodations group in the Netherlands and brings considerable senior executive and management experience from his career in the subsea and deep-water field development sectors.

BACKGROUND

After managing offshore vessels in the North Sea and Canada, Stuart spent 14

years with Subsea 7 in a number of roles working in locations around the world including the North Sea, US Gulf of Mexico, Brazil, India and Asia Pacific region.

In 1990 he joined the Stolt-Nielsen Seaway Group, now part of Subsea 7, holding positions as Managing Director of Seaway (UK) Ltd, Director of the Hyperbaric Centre in Aberdeen and Chairman of Seaway Heavy Lifting BV in the Netherlands.

He was subsequently appointed Managing Director of McDermott Subsea Constructors Ltd before joining Smedvig's FPSO operations in Aberdeen. Subsequent

appointments include Director of Weir Pumps Limited as well as senior executive positions with a number of technology start-up companies using venture capital funding.

Stuart replaces Alex Dawson who recently made the decision to move on from TAG Energy Solutions.

LEADING MANUFACTURERS

The company has become one of the leading UK manufacturers of offshore wind turbine foundations and transition pieces following a £30m investment in its riverside facilities on Teesside.



Currently, TAG Energy Solutions is in the process of delivering 16 monopiles and transition pieces for the Humber Gateway wind farm, which is the first contract of its kind to be awarded to a UK company.

Stuart Oakley said: "TAG Energy Solutions has quickly established itself as an effective operator in the offshore renewables supply chain and I am keen to build on the successes it has achieved. The sector is still evolving, but we are at the forefront of turbine foundation development, which supports the business' growth objectives in the UK and European offshore markets."

REPUTATION

Michael Foster, Chairman of TAG Energy Solutions said: "Stuart's reputation in the offshore industry is second to none and he is a worthy successor to Alex Dawson."

Alex made a significant contribution to the company in establishing TAG as a key player in the industry. On behalf of the board I would like to thank him for his services and wish him every success for the future.

SIGNIFICANT ROLE

"Stuart will play a significant role in helping to grow this business in the future and his expertise in the subsea technology sector will prove invaluable in helping the business achieve its objectives."

TAG Energy Solutions

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Embracing renewable energy market opportunities

JDR has embraced the growing international market for alternative and sustainable energy delivery.

The JDR engineering team has pioneered the development of Inter-Array Power Cables for offshore wind, wave and tidal energy projects. The team has developed renewable energy cable systems for most of the ground-breaking UK projects, including Greater Gabbard and London Array. In 2013 they shipped its first German windfarm project for the Meerwind Sud/Ost development.

DEDICATION

The company's dedication to the highest levels of quality and continuous improvement, developed over many years of providing subsea power cables for deep water oil & gas projects, is fully aligned with the needs of offshore wind farm operators.

RESEARCH AND DEVELOPMENT

Next generation research and development is now focused on high voltage array cabling that will help make offshore wind a more cost-effective and competitive source of power. The research, which is part-funded by the Department of Energy and Climate Change Offshore Wind Components Scheme, will benefit offshore wind developers in a number of Round 3 UK wind farms.

MANUFACTURING BASE

The group's manufacturing base in Hartlepool is on the North Sea coast and ideally situated to supply UK and European wind farms. The facility was opened in 2009 and a £30m+ investment programme has enabled JDR to incorporate the latest developments in cable production capabilities. This includes simultaneous manufacturing lines and large carousel storage.

INSTALLATION SUPPORT

To support installation and long-term equipment ownership, JDR's aftermarket service provides 24/7 installation (testing and commissioning) and maintenance support through a global network of experienced and fully certified technicians. The aftermarket team also supports the company's termination products and provides the only industry qualified repair joint.

JDR Cables

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OFFSHORE WIND RUBBER COATINGS AGREEMENT



Aquaseal's Jason Armstrong (left) and his father, Eddie Armstrong (centre) with Robert Bowles (right).

Barrier Group has secured a new project with Close Engineering for the Humber Gateway offshore wind farm.

The Wallsend-based company is providing rubber linings for 120 steel guides, which will be fitted to 12 offshore wind turbine transition pieces being created for the wind farm by TAG Energy Solutions.

SECOND AGREEMENT

This is the second offshore wind-related agreement between Close Engineering, which is based in Newcastle-upon-Tyne, and Barrier Group.

Barrier recently delivered rubber coatings for a set of 40 guides on the first foundation systems manufactured by Teesside-based TAG, which has a contract to manufacture 16 foundations for E.ON's landmark wind farm development in the North Sea.

INVESTMENT

This latest agreement follows on from a significant period of investment by Barrier Group. In addition to introducing a vulcanising vessel, which enables the process of applying rubber to external risers and J-Tubes, Barrier has also acquired part of a North East England rubber product manufacturing business, Aquaseal Rubber Ltd.

Aquaseal Rubber, which is based in Longbenton, Newcastle-upon-Tyne, is a family business run by Managing Director Jason Armstrong and his father, Eddie Armstrong. The company primarily manufactures rubber coatings, tubes for road cleaning equipment, and fenders for Remotely Operated Vehicles.

AQUASEAL RUBBER

Acquiring a 49 percent stake in Aquaseal Rubber comes as part of a broader move by

Barrier to expand the business and move into new markets. Existing customers of Barrier will also benefit from the additional range of services provided by the acquisition.

REAL POTENTIAL

Robert Bowles, Chairman of Barrier Group, said: "The offshore wind market holds real potential for Barrier and, through the investments we have made, we are creating an effective niche in the sector. Working with Close Engineering for a second time on a project for TAG Energy Solutions demonstrates the quality of the supply chain that exists in North East England."

Barrier

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PORT OF TYNE

The gateway to opportunity

Connected to world-wide markets, the Port of Tyne is a major deep-sea port with the perfect resources, location and infrastructure plans in place to confirm its position as a key player in servicing the needs of the offshore industry.

LOCATION

The Port of Tyne's geographical location, only 96 nautical miles from Dogger Bank, ensures it is ideally placed to become a major centre for the manufacture and maintenance of offshore wind turbines and to service and support the attendant supply chain.

ENTERPRISE ZONE STATUS

The Port has two sites on the north bank of the River Tyne earmarked for potential development including 30 hectares with Enterprise Zone status. Businesses locating to the Port can benefit from a supportive planning approach and therefore establish themselves as 'market ready' quickly and efficiently.

FACILITIES

The Port of Tyne offers a deep-water, lock free, safe haven that is operational 365 days a year. An experienced, skilled workforce is on hand with a range of equipment at the Port's disposal; including 6 cranes each with 100-tonne lift capacity, ensuring crew changes and maintenance procedures can be completed efficiently and on time.

SUPPLY CHAIN EXPERIENCE

North East England as a whole has a strong supply chain with extensive experience of supporting the marine and offshore sectors. The region's tradition of heavy and marine engineering, shipbuilding and offshore oil and gas extraction has resulted in a strong skills base, with many companies in the region having either an existing commitment to the offshore industry or the clear potential to diversify into it.

Port of Tyne



NEW TRAINING PROGRAMME ADDRESSES HUMAN ERROR IN INCIDENTS AT SEA

Maersk Training announced recently the launch of a new training programme aimed at minimising incidents through human error in marine environments. The course is designed to help offshore workers understand the impact of the human error in marine incidents, and enhance their leadership and management skills in order to prevent them.

LATEST MANDATORY REQUIREMENTS

This course meets the latest mandatory requirements for approved training in the Human Element, Leadership and Management at Management level as directed by the STCW2010 convention and based on the Merchant Navy Training Board's criteria.

This programme will build on the theory using a range of practical exercises designed around shipboard drills, bridge and engine room simulation and maritime experiential team exercises. It will be available for marine professionals from November 2013 onwards.

IMPROVED UNDERSTANDING

Stuart Cameron, Maersk Training, UK Managing Director, commented: "Incidents at sea can be minimised through an improved understanding of the human element, as well as effective leadership and communication on-board ships. It will enable Masters and Chief Engineers, Chief Mates and Second Engineers to apply regulations, policy and procedures, and acquire certification under SCTW regulations. Due to the current pressures in the industry, it is also very useful for operational personnel in shore-based roles."

SAFETY ISSUES

Maersk Training in Newcastle also specifically addresses safety issues in offshore renewables environments through a course that provides managers and supervisors in offshore wind, wave & tidal with the essential tools for competently and safely leading their teams. The course, named Managing Safely for Offshore Renewables will be run from early December onwards, and is approved by

the Institution of Occupational Safety & Health (IOSH), the world's biggest health and safety membership organisation.

Stuart Cameron, Maersk Training Managing Director commented, "It is crucial that staff working at sea develop a deep appreciation of the hazards associated with offshore renewables at all stages of asset life, understand the process of how to assess the risks associated with those hazards and mitigate against them.

"Offshore managers must develop a broad knowledge of the onshore based and maritime based health & safety legal duties relating to an offshore renewable project and know where to find help and guidance. We provide them with the knowledge and tools necessary to review their own departmental systems, introduce new controls and ultimately ensure safety in the workplace."

Maersk Training

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TECHNIP OFFSHORE WIND

Technip Offshore Wind has been a member of Energy Coast since 2012 and provides specialist offshore wind field development services to the renewable energy industry including...

- Concept development
- Front end engineering
- Project management & comprehensive offshore installation services

COMPANY EXPANSION

2013 has seen the company expand its technology offering with a focus on improving HSE and cost-efficiency in the European offshore wind sector.

Their suite of industry-leading cable-lay technology includes the Pull-In Module, HD3 Cable Burial Plough and CBT1100 Trencher.

PULL-IN MODULE

'Renewable Energy Health and Safety Award winner, 2013'

The award-winning Pull-In Module (PIM) innovation was developed by Technip Offshore Wind with the aim of providing a safer, more efficient offshore wind cable installation process.

Technip developed the PIM after identifying pitfalls in existing processes used to carry out cable lifting and pull-in activities.

The PIM is a three-leg tripod featuring a self-contained winch and equipment storage for all tasks associated with pull-in activities. Its design negates the need for bolted connections and allows it to be installed in any orientation, reducing the potential damage risk to the TP.

THE UNIT'S BENEFITS INCLUDE...

- Removal of vessel winch wires from operation
- Introduction of compliance to industry standards
- Reduction of vessel dependency
- Improved speed of installation
- Provision of on-board equipment storage
- Incorporation of power supply for lighting/tools

This patented and ground-breaking piece of equipment provides personnel with a safe working platform for cable pull-in and reduces cable pull-in completion time by up to 60%.

HD3 CABLE BURIAL PLOUGH

Technip Offshore Wind's HD3 cable burial plough - developed by fellow Energy Coast member, Soil Machine Dynamics Ltd (SMD) - provides a high performance burial solution for subsea power cables and umbilicals.

The system uses the latest technology to ensure effective and reliable cable burial and protection, helping to de-risk the overall cable installation process and provide a cost-effective way of achieving effective cable protection for the operation life-cycle of the cable product.

CBT 1100 TRENCHER

The CBT 1100 trenching system (also developed by SMD) was made specifically for cable burial and can both jet and cut simultaneously. This adaptive technology increases capability and burial efficiency by allowing cables to be laid in varying soil types without the need for interchangeable tool sets.

Collectively, these technologies help to ensure safe, effective project delivery across the offshore wind industry.

Technip Offshore Wind

SMD

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THE OGN SUCCESS STORY

Offshore Group Newcastle Limited (OGN) is a leading UK oil & gas and offshore wind engineering, procurement and construction contractor, headquartered in Tyneside.

FLAGSHIP FACILITY

The Hadrian Yard, OGN's flagship facility, has a long and distinguished history of executing and delivering a significant proportion of the offshore oil and gas infrastructure operating in the North Sea/UKCS/Norwegian sector over a thirty year period.

In late 2009 OGN required a facility that could accommodate large scale EPC contracts, and the Hadrian yard with its previous track record and glowing credentials, which had been mothballed by former owners Amec in 2005 was the perfect option.

A BALANCED PORTFOLIO

OGN while historically an oil & gas business has set ambitious plans to become an integral part of the offshore wind supply chain over the coming years. We firmly believe that we can utilise skills built over many years in the oil and gas sector and efficiently implement them in the burgeoning offshore wind market.

One of the first steps for OGN was to build on links already established through our oil and gas business and form a solid supply chain that showed the North-East of England was both capable and willing to work on these projects.

ENERGI COAST – VISION AND FORESIGHT

Energi Coast was formed in no small measure due to the vision and foresight of the NOF, who played and continue to play an instrumental role in its continued success. The formation of the Energi Coast ticked all of the correct boxes for OGN and they therefore became one of the founding members of the group in 2011.

The Energi Coast brings together like minded businesses through the North-East, all of whom have one common goal, which is to showcase the North-East regions extensive energy related credentials and subsequently grow their business in the renewables sector. The group has a louder voice than a collection of individuals which we feel is crucial in a relatively new market place, especially when lobbying public and private sector support.

SO WHY CHOOSE ENERGI COAST MEMBERS?

OGN believe there are three fundamental reasons why prospective clients should choose OGN and other Energi Coast members. They include...

- Resources & Experience – the North East has a long standing heritage within the heavy industry sector, and as a result benefits from the UK's largest resource of skilled engineering manpower
- Access to the Market – located in the North-East of England all Energi Coast members are perfectly situated to cost effectively access and service the North Sea renewable industry
- Supply Chain – an experienced well established & collaborative supply chain

FORMULA FOR SUCCESS

The three factors above together with a collaborative 'can do' approach adopted by all Energi Coast members means we can produce world-class performance and positive business results for its members and the wider regional economy.

Offshore Group Newcastle Limited

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The Inside Story DEEPOCEAN

When we speak to business leaders on our travels to conferences and exhibitions we often discuss their successes. Large international companies can seem distant and somewhat impersonal although their personnel are far from it.

Under our new interview feature 'The Inside Story' we feature DeepOcean and sent our intrepid reporter Floss Chaffer to find out a bit more about the company and its experiences within the industry.

Please feel free to contact us if you would like to be featured in a future edition and we will do the rest.

GLOBAL LEADING COMPANY

DeepOcean is one of the world's leading companies within the subsea industry, offering a wealth of innovative technologies; including high quality IMR, subsea intervention services such as trenching and installation of flexible products such as cables, providing cost effective and bespoke solutions to clients.



Acquiring this accolade has been an interesting journey and I was fortunate to speak with Managing Director, Tony Inglis to find out the story behind this successful and forward thinking company.

EBB & FLOW

As with all success stories we tend to forget the hardships and frustrations leading up to that moment, however DeepOcean have had a few ebb and flow scenarios but have always remained focused and on course!

In 2008 DeepOcean went through difficult times due to a misguided acquisition by Trico Marine Services, who were later declared bankrupt. DeepOcean AS and CTC Marine Projects were both successful businesses with a long history and track record of providing niche subsea services. These two parts of the Trico business still offered a lot of potential and the major lenders of Trico decided to invest in their future. By 2011 the company had been restructured, re-branded and their services re-aligned, creating a stable business and by 2012 they were on an even keel once more.

MARINE BASE STATIONS

The UK execution centre in Darlington currently employs 130 people, with 12 people working at the Teesside Offshore Marine Base. This office works closely with the Norwegian office in Haugesund.

In Europe the company has three marine bases in Darlington, UK, Haugesund, Norway and the head office based in Amsterdam, The Netherlands. DeepOcean also recently set up an office in Trondheim, Norway and is in the process of setting up a presence in Aberdeen.

DeepOcean also operates two offshore bases at Teesside, UK and Haugesund, Norway. These facilities provide storage, heavy lifting and maintenance and support of the equipment. Globally the group employ over 1000 specialist personnel with offices in Brazil, Mexico and Singapore.

WIND MARKET

DeepOcean are able to provide unique packages to clients supported collectively by the expertise of their personnel, extensive experience and by a wealth of vessels and specialist equipment. In order to carry out such specialist services, I was fascinated to learn more about the equipment, Tony enlightened me...

EQUIPMENT

The company currently has between 17 and 19 vessels operating, managing 5 from the UK (with 3 long term deals and 2 shorter term charters) – all of which are state-of-the-art. For the majority of clients the company provides the whole package from survey to installation and in most cases this is within challenging environments, especially in shallow water, which presents its own problems, with fast moving currents, and poor visibility.

ROVS

Tony goes on to say that it is in very rare cases they use divers, as the majority of projects are undertaken utilising ROVs, remotely controlled from a vessel.

Some equipment is so complex in nature they can be the size of a house – one such ploughing machine is a huge 15m x 18m long and 10m high, and ROVs the size of a car, especially one utilised for Jet Trenching.

One such trencher is 1.5MW – 2.3 MW pumped 8 x 8 x 6 m UT1, which is currently operational in Asia.

The Tractor T-3200 is the largest subsea vehicle 2.4MW machine, which as we speak is being modified in Teesside, before it will be permanently mobilised on the Havila Phoenix vessel, which joins the fleet in 2014. This trenching spread is almost ambidextrous as it may be utilised/ mobilised for a variety of industries, offshore wind farms and oil and gas.

DeepOcean have been requested to undertake installations of high capacity country interconnectors. The installation and laying of cables which spreads the load of energy and provides a seamless supply – which also balances the load of energy/utilities. Good for future power management – a "Supergrid".

ADUS 3D VISUALISATION

The company also acquired a 50% interest in ADUS in 2013, a small clever imaging company which surveys subsea equipment, allowing super high resolutions and accurate data measurement. This has proved to be invaluable for the wrecks market.

In fact this was touched upon when discussing with Pierre Boyd in the last issue. This particular service was called upon for the parbuckling of the Costa Concordia. The images were so clear it allowed the successful salvage company (Titan Salvage) to accurately pinpoint areas on the stricken cruise liner suitable for tying up on the quay, whereupon a cylindrical donut sling was installed, then pre-fabricated a point which in turn was able to right the vessel, a significant benefit! This service has also proved to be an invaluable tool for not only the offshore Wind industry but for IMR.

INITIATIVES & ASPIRATIONS

DeepOcean believes its competitive strength lies with the expertise of its personnel and has an initiative 'aspiration to be the employer of choice'. Human Resource teams strive to excel for the work environment, in a dynamic and varied industry resulting in continued job satisfaction, proof is in the pudding as this is reflected in the 3% turnover in staff.

FUTURE

Tony states he wishes to continue to build the strength of the business within a strong and positive growing market, of which wind is decidedly strong. He concluded that the company is proud to be British and looks forward to the future with enthusiasm and expectation.

DeepOcean

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INNOVATIVE SOLUTION FOR OFFSHORE WIND

With over 40 years' experience and proven track record in trenching solutions, SMD continue to provide the industry with world leading products for the offshore wind market.

a number of pre-laid, high voltage array cable ends at the site. The QT 1000 has the ability to manoeuvre close to the turbine foundation using its sophisticated control and measurement system, enabling burial of the array cable in close proximity of the j-tube bellmouth.

RSIP will now provide the state-of-the-art QT 1000 jet trencher, along with a team of experienced operators, to conduct trenching services in connection with the Bøyla project located 225 kilometres West of Stavanger, Norway, at a water depth of 120 meters.

experienced operators, which will provide added value to our client on the Bøyla Development project."

Mike Jones, Managing Director at SMD commented: *"the success of the QT1000 is based on the continuous development of SMD's jet trenching ROVs over the past 20 years, and working closely with RSIP to incorporate their extensive operational knowledge into the design of the system."*



QTRENCHER 1000

The QTrencher (QT) 1000 is an industry leading free flying jet trenching ROV embracing the latest technologies in jet trenching and ROV design. With 750kW of total installed power and 700kW of variable jetting power, the QT 1000 is capable of trenching pipelines, umbilicals and cables up to three metres in the seabed, and at up to 2000 msw. This proven design has been upgraded, based on RSIP's specific requirements, to operate in either high pressure mode or high flow rate mode depending on seabed conditions.

REEF SUBSEA

Reef Subsea Integrated Projects (RSIP) initially mobilised the QT 1000 on its maiden job on the Lincs wind farm located 8km off the Lincolnshire coastline. Following an onsite trial, Reef Subsea operated the QT 1000 to successfully bury

LAUNCH & RECOVERY SYSTEM (LARS)

The QT 1000's LARS has been developed with over 40 years of subsea engineering experience, to enable deployment in the high sea states which are typical of Norwegian waters. It uses a cursor deployment system, allowing the QT 1000 to be latched below the wave zone; technology enabling vehicle launch and recovery up to sea state 6. RSIP will also provide all of the associated engineering, procedures and onshore and offshore project management necessary to complete the trenching workscope, which will take place in 2014.

BØYLA DEVELOPMENT PROJECT

Daryl Lynch, Commercial Director Reef Subsea Integrated Projects commented, *"We are delighted to have secured this workscope with a prestigious client, Technip Norge AS. The Q1000 is an exceptional trencher, managed by*

SMD

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[▶ = Click to view video](#)

Reef Subsea

[Click to view more info](#)

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Technip

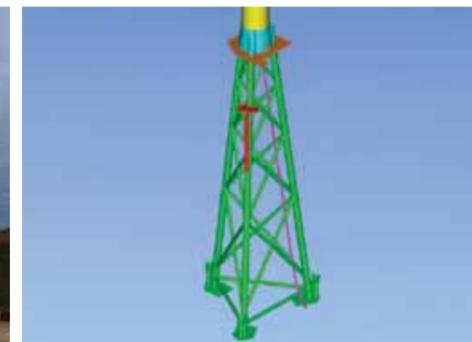
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THE IMPERIAL HOTEL THEY PUT A LOT OF ENERGY INTO WELCOMING YOU!



The Imperial Hotel in Great Yarmouth has been welcoming holidaymakers and business travellers for over eighty years. Still family run, and now Great Yarmouth's only four star hotel, The Imperial assures you of a warm greeting, fine dining and first class accommodation.

Situated at the quieter end of the sea front, but within easy reach of the town, they have developed a close relationship with the energy industries since the late 1960s when gas was first discovered in the southern sector of the North Sea.

WIND ENERGY INDUSTRY

Many companies and organisations within the industry use the hotel's considerable facilities to hold conferences, training courses and events as well as its comfortable en-suite accommodation so it is difficult not to bump into someone you know.

This in our view is its major asset – it is recognised as a meeting place for colleagues who enjoy a chat in a comfortable atmosphere which takes away some of the pain from having to work away from home.

EXTRA ATTENTION FOR BUSINESS TRAVELLERS

Today they offer a specially tailored service for the energy sector worker, including a 24 hour reception for checking in and out at any time, laundry service, breakfasts at flexible times for those early departures and 7 day a week room service.

When you need to work they will help you take care of business throughout your stay and have hard wired and wi-fi internet access, faxes, printing and secretarial services. Their conference facilities are excellent and include lap tops, projectors and screens. Meeting rooms are available and can accommodate numbers from 2 to 120.

As an Avis car hire partner they also offer a collect and return facility and their car park is covered by cctv, and offer charging points for the 'greener' motorist with an electric vehicle.

FINE WINING AND DINING

The recently constructed Terrace, Café Cru, and Bar Fizz all offer a first class range of drinks and food, ranging from a snack to a more sophisticated dining experience.

Open all year round, with flexible and cost effective tariffs, the Imperial is the ideal port of call for today's business traveller. All the staff are prepared to go that extra mile to make your stay a real pleasure because they understand your needs.

INDUSTRY MEETING PLACE

Where we stay is key to being as happy as you can be when working away and the Imperial Hotel in Great Yarmouth serves that need very well. The hotel has become one of the places where people in our industry meet up and has an atmosphere of friendliness from both the proprietors, Eileen and Nick Mobbs, through to the staff who are attentive and professional but after just a few visits become more that just staff but friends.

Having been involved in the service industry at managerial level and also in setting training standards I know just how difficult that kind of service is to achieve.

When you need a home from home, and a place to relax, check in to the Imperial and check out their very special welcome.

The Imperial Hotel

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GREEN LIGHT GIVEN FOR UK'S LARGEST OFFSHORE WIND DEMONSTRATION SITE

- Onshore and offshore planning consents mean Narec's site is ready for development
- Demonstration site is key facility for testing next-generation offshore technology

The development of the UK's largest offshore wind demonstration site – regarded as a pivotal strand in helping to lower the costs associated with Round 3 offshore wind farms – has received a boost with dual planning consents being given to the construction of the site and the onshore substation.

CONSTRUCTION PERMISSIONS

The Marine Management Organisation (MMO) has granted permission to The National Renewable Energy Centre (Narec) to construct the grid-connected 99.9MW demonstration project, comprising 15 turbines in three arrays in depths of 35m, 45m and 55m off the coast of Blyth in Northumberland including cables back to shore.

Northumberland County Council has also granted permission for the construction of the supporting onshore infrastructure including the electrical substation that will transfer the power created by the demonstration turbines to the grid.

UK FIRST

The project is the first large-scale deep water demonstration site in the UK to be granted both offshore permits and onshore consent and is seen as an essential facility for the industry to be able to test next-generation offshore wind technology cost-effectively in realistic environmental conditions before commercial production.

COMPLETE SUITE OF INDEPENDENT OPEN ACCESS TEST FACILITIES

For Narec, the £350 million demonstration site will be the final piece in the jigsaw as part of its strategy to provide a complete suite of independent open access test facilities, enabling manufacturers to reduce the risks and costs associated with developing the new technologies that will be needed in Round 3 projects.

Andrew Mill, Narec's Chief Executive said: *"We're delighted to have reached such an important milestone and my thanks go to the project team including consultants Natural Power and Turner & Townsend in getting us to this stage."*

"We're now in talks with potential investment partners to build out the demonstration site. Construction of the first array is targeted to be completed in 2015."

LARGEST SITE APPROVAL

Shaun Nicholson, Head of Offshore Marine Licensing for the MMO, explained: *"The Blyth project is the largest site we have approved for the testing of turbine devices. We aim to enable sustainable growth in making decisions about developments at sea. We consider economic benefits alongside any adverse impacts, such as on the environment and other users of the marine area. We have worked with Narec to ensure the development satisfied such conditions."*

NAREC ALSO LAUNCHES NEW VALIDATION SERVICE FOR FLOATING LIDAR...

Anemometry Platform to compare new measurement technologies against traditional methods to reduce the costs of the offshore consenting process.

The new service will allow LiDAR manufacturers and project developers the ability to compare and trial new techniques and technologies against traditional wind measurement methods to measure the wind resource offshore.

It will also utilise Narec's high-tech Offshore Anemometry Hub (NOAH), installed three nautical miles offshore, which forms part of the recently consented Blyth Offshore Wind Demonstration Site. The high quality meteorological and ocean sensors installed on NOAH will be used to study the sensitivity of floating LiDAR measurements to waves and atmospheric conditions in a remote offshore environment representative of Round 3 conditions.

This new activity will allow clients to validate new devices and demonstrate the reliability and resource measurement accuracy of floating LiDAR against existing methods.

ONSHORE SUCCESS

Following the success of LiDAR for onshore applications, their use in the offshore renewable energy sector could provide significant advantages. Narec is currently engaged in a number of floating LiDAR projects, these projects together with the facility are enabling Narec to build up industry knowledge of the offshore environment and prove new technologies which could reduce the costs of consenting, build-out and operation of offshore renewables.

OFFSHORE ACCEPTANCE

Ignacio Marti, Narec's Chief Technology Officer, said: *"Narec has launched this new validation service, in order to accelerate the acceptance of this new technology within the offshore wind sector."*

"By developing innovative and competitive testing and validation services Narec is helping to reduce time to market of new technologies that will ultimately help to reduce the cost of offshore wind energy."

Narec

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Image taken from location of the 99MW offshore demonstration wind site looking towards Blyth, Northumberland with Narec's offshore anemometry platform in the foreground.

ED'S NOTE: *We will be focusing on the Blyth supply chain and its importance to the industry in much more detail in the next edition*

ACTIVE HEAVE

HOW TO ACCUMULATE MORE ENERGY SAVINGS

With oil becoming harder to exploit and prices increasing, operations are moving into deeper waters. Active heave users need to move towards more energy efficient solutions as subsea activity needs more power to deploy the equipment to reach these hidden depths.

INNOVATIVE SYSTEM DESIGN AND INTEGRATING ACCUMULATORS

Steve Smith, Marine and Offshore Sector Manager at Bosch Rexroth, says by innovative system design and integrating accumulators into the active heave compensation control process, end users could achieve energy savings of up to 75%.

With the days of easily accessible oil and gas fields becoming numbered, offshore operations are being forced to operate at increasing depths and harsher environments, putting new challenges on the equipment used. Crane and winch drives are having to position loads of more than 250 tonnes on the ocean floor, stretched to their limits at depths below 2,500m.

CONTINUOUS MOVEMENT

Vessels at sea are continuously moving with the ocean swell and vertical motion in particular has significant effects on subsea lifting operations. This makes it difficult to deploy and place loads on the ocean floor whilst protecting vital umbilical cables and the equipment itself from damage during harsh seas conditions.

Ideally, subsea lifting operations would be completed at times when sea levels and weather patterns are placid. But, as the demand for energy increases, companies are increasingly being forced to operate at lower depths and in harsher sea conditions, putting a huge strain on energy resources due to the demands for much higher powered equipment to operate during these conditions. For example, a typical 50 tonne knuckle boom crane operating in waves of over three metres, will consume two megawatts of electricity per hour, a very costly operation.

This has led to an increased demand for fast acting, dynamic and responsive active heave compensation systems, which not only compensates the motion, but also works as a form of energy recovery, reducing the energy usage.

DYNAMIC SYSTEMS

One way of reducing energy consumption is to install a secondary-controlled drive which senses the torque at the winch either positive or negative associated with a large auxiliary hydraulic system with a bank of accumulators, producing a highly responsive system using the minimum of power. These very successful and efficient secondary control solutions that compensate for 95% of vessel movement have been supplied by Bosch Rexroth to many companies worldwide.

HYDRAULIC ACCUMULATORS

Hydraulic accumulators effectively store energy in a nitrogen filled bladder within a steel shell. When fluid under pressure fills the accumulator it compresses the gas in the bladder and when the pressure in the system falls the oil from the accumulator is available to provide pressure and high flow rates back into the system. They could be considered as a very large hydraulic spring and follows the basic Boyles law ($P1 \cdot V1 = P2 \cdot V2$)

Applications such as knuckle boom cranes and ROV deployment systems are ideal for accumulators as they are subjected to large flows at high speeds, generating significant amounts of energy that can be stored in the accumulator. When required, the accumulator releases the stored energy back in to the hydraulic system resulting in substantial energy savings and an increased system lifespan.

An accumulator is most effective when integrated with a secondary-controlled drive. Normal active heave systems are controlled via the pump or motor and can only react to energy, not recover it. A secondary-controlled drive performs as both a motor and pump, directly on the cranes winch, which results in a compact, accurate and dynamic response system, able to compensate up to 95% of the vessels movement.

As the operation of support vessels occurs in a wave state, the vessel is moving up and down, creating energy during the upward motion of the vessel. This energy is absorbed by the hydraulic accumulators and then fed back into the hydraulic system during the vessel's next downward motion, essentially working as a hydraulic spring. Through this process, the drive system recovers up to 75% of the energy, significantly reducing necessary installed power.

DRIVING OUT COST

Energy consumption remains a concern for machinery operators, meaning energy recovery systems where possible are of great interest and active heave systems present one of the best opportunities for energy recovery.

Active heave compensation integrated with secondary-controlled winch drives and accumulators have been developed by Bosch Rexroth to facilitate load placement on the ocean floor in all weather conditions. Dynamic, powerful drive systems play a decisive role in achieving a good compensation factor.

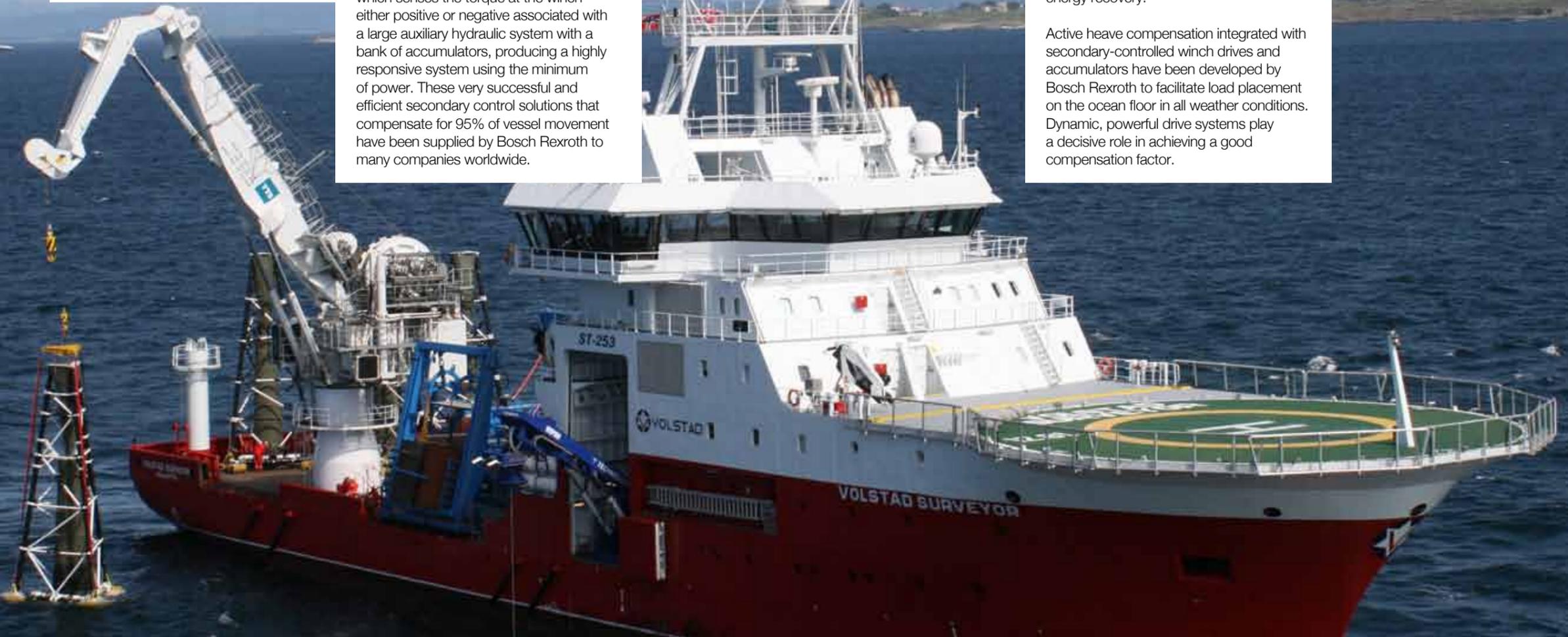
With up to 95 per cent movement compensation and up to 75% energy savings available, Bosch Rexroth secondary-controlled winch drives integrated is a sure and effective way of reducing energy consumption and costs.

Steve Smith
Marine and Offshore Sector
Manager
Bosch Rexroth

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NEW-BUILD PROGRAMME FOR WORLDWIDE WIND OPERATIONS

GULF MARINE SERVICES (GMS) HAS ANNOUNCED A STRATEGIC NEW-BUILD PROGRAMME THAT INCLUDES A FURTHER E-CLASS VESSEL - SIMILAR TO GMS ENDEAVOUR, THE COMPANY'S JACKUP BARGE CURRENTLY OCCUPIED IN WIND FARM OPERATIONS IN EUROPEAN WATERS - AND THREE S-CLASS VESSELS, A NEW DESIGN GMS DESCRIBES AS A 'WORKHORSE' IDEALLY SUITED TO THE RENEWABLES INDUSTRY.

The four new self-elevating self-propelled vessels with dynamic positioning (DPII) will be capable of global operations in the oil, gas and renewable energy sectors and will be built at the company's yard in Abu Dhabi. The first, GMS Enterprise, is already underway and will be ready for new contracts in quarter three, 2014.

BRIDGING THE GAP

The new S-Class jackup design will bridge the gap between GMS' existing seven K-Class assets currently operating in the Middle East in water depths of up to 45m and equipped with 36 and 45 ton crane options and its two E-Class harsh weather dynamic positioning (DPII) vessels currently working in the North Sea and suitable for worldwide operations in water depths of up to 65m and with 230 ton and 300 ton cranes.

INCREASE IN DEMAND

Duncan Anderson, Chief Executive Officer at GMS, says "We've seen a major increase in demand for our jackup barges over the last five years. As a result, we are currently building a third E-Class vessel in Abu Dhabi with this capable of working in even deeper water, up to 80m and with a larger 400 ton crane; we also have an option to build another of these large units.

"In addition to this, we've identified a need for a jackup that falls mid-way between the two classes we already provide and have produced a modified Gusto design called the S-Class. The first of three new S-Class barges will be ready for quarter two 2015."

SPECIFICATIONS

The S-Class will have DPII and will operate in depths of up to 55m, however it will be a smaller and more utilitarian harsh weather barge than the E-Class; a workhorse that will be ideal for wind-related operations. It will have 800 sq m of deck space, a 150 ton main crane, a 15 ton auxiliary crane, and will accommodate from 150 to 300 people.

The S-Class jackups will be used for well services in the oil and gas sector and for offshore wind farm maintenance, in northwest Europe, the Middle East, South East Asia and West Africa.

IN-HOUSE CONSTRUCTION FACILITY

Through its new build and renewal programme, the company has ensured its fleet is the youngest and most sophisticated in the industry, currently with an average age of just nine years, compared to a global offshore average of 24. Using its in-house construction facility, GMS has a proven track record of successfully customising its fleet of self-propelled jackup barges to meet the requirements of the offshore renewables industry.



S-Class: An artist's impression of the new S-Class jackup barge being built by GMS.

Duncan Anderson adds: "The fact that we can build our vessels in Abu Dhabi is absolutely key as this allows us to produce these sophisticated assets at lower than market prices. The state-of-the-art design and operational efficiency of jackup barges like GMS Enterprise and the new S-Class means we can also offer cost-effective solutions to our clients. This, along with our excellent safety record, is what defines GMS."

Gulf Marine Services



TOWARDS A COMMON STANDARD FOR MARINE PROTECTED AREA CONSERVATION

Those developing renewables resources offshore, together with many other offshore developers, face a plethora of different marine conservation designations which they must work around. The appropriate consents must be obtained before any works can proceed, whether those works are preliminary surveys or actual installation and commissioning of generating equipment. It is not only the turbines themselves that fall foul of marine protected areas but also the additional infrastructure including cabling to shore.

There are a number of designations all with slightly different purposes and emphasis. The three main designations which will frequently be encountered are Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Marine Conservation Zones (MCZs).

SPECIAL AREAS OF CONSERVATION (SACS)

Special Areas of Conservation are protected sites designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of high quality conservation sites that make a significant contribution to conserving the various habitat types and species identified in Annexes 1 and 2 of the Directive. There are in fact 189 habitat types and 788 species identified in these two annexes. The species identified do not include birds, as these are covered under the Provisions for Special Protection Areas as set out below:

SPECIAL PROTECTION AREAS

Special Protection Areas are protected sites classified in accordance with Article 4 of the EC Birds Directive. Unlike the Habitats Directive the Birds Directive does not provide any formal criteria for selecting SPAs. So in the UK it falls to the Joint Nature Conservation Committee (JNCC) to select the criteria on behalf of the UK's statutory conservation agencies. It is also worth noting that a number of SPAs are also classified as RAMSAR sites, which are wetlands of international importance designated under the RAMSAR convention 1971 which provides for the conservation and good use of wetlands.

MARINE CONSERVATION ZONES

Marine Conservation Zones were created under the Marine & Coastal Access Act 2009 and are designed to protect a range of nationally important marine wildlife, habitats, geology and geomorphologic features. They can be designated anywhere within English and Welsh inshore and UK offshore waters. The first marine conservation zones have now been identified by the Marine Conservation Zone Project and are awaiting Government approval following a recent consultation.

A COMMON STANDARD

As can be seen from the above designations, all of the three MPAs mentioned have slightly different emphasis, whether that be habitats, the protection of fauna, flora, or the protection of birds, or indeed the protection of geology and geomorphology.

It can prove difficult for developers and their advisors in knowing exactly how Government intends to regulate and license operations within such areas. It is also correct to say that there still seems to be a good deal of uncertainty within organisations such as the Marine Management Organisation (MMO) as they are still undertaking a learning exercise with, in particular, the MCZs. As a result, in August this year Natural England produced a draft operational standard for conservation advice for marine protected areas. The consultation with regard to this draft standard ended in late October.

The standard covers SACs, SPAs and MCZs where they are situated within England's territorial waters, i.e. 12 nautical miles. It is hoped similar standards can be applied to sites outside territorial waters.

A MORE CONSISTENT APPROACH

The standard will assist in providing a more consistent approach to the management of such matters as...

- The assessment of the effects of any plans or projects or acts
- The development of management plans
- The identification of management measures for ongoing activities
- The identification of conservation management measures
- The monitoring and assessment of the condition of the site

Whilst the operational standard is aimed at Natural England staff who are responsible for advice production, the standard is also intended to provide a reference for all stakeholders to provide clarity on how advice in marine protected areas will be developed. The standard is also linked and should be applied in conjunction with Natural England's 'Strategic Standard on Conservation Objects for European Sites in England' and their 'Evidence Strategic Standard 2013'.

DRAFT STANDARD

The draft standard itself runs to some 52 pages and therefore it is not possible to reproduce it in detail in this article. However, the structure of the standard is as follows...

- Firstly, it sets out the principles of conservation advice for marine protected areas
- Secondly, it sets out the structure of conservation advice for marine protected areas
- Thirdly it provides a nine stage approach to develop and review conservation advice

THE PRINCIPLES OF MARINE CONSERVATION ADVICE

The new standard has developed the following principles for new conservation advice...

- Conservation advice should be easily accessible
- Advice should be consistent in approach and structure
- Advice should be written to be as clear and stakeholder focused as possible
- There should be clear guidance for its internal production and external use
- Stakeholders should be engaged in the production of advice and any additional guidance
- Information provided as advice should be quantified where there is sufficient supporting evidence to do so
- The best available evidence should be utilised and the confidence limits of the advice stipulated
- The best available evidence on the features condition should be used to inform their conservation objectives
- Advice should be updated as and when the evidence base improves and should be used to inform condition monitoring and research
- The effectiveness of advice should be regularly assessed and waste continuously improved identified
- The activities that could impact a site's features should be clearly identified

STRUCTURE OF MARINE PROTECTED AREA CONSERVATION ADVICE

New conservation advice for each area will be produced and will have five key sections...

- A site overview and feature descriptions
- Condition information, being advised on the current condition of each feature and sub-feature where possible
- Conservation objectives, representing a high level objective for each site to achieve, supported with supplementary advice setting targets against identified ecological attributes
- Advice on operations describing a sensitivity of features to pressures and information as to which activities could cause an impact to the features
- Site maps to provide detail on the site boundary and the location of features and sub-features of supporting habitats within that site

NINE STAGE APPROACH TO PRODUCING MPA CONSERVATION ADVICE

The standard will also provide a nine stage approach to the production of conservation advice for each marine protected area. These nine stages are as follows...

- 1 Preparation
- 2 Mapping
- 3 Feature, sub-feature and supporting habitat descriptions.
- 4 Site overview and condition assessment
- 5 Advice on operations
- 6 Conservation objectives
- 7 Senior advisor and internal technical quality assessment
- 8 External dialogue with stakeholders and the resolution of issues
- 9 Sign off and publication

Of most relevance to stakeholders in the renewable industry will be stage 8, being the external dialogue and issue resolution. A timetable of 20 days has been suggested for this within the overall timetable and the process aims to share and discuss the advice obtained to that stage with relevant authorities and stakeholders. It is anticipated the joint meeting would be arranged by Natural England's lead advisor with all relevant authorities and stakeholders present.

Finally, the standard also anticipates independent external review and amendments to conservation advice produced pursuant to it. This will be reviewed by the Conservation Advice National Stakeholder Advisory Group as well as the Conservation Advice External Advisory Group.

Once approved and published, the Standard should hopefully streamline the process with regards to obtaining conservation advice for MPAs, meaning that stakeholders should obtain consistent advice with regard to their interaction with MPAs whatever the official designation of that MPA is.

Andrew Oliver
Andrew Jackson Solicitors

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PARTNERSHIP

Limited Liability Partnerships (LLPs) are increasingly being adopted as alternatives to conventional leasehold arrangements for renewable energy sites. Colin Lawrie and Jim Hillan of Dundas & Wilson look at some key implications of that choice.

WHAT ARE LLPS?

LLPs are corporate entities which combine many of the decision-making and tax transparent characteristics of traditional partnerships with a limited liability status more akin to limited companies. As such, the adoption of an LLP allows participants a greater degree of involvement in a project than might otherwise be available, while affording them protection from the commercial risks of a failed venture.



WHY CHOOSE AN LLP?

The choice of an LLP begins with a conscious decision of landowner and developer to reject more traditional models of engagement (such as a landlord/tenant relationship). Such a joint venturing approach may unlock sites not otherwise available for the developer and overcome landowner concerns about how its voice will be heard as a project develops. The LLP changes the way profits are enjoyed, while facilitating the landowner contributing land and site specific knowledge and the developer contributing project management expertise.

ARE THERE ANY GROUND-RULES?

LLPs allow a high degree of flexibility; however, the following points should be borne in mind...

- There are exceptions to the limited liability status of members of an LLP, notably a potential clawback on distributions made within 2 years prior to insolvency. Landowners in particular need to both appreciate and mitigate the risks involved in being a member and not a landlord
- Restrictions under Financial Services legislation dictate that members need either to maintain a significant degree of day-to-day involvement in the LLP's business, or be capable of demonstrating that their involvement in the LLP is part of a wider business (e.g. ownership of a wider estate)
- Members of a LLP are subject to Class II and Class IV national insurance contributions. Note must also be taken of recent anti-avoidance provisions, which target LLP members that should properly be regarded as employees and so liable to (the more expensive) Class I national insurance contributions
- The landowner's holding in the LLP may potentially be structured to attract inheritance tax business property relief (a potential 40% saving)



STAMP DUTY LAND TAX (SDLT)

The SDLT regime applicable to partnerships will apply to the transfer of land to the LLP. Compared to the situation of a landlord granting a lease, this is likely to result in some of the SDLT at 4% being borne by the landowner. However, compared to a transfer of land to a company, the partnership regime can actually be advantageous.

STRONG FENCES, GOOD NEIGHBOURS?

The LLP structure can mean that the landowner needs to maintain greater involvement in a project than the developer might instinctively desire. However, while this could be seen as a negative, greater landowner involvement may be a positive factor which it is desirable to harness. Finding the right balance and expressing this in the partnership agreement, is what puts the 'art' into any successful partnership.

**Colin Lawrie and Jim Hillan
Partners
Dundas & Wilson**

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NEGOTIATING NEW O&M AGREEMENTS

Since the UK's first onshore commercial wind farm opened in Cornwall in 1991, over 5000 wind turbines have been constructed in and around the UK, with almost 3000 of these constructed in the last five years alone.

It is still common for the Original Equipment Manufacturer (OEM) to provide operation and maintenance services along with the initial turbine supply, usually running for five years.

Increasingly a number of turbines are coming to the end of the original operation and maintenance period but require ongoing operation and maintenance. After the initial five year period a further O&M agreement will therefore usually be entered into (unless the developer maintains the turbines himself).

From our experience, there are a number of issues which need to be considered when negotiating the new O&M agreements. The funders will need to review and agree any new agreement which is not 'on substantially the same terms' as the original O&M agreement and most will not be. This should be done at an early stage as it can take considerable time to put in place new direct agreements and any other supporting documentation.

CONSIDERATIONS

Key points to consider in the new O&M agreement include what are the 'standard' services under the agreement and what components and consumables are covered by the 'standard' service fee. Both the owner and the funder will not

want to see any material deterioration in the services being provided – especially if the fee has increased! Cost, delivery times and obligations in respect of 'additional' services and components will also need to be considered.



The owner and funder will want to ensure that the 'standard' or 'additional' components provided under the agreement are covered by an appropriate defects liability period. The warranty package, as part of the turbine supply agreement and/or the O&M agreement, covers various performance related warranties, such as power curve, availability and noise.

WARRANTY & LIABILITY

The warranty package offered under a new O&M agreement will be substantially decreased from the original agreement, however an availability warranty will still be included and both the owner and the funder will want to ensure that the availability percentage and the mechanism for calculating liquidated damages (and bonus payment, if included), is robust, adequate and proportionate.

Similarly limits on liability and caps on liability will also need to be considered in detail to ensure that the plant is adequately protected.

The skill is obviously to know the market and to ensure that the owner negotiates a 'market' position to minimise the comments from the funder, which can add further delay, but also to get the best position for the owner.

The last thing the owner wants is for the wind farm not to be covered due to delays in agreeing the new O&M agreement.

KEY THEMES

Ensure...

- You allow adequate time (think in terms of months not weeks) to agree the new operation and maintenance agreement
- You engage with the funder at an early stage and once the owner and the contractor have got to a suitable position in their negotiations, provide the contract package for comment – this need not be the final version
- You engage experienced advisors to minimise delays and to ensure you receive a 'market' package

**Frazer Peavoy
Director in the Renewables, Energy & Resources Group
Walker Morris LLP**

Royal HaskoningDHV
Consultancy, Engineering & Management

Serving the Wind Industry

Royal HaskoningDHV - 8,000 professional environmental consultants, technical experts and engineers providing project consenting, H&S, technical and design services to offshore and onshore renewables projects across UK, Europe and the world for over 10 years.

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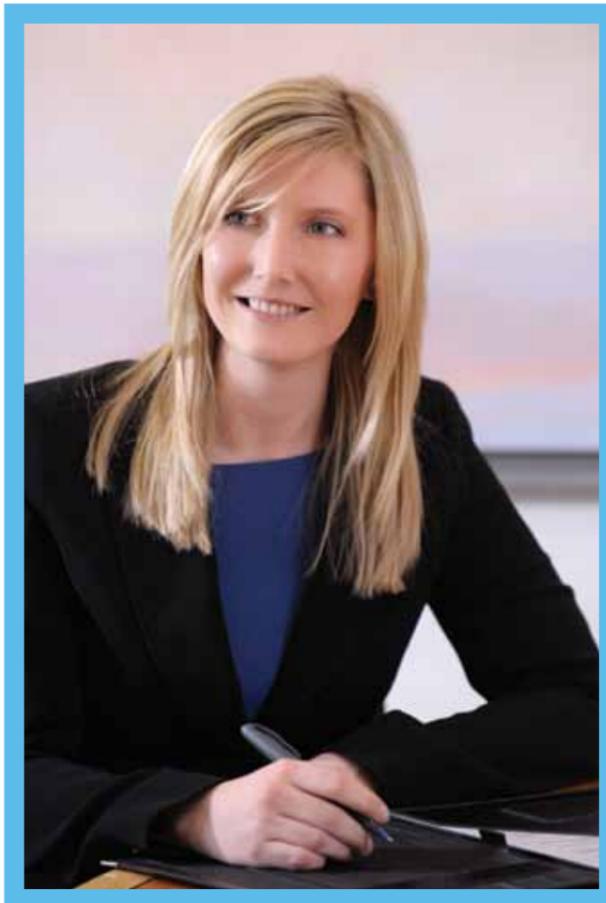
QUIRKS OF SCOTTISH WIND ENERGY DEVELOPMENTS

When it comes to wind energy developments there is no one-size-fits-all legal template. Turcan Connell were the legal advisers to some of the first landowners involved in onshore wind farms in Scotland and have since been instructed in hundreds of wind energy projects across Scotland for landowners, developers and funders. We have found that, while there are general legal principles which can be applied to most wind energy projects, each has its quirks.

RECENT EXAMPLE

A recent example involved a proposed wind farm in one of the crofting counties of Scotland. With accredited specialists in the area of Agricultural Law and with huge experience in Crofting Law, Turcan Connell are regularly asked to advise where there is a potential crofting or agricultural interest.

As crofters have a right to a share in the income of a wind farm located on croft land, the first task was to identify whether the land required by the developer for the wind farm was indeed subject to crofting tenure. This can be difficult as the present register of crofting tenure maintained by the Crofting Commission is not plan based, although legislation has recently been passed by the Scottish Government which aims to establish a plan based register in the coming decades.



IDENTIFICATION

Identifying the relevant crofters can also be difficult as the Crofting Commission does not always hold an up-to-date list and there are particular procedures to be followed in order to ensure that the wind farm developer has made sufficient enquiries in that regard. Once identified, there is a court process to be followed to temporarily resume the land from crofting tenure.

RIGHTS

Rights were also required to oversail the crofters' land as the vehicle transporting the wind turbines required to oversail the croft at each bend in the developer's access track. The land required for oversail was not resumed from crofting tenure and instead an agreement was entered into with the crofters, which required to be approved by the relevant court, to allow oversailing to take place. Once micro-siting was complete a turbine was found to oversail land subject to an agricultural tenancy through part of its arc. We were able to satisfy funders that sufficient rights existed allowing oversailing without potentially difficult resumption and Land Court processes.

SPECIALIST ADVICE

Specialist advice will ensure that any site specific quirks are identified at an early stage and thereby avoid the delay or moth-balling of a project when significant expense has already been incurred.

Louise Johnston
Turcan Connell

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WIND ENERGY HEALTHIER & SAFER

On Monday 28 October the St Jude Day Storm battered the southern part of the UK with gusts of up to 99mph. As well as causing four fatalities, killing 10 million trees and causing widespread disruption to travel, a 27m turbine collapsed in a field at Higher Rixdale Farm near Teignmouth in Devon.

In many cases the legislation imposes strict liability to achieve the standard of safety required. The renewables sector is no different from other sectors in this respect, but because the application of wind power to the generation of electrical power is a more recent development than say the burning of fossil fuels, the standard of safety required evolves as the sector matures.

GUIDELINES

A number of guidelines have been developed in consultation between the HSE and RenewablesUK. These guidelines when correctly and appropriately implemented will...

- Represent industry good practice for safeguarding employees from the inherent dangers that exist from installed electrical and mechanical equipment in wind turbines
- Assist in the development and application of safe systems of work in a consistent manner



Whilst no one was injured, incidents like this, which follows the collapse of a 30m Endurance E-3120 50kW turbine at East Ash Farm in Bradworthy, Devon on January 27 2013, serve as a stark reminder to anyone who designs, manufactures, supplies, installs, operates or maintains a wind turbine, as well as to planners, developers and landowners, that they have a duty to ensure that rigorous health and safety standards are being met.

RISK CONTROL AND LIABILITY

Anyone who creates a health and safety risk has a duty to manage and control that risk. Duty holders are therefore obliged to ensure, in so far as is reasonably practicable, the health and safety not just of their workforces but also of anyone else who may be affected by their work activities.

INDUSTRY STANDARD

What then can be considered to be the required industry standard? Essential reading can be found on both the HSE and the RenewablesUK websites. It is very fortunate that the UK wind industry benefits from an excellent working relationship between the HSE and RenewablesUK, the leading trade and professional body in the UK.

The HSE, in recognising that the UK has the best wind resource in Europe, aims to develop a supportive regulatory framework for the sector and to promote sensible, proportionate management and control of hazards and risks, stating that it '... need not act as a brake on the rapid and widespread use of emerging energy technologies in the UK.'

- Provide a robust approach to demonstrating legal compliance with relevant health and safety regulations

RARE OCCURRENCE

Whilst turbine collapses will always capture the headlines, statistically they are rare. Ensuring that health and safety is at the centre of what you do will result in fewer incidents and a much greater degree of protection from prosecution in the event of an incident.

Further, it will help to show that the option of wind energy is healthier and safer than an over-reliance on coal, gas and nuclear power.

Jeremy Scott
Langleys

TOWARDS MORE FLEXIBLE INVESTMENT STRATEGIES FOR WIND PROJECTS

These days, the most commonly accepted concept of financing projects in the power sector is through project finance. In project finance, the cash flows resulting of the project can be used as repayment for the debt financiers and shareholders. The ownership structure of such projects is established through the creation of a so-called special purpose vehicle (SPV) in which the investors are not liable if the project fails, making project finance a form of limited-recourse financing.

FLEXIBLE APPROACH

As the success of the project finance concept heavily relies on the future cash flows of the project, risks affecting these cash flows need to be adequately anticipated (and mitigated) to prevent the project from failing. In a risky environment such as the (offshore) wind business, following a flexible approach may help mitigate risks and uncertainty. This has been proven in 'real option theory', in which the options to expand, contract or delay have been investigated, for example.

Also in the power sector, research has been done on the added value of incorporating flexibility into the investment strategies of project developers. The prevalent idea in these studies was that flexibility in investment strategies is equivalent to 'waiting for better conditions' (also known as 'develop and delay'). Indeed, waiting for better conditions avoids risks, but may at the same time prevent developers from reaching optimal returns. In other words, it is questionable whether a 'develop and delay' strategy generates optimal results (realised return).

ONE STEP FURTHER

Flexibility in investment strategies can be taken one step further than 'waiting for better conditions' and can be found in determining the optimal capacity at each stage of the project (this strategy could be called 'flexible cautious'). Royal HaskoningDHV – Investment Services (Karremans and Van der Beek, 2013) investigated different investment strategies for a varied set of simulated scenarios. In a 'flexible cautious' strategy, a project developer would not only expand the project at the moment the expected return exceeds the desired return, he would also invest in the minimum amount of turbines for which the expected relative return is highest. This is a break with the 'develop and delay' strategy, which would at this point expand the project maximally, employing a maximum amount of turbines.

RESEARCH RESULTS

From our research, it can be concluded that in case of the relative realised return on equity the 'flexible cautious' strategy in the model is superior over the 'develop and delay' strategy in any modelled future scenario. This means it is, in all scenarios, wiser to invest using a piecemeal approach.

This finding contains an important message for project developers, financiers and governments alike. By consciously deciding to develop a less ambitious initial project (a pilot), a developer can learn lessons that can be exploited in the next stages of the project. This will lead to cost reductions due to avoiding mistakes as well as due to reductions in manufacturing over time.



LEADING NEGOTIATIONS

Secondly, for financiers this outcome can be interesting. If a financier is unsure about the viability of the business case of a wind farm investment, but not completely reluctant to invest, it would be interesting to take the lead in the negotiations and suggest willingness to finance a pilot project. If the development of this pilot project would meet certain pre-defined requirements, the financier could be persuaded to finance a next stage.

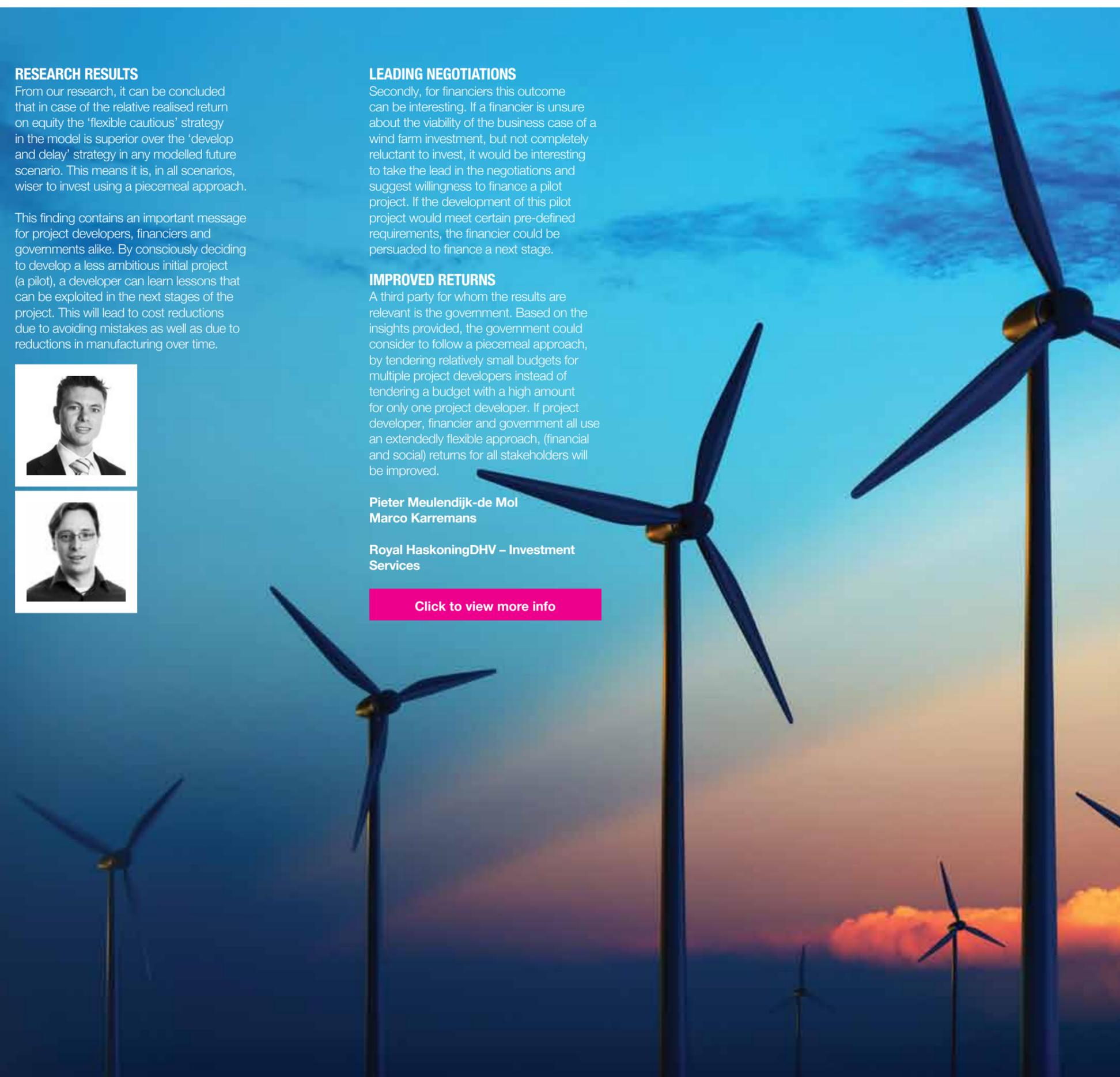
IMPROVED RETURNS

A third party for whom the results are relevant is the government. Based on the insights provided, the government could consider to follow a piecemeal approach, by tendering relatively small budgets for multiple project developers instead of tendering a budget with a high amount for only one project developer. If project developer, financier and government all use an extendedly flexible approach, (financial and social) returns for all stakeholders will be improved.

Pieter Meulendijk-de Mol
Marco Karremans

Royal HaskoningDHV – Investment Services

[Click to view more info](#)



SME BUSINESSES STILL LOSING MILLIONS IN UNCLAIMED R&D TAX CREDITS

UK SMEs are missing out on hundreds of millions of pounds of tax credits by not claiming for new product research and development costs.

The warning, from new product development consultancy, Pera Technology, one of the UK's leading SME funding and business support consultancies, is driven by concerns that SMEs are failing to maximise their tax efficiency which, in turn, impacts on their ability to finance new product development programmes.

"There has been a steady increase in R&D tax relief claims since the 2000-01 financial year, when less than 2,000 SMEs claimed relief, but there is still a chronic lack of awareness amongst the UK's SME base. The result is that hundreds of millions of pounds of R&D tax credits are going unclaimed which could make a significant impact to the ability of an SME to fund new product development."

CLAIMS AVAILABLE

Any company or organisation can claim R&D Relief whether it is making profits or losses, with no upper limit on the amount of the claim. SMEs are capable of deducting up to 225% of R&D costs, which could include specific costs such as staff costs, subcontractor costs, consumable or materials, power, water, fuel and computer software that is used directly in carrying out R&D.

R&D TAX CREDIT ADVICE

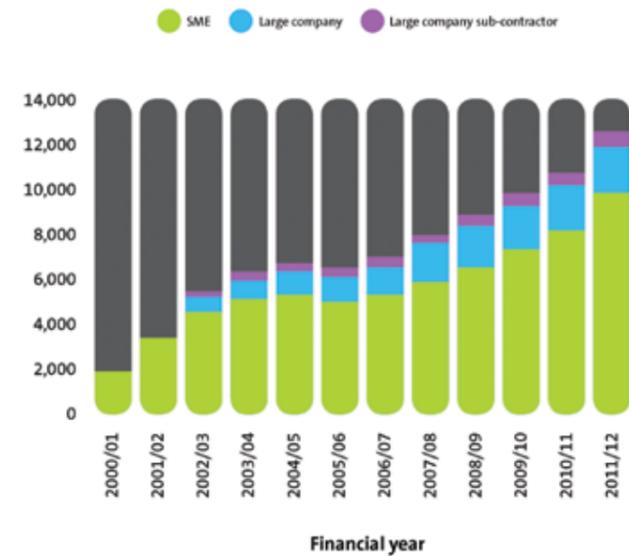
R&D tax credit advice forms part of Pera Technology's new leap@ package of business support services, which cover all aspects of new product development from idea conception, feasibility evaluation and securing funding, right through to in-depth research and development programmes and commercialisation.

Mr Day says that the big issue is that many SMEs and advisers wrongly believe that R&D Relief can only be claimed on new products. *"R&D Tax credits are not only confined to light bulb Eureka moments,"* says Mr Day. *"Product improvements, new ranges and new production processes can also be eligible."*

He continued: *"It is important that SMEs examine their suitability for reclaiming tax and work with an adviser who understands how HMRC works. It should take HMRC around four weeks to process a well-structured claim and this could radically alter a company's year-end financial position and help finance further research and development work or other investment."*

Pera Technology

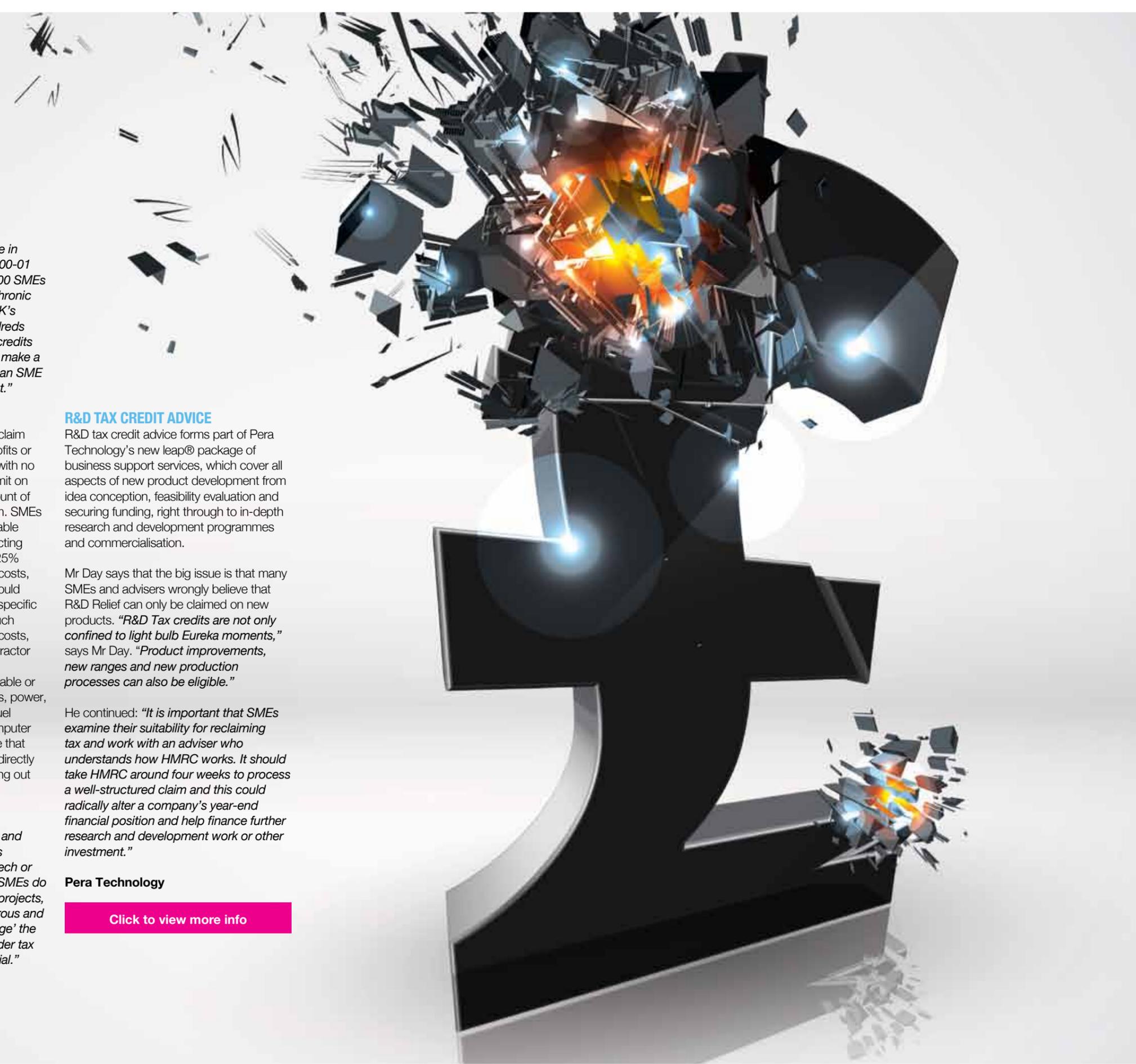
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RECENT STATISTICS

The most recent statistics from HM Revenue & Customs suggest that less than 10,000 SMEs claimed tax relief last year, from a UK SME base of 4.8 million. Simon Day, an expert in R&D tax credits at Pera Technology, says that awareness of R&D tax relief is improving amongst SMEs but there is still a long way to go.

"Many SMEs are involved in R&D and the HMRC definition by no means restricts the ability to claim to hi-tech or pharmaceutical industries. Many SMEs do not realise that they have eligible projects, worry that the process is too onerous and costly or, more commonly 'package' the R&D tax claims as part of their wider tax claim which often limits its potential."



A STEP CHANGE IN OFFSHORE WIND INNOVATION

“In all Houlder’s markets, Renewables, Oil & Gas, Marine and Gas Ships, customers want the same things – trusted partnerships, dependable technical support and innovative solutions” says Chief Executive Officer Rupert Hare.

Houlder delivers all three, whether the requirement is for design and build of new vessels, complex project management or specialist marine equipment. The company does this globally for clients at the forefront of offshore expansion and innovation.

RECENT RAPID DEVELOPMENT

For the last five years in particular, the company’s engineers, naval architects, designers and project managers have done more than simply offer their individual expertise to the offshore wind sector. They have combined forces to bring clarity to industry challenges, present fully thought through solutions and balance intellect, experience and practical knowhow.

KEY SUCCESS

In this way they have contributed innovative installation and mothership designs, access solutions and bespoke handling equipment to clients looking to gain competitive advantage in a rapidly growing market place. One of the key successes has been the TAS (Turbine Access System) developed with BMT Nigel Gee to improve the safety, comfort and effectiveness of wind turbine maintenance personnel.

TAS™ OFFSHORE AWARD WINNER FOR SAFETY INNOVATION 2013

Houlder won top honours for innovation at the 27th Offshore Achievement Awards organised by the Society of Petroleum Engineers (SPE), Aberdeen. The judges decided that TAS clearly demonstrated improved safety during personnel transfers, and as a result, delivered a resulting increase in operability. An increase in working days whilst maintaining safety is a key goal for any wind farm operator or developer.

TAS™ INGENUOUSLY DAMPENS AND COMPENSATES FOR VESSEL MOTIONS

TAS creates a stable platform for offshore transfer via a patented motion compensated gangway and bow rollers. This combination provides safe and reliable access in higher sea states than current personnel transfer methods. It does not require the vessel to be Dynamically Positioned or to be attached to the turbine structure in any way.

PROVEN CASE STUDY

The operational performance of TAS was proven on Turbine Transfers’ Cemlyn Bay 24m workboat operating on RWE’s Rhyl Flats wind farm. It delivered gangway motions below 3% of vessel motions in a maximum wave height of 3.0m. Crew reported a stable, safe and comfortable ‘stepping off’ experience. The gangway motion compensation means the step off point is maintained 500mm from the Turbine ladder. It does this by using motion referencing, control and hydraulic systems to significantly reduce the impact of vessel motions in three planes – actively compensating for pitch, roll and surge in real time.

“The TAS system is absolutely stable”
Skipper, Cemlyn Bay

Further stability is achieved by replacing traditional workboat fendering with a dampening roller system that provide a soft landing and eliminates the tendency to ‘stick and slip’ as the boat pushes against the turbine structure. The resulting smoothed motions maximise the TAS gangways impact. They also minimise fender wear and reduce the risk of damage to the boat landings.

TAS™ DELIVERS SAFE ACCESS

A detailed review of each aspect of the design, operation and construction has been undertaken including comprehensive HAZID and HAZOP assessments with wind farm operators, developers and regulators. Operation outside safe working envelope is impossible as motion control keeps the TAS within its design specifications, safely shutting down if required.

User safety features include traffic light and audio operator warning system, two control systems, anti-slip gangway and a defined safety gap from the turbine ladder. TAS™ has been designed for existing Wind Farm Crew Transfer vessels. The TAS has been designed to be retro fitted on to workboats in excess of 18m with a deck footprint available of 3.0m by 4.5m. The 150 bar hydraulic supply can be taken from the vessel or a self-contained diesel unit.

DEVELOPMENT THROUGH COLLABORATION

Development started in 2011 and the initial concept won the Seawork Innovation of the Year that year. Houlder was accountable for the engineering of the gangway – given its expertise in marine handling systems and deck equipment. BMT Nigel Gee brought their experience of workboats in support – including dampening of vessel motions via an integrated bow roller system.

CARBON TRUST’S OFFSHORE WIND ACCELERATOR (OWA) ACCESS COMPETITION

TAS received further development as part of the Carbon Trust’s Offshore Wind Accelerator (OWA) Access competition. Judged by nine major wind farm developers in a joint industry project, the competition has the aim of reducing the cost of offshore wind by 10% by 2015.

The finished gangway was presented in 2012 and the first unit was deployed spring 2013 by Turbine Transfer Limited. The system is now in full production with more units due for delivery in 2014.

HOULDER – A TRACK RECORD OF INNOVATION

The name Houlder has been associated with the marine environment since the 1850s when it began as the Houlder Brothers’ Shipping Line where it was at the forefront of developing trade routes with Australia and South America.

REPUTATION

The company’s reputation for innovation the energy sector began in the 1960s when it developed a fleet of liquefied gas tankers. It soon became renowned for owning and operating some of the most ingeniously designed equipment in the North Sea including the Uncle John semi-submersible dive support vessel which set records. Since becoming independent twenty-five years ago, the business has expanded its capability and continues to deliver innovative solutions across the oil & gas, marine and renewables markets.

Houlder

[Click to view more info](#)

[Click to view video 1](#)

[Click to view video 2](#)

“WE OUGHT TO CALL OURSELVES HOMO CLAMORANS – NOISEMAKING MAN”

In usual Terry Pratchett style, he cleverly makes his point. When we build new man-made structures such as bridges, wind farms, and harbours, we make a lot of clamour pounding and digging our way into the sub-sea sediment.

UNDERWATER NOISE

Underwater noise travels four times faster and up to 100 times further than in open air. This noise can cause huge disruption to marine mammals which rely heavily on sound to navigate and detect prey. Innovative tools exist to measure both the noise which is disturbing the animals and detect the vocalisations made by the animals themselves, allowing mitigation and monitoring of the marine mammals in the area of noisy working.

THE POWER OF NOISE

Mammals exposed to increased noise levels ultimately have increased levels of stress. This stress can cause disorientation, erratic behaviour, avoidance of food and migration routes, disruption of breeding and can even lead to death. Acoustic noise can range from very quiet and persistent noise to exceptionally loud. The latter has been known to cause permanent hearing damage or erratic behaviour that could lead to death.

We've seen recent evidence of this in the news lately. The International Whaling Commission's September findings on the 2008 stranding of 100 melon-headed whales in Madagascar concluded that loud sonar 'pings' was the most likely trigger for their behaviour.

Another example may be seen in the case of the Blainville's beaked whales in the Bahamas. When exposed to mid-frequency active military sonar the whales appeared to display erratic behaviour leading to potential decompression sickness (or the bends), which subsequently could result in stranding.

MITIGATING THE IMPACT

Mitigating the impact of anthropogenic activities on the marine environment requires a method of mammal detection. To help with this, SMRU Marine Limited, a global leader in marine mammal consultancy, which is a wholly owned subsidiary of the University of St Andrews, Scotland, provides advice on the acoustic biology, hearing capabilities and behaviour of marine mammals. Additionally, advice can be given on the

prediction of the potential impacts of noise from construction, operation and decommissioning activities, not only for individual animals, but also looking at how effects on individuals translate at the population level.

The European Commission's Marine Strategy Framework Directive aims to achieve a good environmental status (GES) by 2020. GES allows for different uses of the marine resources to be conducted at a sustainable level, guaranteeing their survival for future generations.



The Marine Directive's Descriptor 11 aims to ensure the introduction of energy (including underwater noise) does not have an adverse effect on the ecosystem. Measuring underwater energy for activities such as harbour development, dredging and oil rig decommissioning requires an Environmental Impact Assessment (EIA).

As part of the EIA process, noise levels (and marine mammal detections) are recorded before and during construction or decommissioning begins in order to establish a baseline. Once a baseline has been established, SMRU Marine is involved in the data collection analysis to ascertain if there is any impact on the environment. If an impact has been determined, we can then develop appropriate mitigation strategies to reduce the impacts noise would have on the local population.

PASSIVE ACOUSTIC MONITORING (PAM) TOOLS

In order to monitor for underwater noise, SMRU Marine utilises many different passive acoustic monitoring tools. Its sister company St Andrews Instrumentation Limited (SAIL)

manufactures the innovative PAMBuoy™ which is a cutting edge autonomous noise level and marine mammal detection passive acoustic monitoring system. Using real time communications and data reduction, it sends processed data to users, decreasing the risk of data loss, whilst saving time, increasing cost effectiveness and ultimately client confidence.

Another PAM tool is the CPOD, which is a hydrophone device that records bio-sonar or echolocation clicks, of marine mammals – performing best for detecting harbour

porpoises. The data collected from this device allows for the indication of presence and habitat use.

The SM2M Marine Recorder is another hydrophone device which provides long-term monitoring for anthropogenic and multiple species' acoustics from 2Hz up to the ultrasonic frequency of 192 kHz. These can be set up to detect for porpoise, dolphins and vessels.

MOVING FORWARD

With the recent results from the latest International Programme on the State of the Ocean review of science on anthropogenic stressors on the ocean, mitigating these stressors will become more of a priority. As such, developers must ensure environmental compliance does not take a backseat to expansion.

SMRU Marine Limited/St Andrews Instrumentation Limited

MAJOR DEVELOPMENTS IN ROPE ACCESS

UK's specialist height safety manufacturer heightec has announced the launch of three new products for the rope access industry.

QUANTUM

The Quantum back-up device is a new, unique design, achieved through extensive research, continuous development and rigorous testing. It controls slippage with no rope damage, works on new or used rope, is suitable for two-person rescue and cannot be dropped. It is a step forwards in simplicity, strength, durability and performance and a significant advancement in safety for users.

PRISM

The Prism descender has involved years of development and refinement, resulting in a device that is not only multi-functional but offers a high load rating, with patented variable friction modes which can be switched between configurations under load and a double braking mechanism.



THE X-CAM PRO

The X-Cam Pro is a new range of ascender devices which are a considerable improvement over 'traditional' sharp toothed cams, have exceptional grip on varying conditions of rope whilst minimising rope damage. The X-Cam Pro range includes the Pulsar handled ascender and Twist chest ascender for rope access.

DISTINCTIVE INNOVATION

Each product brings its own distinctive innovation with new functionality and ergonomic design. The new heightec range has been tested to loads exceeding industry standards and offers users major benefits without the need to change their existing work practices.

“Rope access is a major industry in the UK and overseas. With the number of man hours on the ropes increasing each year, safety remains high on everyone's agenda. It is essential that manufacturers push forward safety innovations to ensure the risks involved with working at height are continually kept to an absolute minimum”, said Keith Jones, Managing Director.

Heightec

The Foundation for Offshore Wind



Reducing Costs. Raising Standards.

Our innovative foundations are the first structures in place on the largest UK round 3 offshore wind site.

A market-proven hybrid design, combining the industry recognised benefits of gravity base foundations, monopoles and suction buckets. Our foundation is the environmental, economic and technologically groundbreaking solution for the next generation of offshore wind.

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INNOVATIVE UNMANNED AERIAL VEHICLES (UAVS) LAND SURVEYS PROVIDE SIGNIFICANT BENEFITS TO WIND FARM DEVELOPERS

Specialist aerial inspection and land survey company Cyberhawk has been working with wind farm developers to survey sites more quickly and more safely than traditional survey methods. Cyberhawk is the first company in the UK to offer professional land surveying services using a combination of fixed-wing and multi-rotor UAVs, operated by its accredited pilots under the direction of its qualified and experienced land surveyors.



INCREASED SURVEY AREA

The company uses UAVs to survey more than 100 hectares in a single day and acquire thousands of high-definition geo-referenced aerial photographs. The images are processed with ground control markers to provide highly detailed aerial mapping and topographic surveys (Digital Elevation Model and orthophotos – see Note 1).

By contrast, a traditional land-based topographical survey might cover only 10% of the area of a UAV survey in the same timespan, but without the added benefit of high-definition images of the site. Other advantages over traditional surveying methods include dramatic cost savings, step improvement in safety, faster turnaround and improved site information to aid decision-making.

CASE STUDY

In a recent project in South-West Scotland, the wind farm developer had considered alternative survey methods such as traditional land-based surveys and manned aerial LiDAR (see Note 2) surveys, but concluded that the technique using UAVs

would be the most efficient way to survey the site. Decisive factors included time saved, the reduced risk to subcontractors and the quality of data produced by the UAV methodology.

The purpose of the survey was to provide data to assist with the planning, design and construction of the site, which covered over 400 hectares of moorland and bog with limited access. The aerial survey meant risks were reduced with minimal access and time on site required by staff.

DELIVERABLES

The deliverables from the survey were highly detailed geo-referenced orthophotos and an accurate Digital Elevation Model (DEM). In addition to the information acquired from the air, the team added some ground survey information such as culvert levels using GPS equipment.

The detailed orthophotos revealed previously hidden detail, including a watercourse that was not shown on Ordnance Survey mapping and was previously unknown to the client. The combination of detailed

topographic information together with vertical and oblique photography of a proposed site provides windfarm developers and the renewables industry with enhanced data to allow improved decision-making on their sites in a cost, time, and safety-efficient way.

Cyberhawk

NOTE 1

An orthophoto is an aerial photo geometrically corrected so that the scale is uniform. The photo has the same lack of distortion as a map. This is different from an uncorrected aerial photograph where perspective distorts the spatial relationships between points.

NOTE 2

LiDAR is a detection system that works in a way that is analogous to radar, but uses laser light instead of radio waves.

HOW INNOVATION IN ENERGY STORAGE CAN HELP ATTRACT RENEWABLES FUNDING

Amid the varying energy policies and mixes across governments around the world, it's broadly accepted that renewable energies such as wind are a medium-term, low-carbon and potentially cost-effective alternative energy source.

However, when projects are implemented in isolation from storage, the old barriers of renewables intermittency prevail. Unlike a power plant, you cannot simply turn on a wind turbine when there are peaks in energy demand. In the absence of energy storage, wind energy captured but unused at that moment in time is effectively wasted.

SOLUTION

The solution to this inefficient system is energy storage, which can store energy when the wind is blowing and release it when it is not, as well as manage the flow of energy during periods of peak demand. Additionally, by investing in storage we can defer spending on power stations, upgrading cabling and infrastructure and put an end to situations, in Scotland for example, where wind energy operators are asked to power down their turbines when generating more power than the system can handle.

THE OPPORTUNITY

Traditionally the cost of energy storage technology was inhibitive for mass implementation and the technology itself was still in its infancy. However in recent years, thanks to bodies like the UK Low Carbon Network Fund, British companies are being given the opportunity to demonstrate their technology innovations, consequently, we have seen the cost of storage technology reduce as it matures.

Furthermore, a raft of studies have highlighted the benefits of energy storage at different price levels for different energy mixes and growth. For example, an Imperial College energy storage report found that the UK could make system savings of more than £10 billion per year by 2015, if it can develop 15GW worth of storage by then.



CHALLENGES AND THE FUTURE

It is clear that at a grid level, energy storage can deliver a number of opportunities and benefits. Yet, one of the main problems holding back investment in storage is a lack of knowledge sharing between the four key stakeholders: generators, transmission system operators, distributors, and supply companies. With each part of the chain only responsible for a narrow segment, it's hard to put a 'value' on efficiency as the efficiency gains are split four ways.

CHANGE IN POLICY?

One way to solve this would be for a change in policy to make electricity storage a separate market category from generation, transmission, distribution and supply. Fortunately, The Department of Energy and Climate Change (DECC) has called upon S&C and other organisations in our space to help to determine electricity storage's value to the UK thereby encouraging this market category distinction and pre-empting concerns from utilities about the risk of unproven options and a lack of financial incentives.

Such barriers are not unique to energy storage; however we are confident that with the technology becoming more mature, cheaper and being increasingly adopted around the world, adoption will advance.

Andrew Jones
Managing Director
S&C Electric Europe Ltd.

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ZF MOTION AND MOBILITY

The 3 Ts Terrific Training in Teams

In the second of two articles on the training we give (and get) at work - Trainer and Motivational Speaker Frank Newberry looks at some of the pre-requisites to making the training we give (and get) more meaningful.

In Part 1, we looked at how we can do a better job of recalling essential facts for vocational tests and examinations. I know that even those of us who believe we have poor memories will taste success if we make the effort to commit things to memory. Our memories are perfect – it is our recall systems that are imperfect. The five recall reminders from Part 1 were:

- 1 No note taking, no reliable recall
- 2 No reviewing of notes taken, no reliable recall
- 3 No tidy organisation of notes and study materials, no reliable recall
- 4 No context or understanding of how the learning is applied, no reliable recall
- 5 No effort and no energy, no reliable recall.

Remembering facts can be important but most vocational or 'on-the-job' training is about learning how to do something safely. After the learner has done it safely once we need the person to do the newly learned task over and over again until we can eventually look and see that the person is skilled at performing that task.

In Part 2 of this article (The 3 T's) I want to review the three levels of learning and consider how all three need to be engaged if any investment in training is to be worthwhile and meaningful.

'KNOWLEDGE AND AWARENESS' LEVEL

The lowest learning level is the 'Knowledge and Awareness' level. To teach someone to be able to recognise the most suitable tool for a particular task can take just seconds or maybe a minute or two. Just about any experienced member of the work team can train people at this level of learning. Junior members of the team might find it meaningful if supervisors were to delegate training at this level to them.

'SKILLS AND ABILITY' LEVEL

The second highest learning level is the 'Skills and Ability' level. To teach someone to be able to identify correctly a tricky health and safety situation (and recommend a remedy) or operate a particular machine can take longer than a few minutes. It might take an hour, a day or even longer depending on the level of skill we want the learner to achieve.

If training is to be seen as relevant and meaningful to the learner it is vital, at the start of any training activity, that the learner is absolutely clear what his or her learning objectives are. Is the objective to just raise awareness (level one) or is it to see the learner skilfully operate a complex and valuable machine (level two)?

'DISPOSITION AND ATTITUDE' LEVEL

The highest level of learning is the 'Disposition and Attitude' level. Whilst we might really like to get certain people to completely change their attitude on something or maybe convert a pessimist to being an optimist – it could take us a whole lifetime!

It is, however, both meaningful and reasonable to ask people to 'adopt' a particular attitude in the workplace. I recommend that if a particular attitude is a requirement then we should write it into a person's job description. For example we might state that a 'positive attitude to health and safety' is essential in the job. We might also require people to have a 'friendly disposition' towards other people including colleagues, customers and officials.

SUPERVISORS AND TRAINERS DO NOT HAVE TO WORRY ABOUT CHANGING ATTITUDES

With this requirement pre-requisite in place – supervisors and trainers do not have to worry about changing attitudes; we can confine ourselves to the relevant actions and observable behaviour that constitute friendliness towards others. For example – being polite, offering help, encouraging people and so on.

This is so important because whenever I ask employers which level of learning is the most important to them after an employee has been working for six months – the response is always the same. It is level three - disposition and attitude.

ITS IMPACT ON INDIVIDUALS AND TEAMS IS TRULY TERRIFIC

It has long been my experience that the impact and meaning of training both in the short term and in the long term is magnified when it is done locally, in the workplace and in work teams.

In the workplace training takes on a mantle of significance that I cannot re-create in the classroom. When training has this significance and importance its impact on individuals and teams is truly terrific.

This is in no small part due to the fact that we can work together in familiar surroundings on workplace problems. This is particularly true when team members are working for the very first time on key issues that really bug them - like communication, teamwork, individual and team morale and other key factors affecting their performance.

THIS IS AN ESSENTIAL PRE-REQUISITE TO SUCCESSFUL TRAINING

This type of on-site training works best when employees at all levels feel that they are being taken seriously. It also means that team members have to feel that it is relevant and appropriate to express their concerns openly. In my experience this is an essential pre-requisite to successful training especially at level three (disposition and attitude).

Getting team members to feel comfortable about speaking openly has been so difficult to achieve in the past that I have been forced to: (i) turn up unannounced, (ii) do a tour of the premises with team members, one at a time, and (iii) ask supervisors to leave the room so that team members can speak openly about their feelings.

In my experience it takes a lot to get some people to talk about their feelings. Once they feel it is safe to do so then the strongest feelings and opinions emerge! These are usually but not exclusively about the allocation of work, how they are being treated by other team members and how they rate the employer and those people currently in management and supervision.

THE COMMITMENT TO DOING THINGS BETTER CAN BE SECURED

For this type of training - once we have the appropriate learning objectives in place and team members have had the chance to get their feelings off their chest then the training becomes more meaningful and the commitment to doing things better can be secured.

Perhaps we all need to remember that training does not have to be something that one person 'does' to another. It can and should be a partnership between supervisor or trainer and learner. It is for me a sobering thought that supervisors or trainers are always judged by the answers to simple questions like: 'Were the employer's requirements met?'. 'Were the trainee's learning objectives met?'

Good luck with the training you give and get in the workplace.

Frank Newberry
www.franknewberry.com



EMERGENCY RESPONSE TEAMS (ERTS)

We have been featuring Hughes Sub Surface Engineering within our pages for a number of years now and the company has grown considerably over that period.

Offshore medical provision is an extremely important part of the offshore support structure and the company has grown this side of the business to meet the needs of the wind energy industry.

ROUND THE CLOCK RESPONSE

Since deciding to branch out into the field of offshore medical provision, there has been five hardworking teams (of three men each) working twenty four hours around the clock in response to any emergencies at Gwynt y Mor windfarm in North Wales.

Regardless of complexity or distance, the ERTs can always be relied upon to reach the site of an incident as quickly as possible to provide first aid and assistance in an emergency.

NOT FOR THE FAINT HEARTED

It's not an easy life working in an ERT; each member is constantly put through their paces in a rigorous training regime, covering all types of rescue. They taste the full spectrum of offshore life, climbing as high as the highest turbine engineers and often getting as wet as any diver on the ocean floor – through long 12 hour shifts and relentless working conditions in bad weather systems (if an emergency requires it), the ERT is always at the forefront of the medical response in the field, and often picks up smaller essential duties.

COMPANY GROWTH

Hughes Sub Surface Engineering has grown rapidly since its inception in 2005. Based in Bootle, Liverpool in the North-West of England, the company is in a prime location for the offshore wind sector. Originally working from just one tiny unit on local civil engineering works (canals and docks), the company acquired several nationwide civils contracts and began to move into work on power stations and outages, offering both diving and confined space services.

WIND INDUSTRY

HSSE is now hard at work in the renewables sector, specialising in wind farms and enjoying a position as an industry leader. The company is passionate about supporting the development of the renewables industry as a viable energy alternative, and takes great pride in providing high quality services to the sector.

In particular, HSSE has fostered a keen interest in developing safer working methods; the result of this has been the introduction of the Emergency Response Team service. Despite managing numerous high profile projects and providing diving, roped-access, confined space and ERT works, the company maintains a small staff and friendly atmosphere which extends to employees and clients alike.

THE FUTURE

The future aims and objectives of HSSE are manifold: the company wishes to maintain its growth and strong reputation in the renewable energy sector. It also continues to provide a high quality service and sharpen safe working practices. With their sights set on North Sea expansion, there could soon be several other HSSE offices at work across the UK. It seems that in our growing industry – with many years of life ahead – Hughes Sub-Surface is a key player which is here to stay.

TO GET A BIT MORE INFORMATION ABOUT THE REAL WORLD OF WORKING WITHIN AN ERT CREW WE FOLLOW ONE OF HSSE'S CREW MEMBERS...



ALL IN A DAY'S WORK THE ERT CREW

NAME:

Phil Keating

COMPANY:

Hughes Sub Surface Engineering

POSITION:

Project Manager/Crew Team Leader

PREPARATION, PREPARATION, PREPARATION

It was the day after the night before - severe storms had been battering the south of England, and in the aftermath I caught up with Phil Keating, Crew Team Leader of Hughes Subsurface Engineering's Emergency Response Team (ERT).

AFTERMATH

In the rough seas following the storm, Phil and his crew were 'weathered out'. They wait patiently for an improvement in conditions before making the two hour journey offshore to the Gwynt Y Mor windfarm; these periods of downtime provide opportune moments to undertake thorough equipment checks and run through medical training exercises and drills.

Each member of the team has a background in either military, fire service or coastguard experience, and each has high level medical qualifications. They have undertaken intensive training, from rope rescue and confined space training to swift water rescue and co-ordination of helicopter evacuation, and should the occasion arise the team is prepared for any eventuality.

24 HOUR COVER

The company provides 24 hour cover for the 160 turbines and working vessels, and guarantee that at any given time an ERT crew will be no more than 4 miles from the windfarm. Personnel can be safe in the knowledge that, should an emergency arise, an emergency medical crew can be on the scene in moments (there is roughly 1 team for every 60 personnel at full capacity).



A TYPICAL DAY... IF THERE IS SUCH A THING!

To ensure continual cover, shift patterns are:

- 0600 hours - 1800 hours
- 0900 hours - 2100 hours
- 1200 hours - 2400 hours

At the start of the shift each team has a handover, consults the logbook, checks work permits and completes another series of exhaustive and essential checks on equipment.

THE CREW

Each crew comprises a team leader, 2 medical technicians, the transfer vessel skipper and a deck hand. Health & safety of personnel is of the utmost importance, and whilst offshore all personnel are tracked via a database maintained by the Marine Controller, in addition to the AIS GPS system.

The teams undertake a variety of duties in addition to their medical rescue. Depending on the log and scope of work for each shift, these range from refuelling generators and clearing guano to changing bulbs for the navigation aids. Each of these tasks is essential to ensure the 160 turbines avoid downtime and are continually operational.

REFUELLING

Assets often require refuelling - not the easiest of tasks considering the environment! Once reaching the turbine, the team climbs 80 ft to the top of the Transition Piece, ropes the fuel hose to the structure up to the platform, and refuels the generator; on a good day (weather-permitting) up to 1200 litres of fuel can be delivered to each turbine, with a maximum of 10 turbines per day.

LESS GLAMOROUS

One of the less glamorous duties HSSE perform is the cleaning of guano from the nacelles and structures, an essential (if overlooked)

task. The biggest culprits of spreading guano are seagulls and cormorants; their deposits are extremely destructive and corrosive to the turbines, and high pressure hoses and full mask and protective clothing are required during the cleansing of the area. It is often necessary to undertake guano cleaning prior to installation of turbines too.

This is just a brief snap shot of the duties the ERT perform; when speaking to Phil his sense of humour, modesty and dedication are abundant. I imagine these to be common traits throughout his crew - all necessary to manage their high risk responsibilities and take everything in their stride

Fliiss Chaffer
Interviewer
Wind Energy network

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SERVICING THE NEEDS OF THE WIND ENERGY INDUSTRY

The offshore wind industry has a core requirement to improve reliability, safety and efficiency in wind farm operations whilst reducing costs and delivering value.

Furthermore, specific challenges facing crew vessel managers and offshore decision makers include the need to enhance safety during vessel transfers, effective planning and monitoring of vessels and personnel and the management of technicians, crews, major tools and strategic spares.

OFFSHORE WIND MANAGEMENT SYSTEM

In response to these industry needs and challenges, Strainstall has introduced an integrated marine management system covering a broad range of wind farm activities, enabling the effective monitoring and management of tool, vessel and personnel performance whilst ensuring more cost effective and safe operations.

Built from robust technology used within the harsh marine environment, OWMS™ is a comprehensive, web accessible monitoring and control architecture that covers a full range of transfer vessel activities. These activities include crew and vessel tracking, fuel consumption monitoring, real-time integration of meteorological and wave data, vessel performance monitoring and CCTV.

The OWMS™ supports operator decision making by providing real-time data from various sources, infield and interfield, to enable interactive, responsive and safe assessments to be made. Overall, to ensure that we meet the continued and relentless drive to reduce costs whilst retaining value over the lifetime of the asset, we need systems that support practical and pragmatic evaluation of options selected on a real time basis, which is exactly what the OWMS™ delivers.

JAMES FISHER AND SONS PLC

James Fisher and Sons plc, the UK's leading marine services provider, supports customers in the development, deployment and operation of offshore tidal arrays. Strainstall, a part of James Fisher and Sons plc, is recognised as a world leader in innovative load measurement and monitoring solutions and has provided extensive services to the offshore renewables industry.

Strainstall



AGE OLD COMPANY OFFERS FULL SERVICE SUPPORT TO HUMBER'S NEWEST INDUSTRY

As the Humber's renewable energy sector gathers pace, an age old Hull company is gearing up to take full advantage of the estuary's revival.

HOLISTIC APPROACH

While some firms have invested in wind farm support vessels, Rix Shipping – which can trace its roots on the Humber back 140 years – is taking a more holistic approach to wind farm support services.

In October last year the company launched Rix Sea Shuttle, the latest company in the J.R. Rix & Sons group, on the back of a £7.5m order for five crew support vessels to work along the east coast and in Europe.

ALEXANDRA DOCK

But the firm's services in Hull extend far beyond that, taking in fuel provision to port management and storage and warehousing facilities on land close to Alexandra Dock – an area earmarked for redevelopment for businesses in the renewables industry.

COMPLETE RANGE

"Our intention has always been to develop a complete range of on and offshore support services," said James Doyle, Managing Director of Rix Shipping.

"We have a long heritage of operating ships and barges on the Humber, it has been a core service of the Rix Group for more than a century, so it was a natural step for us to enter the wind farm vessel sector too.

"J.R. & Sons is a diverse business so we felt there were other things we could bring to the industry. As the offshore industry attracts more companies to the Humber we have created warehousing facilities for those companies. If they need temperature controlled storage, we can supply it. If they need workshops to service or develop technical equipment, again, we can supply it.

"It is about offering support that starts onshore at the port and goes right the way through to when the engineers step off the boat to work on the turbines."

WIND FARM SUPPORT VESSELS DELIVERY

Currently Rix Sea Shuttle has taken delivery of three wind farm support vessels – the Rix Cheetah, Rix Panther and the Rix Tiger – with a further two to be delivered next year.

Each aluminium vessel is crewed and operated by Rix, can carry up to 12 technicians and is capable of reaching speeds of up to 30 knots. But it is not just in shipping that Rix is looking to conquer the renewables industry. The other major aspect of the business is fuel – ranging from residential heating oil to marine gas oil to commercial diesel and lubricants – and that makes up an important part of the company's service provision too.

INVESTMENT

Recently Maritime Bunkering Ltd – another Rix firm – invested £100,000 in installing a second double-skinned 100 m3 fuel tank on the Port of Grimsby East, in a joint venture with Grimsby Fish Dock Enterprises.



The tank was installed to accommodate a growth in boats serving the offshore industry from the port, which is used by Siemens and Centrica. Maritime Bunkering's barges are also being called upon to refuel more vessels associated with the wind farm industry in the Humber.

"The offshore industry is presenting us with a variety of opportunities across our business," Mr Doyle said. "Whether that is shipping, storage or fuel our intention is to unlock the potential within the sector by bringing to it all the skills and services that have made this company a success for the past 140 years."

Rix Shipping

[Click to view more info](#)

ACHIEVING SO MUCH IN SUCH A SHORT TIME

Since 2009, Seajacks vessels have installed more than 260 wind turbine generators, which provides more than 800MW to the grid, and in that time they have developed experienced offshore marine crews and engineering teams.

'Seajacks Scylla', due for delivery 2014 and 2015 respectively.

CURRENT PROJECT

Currently, Seajacks is acting as Main Installation Contractor for WindMW's



5 VESSELS BY 2015

Seajacks currently owns and operates 3 self-propelled jack-up vessels, 'Seajacks Kraken', 'Seajacks Leviathan' and 'Seajacks Zaratan' and have commissioned two additional vessels, 'Seajacks Hydra' and

Meerwind Offshore Wind Park in the German Bight, supplying Seajacks Leviathan and Seajacks Zaratan to work together in tandem installing all 80 monopiles, transition pieces and WTGs at the site.

PARTNERSHIPS

Seajacks has also partnered with other industry leaders to provide a range of end-to-end services to its client, including the installation of scour protection and noise mitigation measures. These measures ensured the company could install the components efficiently with the least impact on the local marine environment.

LIFTING SERVICES

An all-encompassing strategy of lifting services throughout the project was delivered. This strategy included the production of lift plans, onsite management for lifting operations, project guidance and advice at the pre-engineering, engineering and execution stages, project method statements and procedures, risk assessment for all types of lifting and project operations, onshore and offshore site audits and report.

VITAL EXPERIENCE

Working at Meerwind has provided the company with vital experience for technically challenging future projects. With an expected completion date of February 2014, this eighty 3.6MW Siemens turbine project is well on track.

Using this experience, Seajacks is dedicated to becoming the leading service provider for the installation, maintenance, repair, hook-up and commissioning of offshore wind farms in Europe.

Seajacks

APPROACHING 20 YEARS OF WIND TURBINE OIL CHANGES

As the first company in the world to carry out wind turbine oil changes over 19 years ago via their specialised truck mounted oil pumping system and now Europe's leading provider of on-shore wind turbine oil changes, Peter Lonsdorfer are delighted to be at the

HUGE INDUSTRY BENEFIT

This self-contained method will prove to be of huge benefit to the industry as the system has been proven to be much safer and less time consuming than the traditional method, as there is no longer any need for winching 20 litre drums up and down from a vessel to

the turbine nacelle to drain and fill gear and hydraulic systems by hand, as well as eliminating the chances of contamination by carrying out the oil exchanges in a closed loop system from vessel to turbine.

TIME SAVINGS

While in many cases on the larger offshore wind turbines the gear oil changing process alone can take up to three days by hand, the company's average completion time on these same large offshore wind turbines is less than eight hours for the combined gear and hydraulic system oil changes.



forefront of the wind industry yet again by being the first company to carry out a vessel mounted combined gear and hydraulic oil change on an offshore wind turbine, using their specialised vessel mounted pumping system.

Unlike the traditional method, their unique pumping system allows them to offline preheat and filter the new oil in their purpose built Stainless Steel tanks, which prevents it being damaged or degraded in any way.

The whole process is carried out in a closed loop system, which allows the company to guarantee their work is meeting the DIN ISO 4406 standard for oil cleanliness at point of fill regardless of oil type or manufacturer.

WORLD FIRST

In early August Peter Lonsdorfer became the first company worldwide to complete this offshore wind turbine combined gear and hydraulic oil change, and since then they have continued to do so day on day and will be working right through the winter months for their customers moving on one offshore wind farm site after another to ensure a safe, clean and the time critical service process is met.

VERSATILITY

The company's modular fully enclosed and banded offshore oil change units can be fitted to any vessel, and can be used for single day trips from port to turbine for complete oil changes, or are also able to facilitate 24 hour operations on a 12 hour shift rota for as much as four weeks at a time at sea without the need for the vessel to return to port to be replenished with new oil.

They see this process now being demanded by most wind turbine manufacturers and owners, and will be an essential part of the offshore wind industry for years to come.

Peter Lonsdorfer

[Click to view more info](#)

[Click to view video](#)

NEW SURVEY VESSEL FOR OSIRIS PROJECTS

Specialist seabed mapping company Osiris Projects recently launched the 5th vessel in their fleet, the 14.0m GRP catamaran MV Proteus.

SPECIFICATION

Designed to provide an excellent working platform for coastal survey operations, MV Proteus can work up to 60 miles from a safe haven under MCA Category 2 and has a maximum speed of 24 knots. The vessel benefits from a shallow draft of just 1.0m making her ideal for inshore operations, while the hull design ensures exceptional manoeuvrability at both low and high speeds and incorporates a low drag profile providing excellent fuel economy.

EQUIPMENT

The vessel is equipped with high grade positioning systems including an Inertial Navigation System (INS) and acoustic Ultra Short Baseline (USBL) acoustic positioning system for towfish tracking. The large back deck features a moon pool fitted with a hydraulic retractable hydrodynamic gondola designed to house a high grade multibeam echo sounder systems.

Proteus is permanently mobilised with an AGO-CSW7 electric sonar winch which when combined with the hydraulic A-Frame, allows for the safe launch and recovery of geophysical equipment including side scan sonar, sub bottom profilers and marine magnetometers.

LIFTING WINCH

A separate hydraulic lifting winch enables oceanographic and benthic survey equipment to be launched and recovered from the vessel including small inspection class ROV/ drop down camera, various grab sampling equipment and benthic trawls. Additional custom designed over side mounts and davits allows for the vessel to be configured for a range of client requirements. This capability optimises consistency between datasets acquired by Proteus and Osiris Projects' 24hr vessels; 27.5m DP1 flagship 'MV Bibby Tethra' and 26.5m 'MV Chartwell'.

SISTER VESSELS

Proteus is the 4th custom build project undertaken by Osiris Projects, following the launch of 12.0m 'MV Freja' in 2002,



15.3m catamaran 'MV Lia' in 2004, and the aforementioned 'MV Bibby Tethra' in 2011.

The success of Bibby Tethra, particularly in challenging sea conditions, has led the company to pursue the build of a sister ship to be built to the same fundamental design with a number of minimal alterations scheduled for launch in January 2015.

Both Lia and Freja have also proven highly effective in coastal environments, and have completed over 200 marine survey contracts for marine renewables and oil and gas clients alone.

Osiris Projects

[Click to view more info](#)

TRIPLE VESSEL CONTRACT SUCCESS

Tidal Transit has announced that the company have been awarded its third 18-month vessel charter contract by Scira Offshore Energy Limited. This will see the Eden Rose working alongside its sister vessels Ginny Louise and Tia Elizabeth transporting turbine technicians from the Outer Harbour in Wells-next-the-Sea to the Sheringham Shoal Offshore Wind Farm to carry out planned maintenance.

LONG TERM BUSINESS RELATIONSHIP

Leo Hambro, Tidal Transit's Commercial Director said, "We are delighted with this latest contract. Our vessels are supremely suited to the job they do in the sometimes unreliable conditions of the North Sea. We were part of Scira's operation during the building stage, and it is a huge testament to the vessels and to the company, that now, with all three vessels under contract, we are playing an even greater role in the planned operation and maintenance of the Sheringham Shoal Offshore Wind Farm."

FURTHER INVESTMENT – VESSEL NUMBER 4

The company has also made a further investment in expanding its offshore wind farm personnel vessel fleet.

The charter demand for the latest generation of offshore wind farm Personnel Transport Vessels (PTVs) from Tidal Transit Limited has

enabled this young North Norfolk company to commission the construction of a fourth vessel with Spanish boat builder Mercurio Plastics.

KITTY PETRA

Kitty Petra will be constructed to the same specification as her three sister vessels, and she is expected to arrive in the UK in early Spring 2014.

In confirming this latest vessel construction contract, Leo commented, "Activity associated with offshore wind farms in the waters surrounding the UK is frenetic. A number of wind farms are already in operation and we are delighted that Tidal Transit's existing fleet of three rugged, high specification PTVs has been chosen to provide daily 12-hour charter transport for the turbine technicians who maintain the Sheringham Shoal Offshore Wind Farm."

LINCOLNSHIRE AND EAST ANGLIA

Leo continued, "Construction is scheduled to commence on at least five other major offshore wind energy power plants off the coast of Lincolnshire and East Anglia over the next 18/24 months, and there is already a demand for suitable vessels to support these projects for tasks including seabed surveys and met-mast installation and maintenance. I have every confidence that, like her sister vessels, Kitty Petra



will go straight to work when she arrives in the UK next year."

And concluded, "The majority of offshore wind farm operators have a 50 year licence from the Crown Estate, so daily routine maintenance is going to play a huge role in the output efficiency of all offshore wind farms. Transporting technicians to the wind farms to undertake that work will therefore create a high demand for safe, reliable vessels for many years to come."

Tidal Transit

[Click to view more info](#)

[Click to view video 1](#)

[Click to view video 2](#)



BESPOKE EQUIPMENT FOR OFFSHORE PROJECTS

Tyne and Wear Marine Ltd (TWM) is a North East of England based business and has been involved in supporting the offshore sector by utilising a range of bespoke equipment which they have designed having anticipated the need of clients operating in the offshore industry.

MODULAR PONTOON PUSHING TUG SYSTEM (MPPTS)

TWM's MPPTS consisting of 8 pontoons with a unique dovetail locking system, and twin engines of 180hp, enables moving large pieces of equipment with more ease and cost effectiveness.

The benefits of using this equipment for clients are (a) it enables large pieces of equipment to be moved in one piece and (b) the equipment can be transported by water. This removes the need and associated costs in these types of projects in having to dismantle the equipment after building in order to transport it by road, then rebuilding and testing it once it has reached its destination.

Because the MPPTS is completely road transportable it can be taken almost anywhere without the need for a good weather window.

RECENT PROJECTS INCLUDE...

- Transporting a 96 ton Liebherr Crane – this 96 ton crane was transported from the Liebherr factory in Sunderland, Deptford area to Corporation Quay to continue its journey by ship to Hartlepool for delivery to a gas platform for the Cygnus Project.

The limited water depth of the River Wear which is due to lack of dredging because of the declining ship industry, makes the shallow draft of TWM's modular pontoon system ideal for projects of this nature. 4 of these large cranes are currently programmed in for the immediate future and require transporting, resulting in savings in time and costs.

- Transporting two 43 ton Cable Spooling Manipulators – these Cable Spooling Manipulators were transported from A & P Tyne in Hebburn, where they were constructed, to Shepherds Offshore Technology Park for Duco in Wallsend Tyne and Wear once again, savings in time and costs.

TWM has an extensive range of equipment to support the activities in the Offshore Industry and has available for hire the modular pushing tug system, stand-off pontoons and a variety of fenders.

Over recent months there has been an increase in offshore support services resulting in extending their range of equipment to serve the needs of the industry and have recently transported equipment to the River Tees and Blyth.

Tyne and Wear Marine

[Click to view more info](#)



QUO VADIS CONFERENCE BERLIN 2013

CONFERENCE AND SPEAKERS

Kevin Donovan used this platform to announce a major change to his company Windpower Renewable Solutions (WRS): This event was to be the official launch of the new venture GWA Supplies with WRS becoming fully integrated into the new company. Kevin also introduced his partner in GWA Supplies, Clifford McSpadden.

With many of the delegates being regular attendees at Quo Vadis this has created a real feeling of community at the annual gatherings. This reflects the nature of our industry which is young and closely knit. Indeed, the presentation from Chris Smith (RES) highlighted the development that our industry is undergoing – from its early pioneering, non-conformist beginnings, to an industry that is maturing with improved capabilities but also increasing challenges to incorporate professional standards and practices into everyday business.

NETWORKING AND EXHIBITION

Quo Vadis followed again the successful format of previous years with short presentations and Q&A sessions and long breaks for networking in the adjoining exhibition area where the host (GWA Supplies) and co-host (SKF) as well as the other main sponsors showed their products and services: GL Garrad Hassan (now DNV GL), GasTOPS Canada, Hove A/S, KK Electronics, Morgan A&M, Winergy, and ZF. David Morgan, Business Manager Wind Service from ZF Services UK Ltd was again very pleased with Quo Vadis and voiced his opinion: *“It is a fantastic opportunity for us to meet our customers, some of whom we haven’t seen in a while. As mentioned before ZF Services think this is a very worthwhile conference and we will continue to support it through sponsorship in 2014.”*

QUO VADIS CONFERENCE, THE ANNUAL CONVENTION FOR WIND FARM OWNERS AND OPERATORS HOSTED BY KEVIN AND SIGRID DONOVAN OF GWA SUPPLIES, WAS HELD IN BERLIN THIS YEAR.

BY INVITATION ONLY CONFERENCE

Now in its 7th year, this by-invitation-only conference has grown to become a key event for the industry and an attraction for regular attendees. 86 delegates came to Berlin, including some 40 representatives from 23 utility companies. GWA Supplies are members of the Global Wind Alliance which was well represented with 7 member companies attending, and with Clifford McSpadden who is Chairman of the GWA, moderating the conference as he has done for the past few years.



Chairman Clifford McSpadden ensures the conference delegates are awake!



THE PRE EVENT DINNER GOES SKY HIGH

Quo Vadis is so much more than just a conference. The two day event began with a tour of Berlin with a very knowledgeable, enthusiastic and amusing tour guide. For the evening meal everybody had high expectations, even more so as they were dining 207m above the Berlin skyline in the rotating restaurant of the 220m high TV Tower. This all provided a relaxed environment to network within the group. So by the time the conference started on day two, there was already a strong sense of community.

The conference was then officially opened by Daniel Rutstein, Director General of UK Trade & Investment based in Berlin. This was followed by a number of professional presentations from leaders in their field and from executives of the major utility companies...

- Paul Meaney, SKF – Upgrading Versus Replacing
- Thomas Stalin, Vattenfall – Converter Failures
- Chis Smith, RES – Adding Value to Wind O&M
- Brian Darrell, GL Garrad Hassan – Performance Monitoring
- Olivier Gaget, Offshore Wind Power Consulting – From Offshore Wind Farm Construction to O&M
- Stephan Diedrich, KK Electronics – How to Increase the Energy Output of Older Wind Turbines

OFFICIAL CONFERENCE HALL OF FAME

The sense of community was reinforced with the introduction of the ‘Hall of Fame’. Sigrud Donovan inducted three people into this place of honour for having attended every one of the 7 Quo Vadis Conferences. They are Huw Smallwood (Tegni), Jon Beresford (E.ON), and Steve Higman (REG). As well as getting their faces up on the screen – for which they will or will not be eternally grateful – they received a silver plated model wind turbine. Michael Bermingham (ESB) and Steve Clarke (devCo) were appointed to the Anteroom of Fame for participating in 6 of the 7 Quo Vadis Conferences.

SUMMARY

Feedback has been excellent with many delegates choosing Quo Vadis Conference as their number one event in the year. Kevin Donovan commented: *“As always, we have tried to make everything as interesting and special as we can. This industry is unique and the people involved are equally unique. As more and more people come and spend two days of their precious time with us we have to deliver and make it*

worth their while. This year we have set a new milestone with 3 delegates travelling all the way from New Zealand. We are fortunate that our loyal sponsors and new ones help us to finance the event as this is and will always be for invited guests only.”

Global Wind Alliance

THE INSIDE STORY

When we speak to business leaders on our travels to conferences and exhibitions we often discuss their success in growing their companies. The dynamic nature of the industry lends itself very well to small start-up companies which become SME's within sometimes an astonishingly short period of time.

When Fliss, our intrepid interviewer, arrived back in the office from her latest assignment she suggested that due to the nature of her meeting with Philip Stanyon from Subsea Energy Solutions she highly recommended that we introduce a new feature, so here is the very first 'Inside Story'.

Please feel free to contact us if you would like to be featured in a future edition and we will do the rest.

NEW BEGINNINGS

As Subsea Energy Solutions has only been established since March 2012 as a direct consequence to industry demand, it is worthy of a massive pat on the back to those involved for having gained such a reliable, trustworthy and dependable reputation in such a short space of time.

However, complacency certainly does not feature in Sales Director Philip Stanyon's vocabulary 'dynamic not static' ever evolving to meet the consistently altering demands and requirements of their customers to provide an ongoing professional, competitive, cost-effective, fully bespoke and most importantly a personal service.

Offering design, manufacture, testing and supply of cable protection solutions and subsea equipment to ISO 9001:2008 standards for the offshore sector; renewable and oil and gas, I was certainly keen to find out a lot more about this highly dynamic multi-million pound turnover company.

CONTROL OF YOUR OWN DESTINY

The ethos behind Subsea Energy Solutions was simply to be in control of their own destiny. The company is thankful for all past experiences good & bad that have led to the creation of Subsea Energy Solutions. The company Director's have long



desired to take client service to another level, beyond they feel the reach of most companies. Collectively, Philip, the partners and employees have well over 100 years experience and shall bring every year of experience to bear.

Employing 15 plus personnel, the company contains skill sets of design, project management, documentation, machining, welding, fabrication and polyurethane processing coupled with highly trained Lloyds Registered coded welders also providing aluminium welding.

Already acquiring a plethora of blue chip clients the Directors pledge to maintain this vein with a 'can always do attitude' and insist in continuing the direct impact within the industry.

The project office, processing plant and fabrication facilities are based around Richmond, North Yorkshire, which benefit from electricity generated from its own turbine, biomass heating and to boot a 'right rural' view of a large lake!

CABLE PROTECTION SOLUTIONS

Subsea Energy Solution provide a full suite of solutions for subsea cable protection and have on many occasions been at the drawing board producing prototypes, performing system integration trials, producing pre-production units, performing factory acceptance trails (also liaising with university's and testing innovative ideas) leading to full-scale production units.

Since the company's inception I'm personally aware the Directors have developed very strong relationships with all their clients and have undertaken bespoke design work right through to the manufacture and installation of numerous projects.

Other bespoke solutions have now also been installed on RWE Npower offshore wind farms, E.on offshore wind farms and Vattenfall offshore wind farms. All projects have represented 'pure & bespoke design', i.e. never ever having been undertaken before within the industry.

Philip continues that in many instances companies come to them simply out of delivery schedule necessity, 'a don't know where to turn next' scenario, which is just the challenge the highly flexible company relishes and thrives upon.

CASE STUDY

One of their clients came to them with one such challenge for an offshore wind farm, needing to be mobilised and within two and half weeks. The requirement was to replace and protect an export cable. Subsea Energy Solutions set to and sketched a design which was approved and custom-made. An extremely high risk project, however clarification was received from offshore that the project was seamless, setting a precedent within the industry.

A TRANSPARENT AND PRACTICAL APPROACH

Philip likens their mantra to 'the company does what it says on the tin' providing solutions to very challenging situations!

Another such project they completed was for another offshore wind farm requiring the creation of equipment at the base of the monopile. At times the glacier sea bed makes piling challenging and difficult to drill, this is known as 'piling refusal'.

In such circumstances the jack hammer has to be removed and a very large drill dropped inserted within the centre of the monopile. The challenge was to seal the 45 degree elliptical cable entry hole. Divers oversaw the procedure to ensure the resulting seabed slush and sediment escaping was effectively controlled and thus pumped away in the correct environmental manner.

Various design of sealing units were required by the project and divers to suit various project parameters. Again, this demonstrates pure bespoke solutions and delivering on a strict schedule.

The company offered the client design, testing, 3D animations and technical / installation specifications informing divers what to do using a step-by-step guide followed to the letter. The first unit took only 45 minutes to install and was considered a text book operation.

With all enquiries Subsea Energy Solutions ensure a 24 hour response.

SUBFLEX™

Philip goes on to say their unique cable protection system SUBFLEX™ is now going from strength to strength offering clients not only extremely cost effective, enhanced cable protection, rapid installation but also fully eliminating maintenance requirements. SUBFLEX™ is likened to a human spine, the central cable is protected by a sheath of flexible polyurethane which enhances strength and extends the design life of array & export cables.

THE FUTURE

Contracts have now been signed to relocate to a brand new factory and consolidate the project office and all manufacturing facilities allowing for even increased efficiencies and to maintain and secure more major offshore contracts.

AND FINALLY...

During our conversation it is abundantly clear that Philip and his team have the energy, drive, enthusiasm and dynamism to grow and succeed in this innovative and fast moving industry. The company certainly does seem to have 'the bit between their teeth.'

The companies ingrained ethics, morals, integrity, fairness and honesty, I found simply astonishing and incredibly refreshing and Wind Energy Network wish Subsea Energy Solutions every success for the future.

Fliss Chaffer
Interviewer
Wind Energy Network

[Click to view more info](#)



PREVENTIVE AND PREDICTIVE MAINTENANCE PROGRAMMES

Northern Ireland based Electrical and Mechanical Engineering Company makes a considerable investment in new and innovative testing technology. Grants Electrical Services Ltd (GES Group) aims to provide the best in preventive and predictive maintenance programmes by building powerful partnerships with their clients through investment, innovation and collaboration with their key strategic partners. Working closely with their HV cable jointing partner, Avex Cable Jointing Ltd, the company are the first in Northern Ireland to use some of the most advanced HV test systems available on the market.

VLF TESTING

GES Group and Avex provide VLF testing on newly installed high voltage cables on wind turbines and solar farms using the HVA60 VLF test set - the lightest, most compact instrument of its type on the market that has the highest power to weight ratio of any comparable device.

SPECIFICATIONS

The HVA60 is capable of testing capacitive loads up to 1µF (approx. 10,000 ft. / 3000m of cable) at 0.1Hz and 60kV peak and the

frequency of the output can also be reduced allowing even larger capacitance loads to be tested. At 0.02Hz, approx. 50,000 ft./15,000m of cable can be tested.

INVESTMENT

The recent £40,000 investment also included the purchase of the MFM10 Sheath Tester and Fault Locator. Cable sheath testing is vital in preventative maintenance of electricity supply to low and high voltage cable networks.

The MFM10 incorporates pre-location to speed-up fault location on large cable runs. An intact polymeric cable sheath is a prerequisite for the avoidance of water ingress and subsequent cable faults in low and high voltage cable networks the pre-location and pinpointing of cable sheath faults prevent ageing, faults and stresses that are a consequence of water ingress.



PARTNERSHIP BENEFITS

GES Group Managing Director, David Moore, said, "In the past, prior to our partnership with Avex Cable Jointing, test procedures were systematic, timely and expensive due to the traditional methods and technology used by the industry as standard. Now we can pin-point cable failures of various categories and lengths within a few hours of arriving on site. This is a major step forward for GES and for the industry. Down-time results in major costs and losses of revenue so we are very pleased that technological investment and our partnership will play a major proactive role in preventative trend analysis to many network owners, while providing confidence that we are available to react should the unfortunate occurrence of cable failures exist."

Grants Electrical Services Ltd

TEKMAR WINS DONG ENERGY'S WESTERMOST ROUGH CONTRACT

The world's leading cable protection company for the offshore wind industry, Tekmar Energy, has been awarded a cable protection contract by DONG Energy for the Westermost Rough Offshore Wind Farm.

Situated eight kilometres off the coast of Hull, Westermost Rough windfarm will cover an area of 35 sq km, generating 210MW of electricity – enough to supply 200,000 homes. The scheme is part of the UK's Round 2 of wind farm projects. Once complete, the Westermost Rough OWF will be the first wind farm in the world to use Siemens 6MW turbines on a commercial scale.

BESPOKE CABLE COVERINGS

Tekmar Energy, headquartered in Newton Aycliffe, County Durham, will provide bespoke coverings to protect the infield and export cables from exposure to loads, deformations and fatigue during installation and over the 35-turbine windfarm's service life.

Chief Executive James Richie said: "The Westermost Rough project will play an important role in reducing CO2 emissions and contribute towards the UK achieving its targets of electricity generation from renewable energy schemes.



"This is a significant project for us to be involved in and the fifth time we have worked with DONG Energy. We will be supplying Westermost Rough OWF with our Teklink cable protection system which brings a range of benefits when compared to more traditional cable, installation and protection."

NO J-TUBE REQUIREMENT

In comparison with other subsea cable installations, Tekmar's Teklink system does

not require a j-tube and utilises a remote installation method. This provides enhanced cable life and resilience – reducing the risk of damage and requirement for

maintenance and cost saving on foundation.

TRIED AND TESTED

Over the past five years Tekmar has installed more than 2,000 cable protection systems and has a further 1,000 in design or manufacture for the 26 windfarms it has been involved in across Europe.

Founded in 1985, the firm initially specialised in oil and gas before moving into the expanding offshore renewables industry when it developed bespoke cable protection systems for cables connecting wind turbines.

Tekmar is fully QHSE compliant and has obtained ISO 9001, 14001 and 18001 accreditations.

Tekmar

EA TECHNOLOGY UNVEILS NEW SYSTEM TO IDENTIFY PARTIAL DISCHARGE IN LIVE CABLES

CableData Collector supplies intelligence without disrupting supply

An innovative new piece of equipment to detect Partial Discharge (PD) in live electrical cables before they fail has been unveiled by power engineering specialist EA Technology.

Developed by the North West-based firm, the CableData Collector will enable electrical engineers to identify PD in cables that are online, avoiding potential disruption.

PIONEERING NEW EQUIPMENT

The pioneering new equipment can identify potential issues in most types of

insulated cables up to several miles by detecting high frequency pulses generated by PD events within the cable.

Portable, robust and lightweight, the CableData Collector detects and records PD activity. Through CableData Analysis Studio software, a report can be produced to assess the condition of cables and the likelihood of failure and outages in power lines.



EASIER AND MORE COST EFFICIENT

Siôn Hughes, Development Engineer at EA Technology, said: "For Network Operators, it is of the utmost importance to keep any power outages on their network to an absolute minimum; with

the introduction of the CableData Collector, testing for PD in cables becomes far easier and more cost efficient.

"PD can be a major factor in substation failures and is caused by a number of cable defects, including insulation deterioration, faulty joints, poor terminations and mechanical damage. Detecting PD early can help achieve major savings for Network Operators by enabling them to make more informed decisions about managing their assets, whether through replacement or smarter maintenance.



"The CableData Collector provides a solution to the damaging potential issue of power outage resulting from PD and is a non-intrusive and low-cost way to maintain assets."

CABLEDATA ANALYSIS STUDIO SOFTWARE

The CableData Collector is able to record PD activity through the use of the CableData Analysis Studio. Sold separately, the software produces reports showing the severity of PD activity and supplies information on the condition of assets on which to base failure risk assessment and decisions on remedial action or replacement.

EA Technology

CABLE PROTECTION SYSTEMS AND THEIR IMPORTANCE FOR OFFSHORE INSTALLATIONS

Cable Protection systems may only be a small portion of the CAPEX of an Offshore Wind Farm. However, it provides a critical element in ensuring the reliability of all important cable which transmits the generated power back to land.

BPP CABLES AND TEKMAR COLLABORATION

BPP Cables have supported Tekmar, a leading manufacturer of cable protection systems for a number of years, by providing reliable engineering analysis on their market-leading Teklink system. This value-adding verification provides reassurance to clients – usually developers and installation contractors – that the cable protection solution selected will provide reliable service for the expected life of the wind farm.

CONSIDERATIONS

Amongst the many factors to be considered when selecting a cable protection system are the existing environment and the potential changes over time, such as scour. Vibration and the inevitable marine growth also need to be considered. It is common within a windfarm array for there to be considerable variation of operating depths and a “one-size-fits-all” product is rarely the answer.

EXPERIENCE

With an extensive track record of manufacturing and installing cable protection systems, Tekmar is ideally placed to build on their success and have an investment R&D programme lead the market in product innovation.

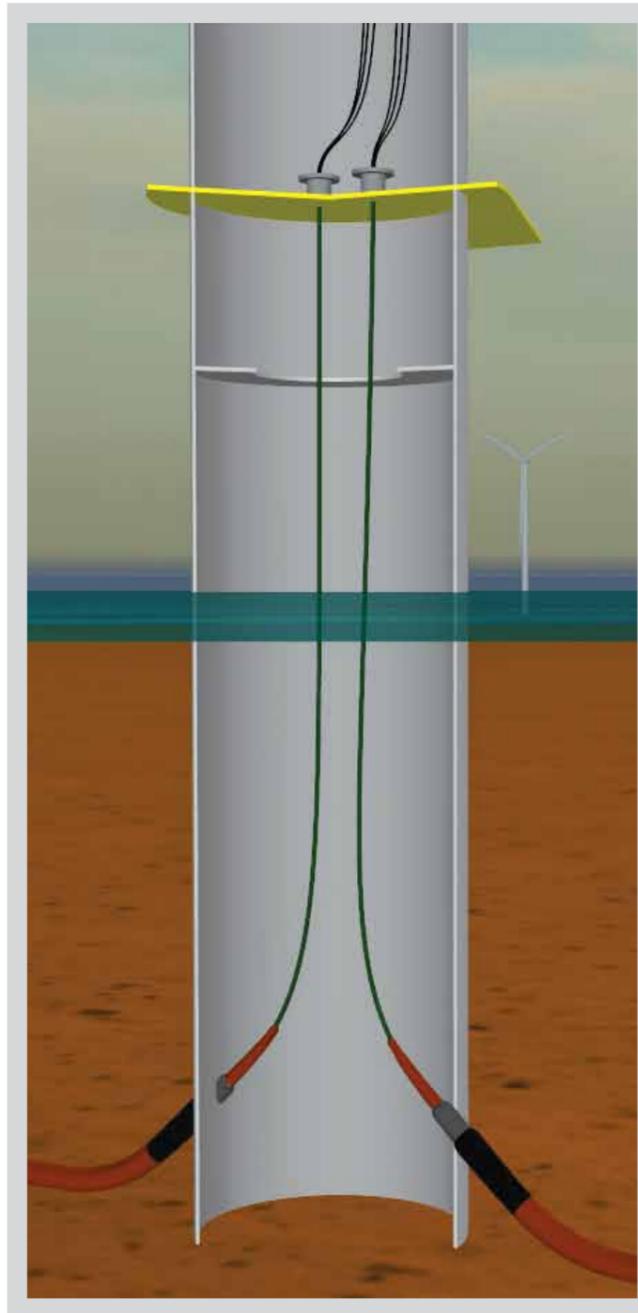
BPP Cables, a subsidiary of BPP-TECH, a long-established energy sector engineering consultancy, provides high quality support to cables-related engineering. This ranges from our proprietary HV dynamic cable designs, through analysis and product development, to forensic analysis. Through the close working relationship between BPP Cables and Tekmar the team understands the technical requirements of the developers and full range of challenges new projects serve up.

COMBINED STRENGTHS

The cooperation draws from the combined strengths to deliver a well-designed, quality manufactured and executed CPS – is of greater value than the sum of the parts.

Clients are better informed of the challenges that cables face when installed offshore and the value of well designed cable protection systems. This often means cable protection engineers are engaged at an early stage to address the specific areas of risk.

Through strong collaboration, BPP Cables and Tekmar are well placed to address the major industry concerns, with practical engineering analysis e.g. cable vibration in a monopile. This pioneering analysis by BPP Cables almost two years ago enabled specific vibration studies for a number of clients, all of whom have benefited from the results – based upon very robust methodologies – which BPP Cables delivered.



JOINED-UP THINKING

The offshore wind supply chain is still relatively immature but by working closer, with joined-up thinking, will assist in reducing costs and the industry becoming more competitive. The criticality of cables and their integrity has often been underestimated, but recently there appears to be a growing desire to engineer out-risk at an early stage in the life cycle of projects.

BPP Cables

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Tekmar

SUBSEA TRENCHING THE RIGHT TOOLS FOR THE JOB

Effective cable installation and protection for offshore wind projects remains a challenge and is one of the key risks in constructing a project. The suitability of a project’s burial tools, deployment means and cable handling operations to the particular product and site, is vital in order to ensure an export or inter array cable installation project is successful.

REPUTATION

North East based engineering specialist OSBIT Power, well known for its MaXcess offshore access systems, has developed a reputation for fast and effective equipment upgrade and modification projects to enable the industries trenching contractors to complete their projects on spec, budget and in time.

HERITAGE

Robbie Blakeman, OP Director, comments on the company’s trenching heritage and the needs of their clients, “OP’s Engineers and Directors have long and successful track records in the offshore industry, with many having been instrumental in creating

much of what are now industry standard means of burying cables and launching and recovering trenching assets.

“Trenching jobs are by their nature rather diverse, as soil conditions, water depths, products, sea conditions, vessels and environmental constraints all vary from project to project. Contractors need to be increasingly flexible to be able to bid for and carry out a wide variety of potential jobs. Often projects call for subtle modifications to clients’ assets to handle and bury a specific cable at a specific site more effectively.

“At OP we have a uniquely broad experience base covering many existing trenching assets, be these ploughs, jetting ROVs or mechanical trenchers. Because of this we are able to quickly understand client requirements and develop these into elegant, efficient and robust solutions often in very short time frames (typically 16 weeks down to days).”

PROJECTS

OP’s trenching projects, like their clients, span both offshore wind, oil and gas and subsea telecoms developments. Over the past two years OP has completed 12 trenching related design and modification projects for clients such as Technip, DeepOcean, Canyon and Modus.

DELIVERING GREAT THINGS

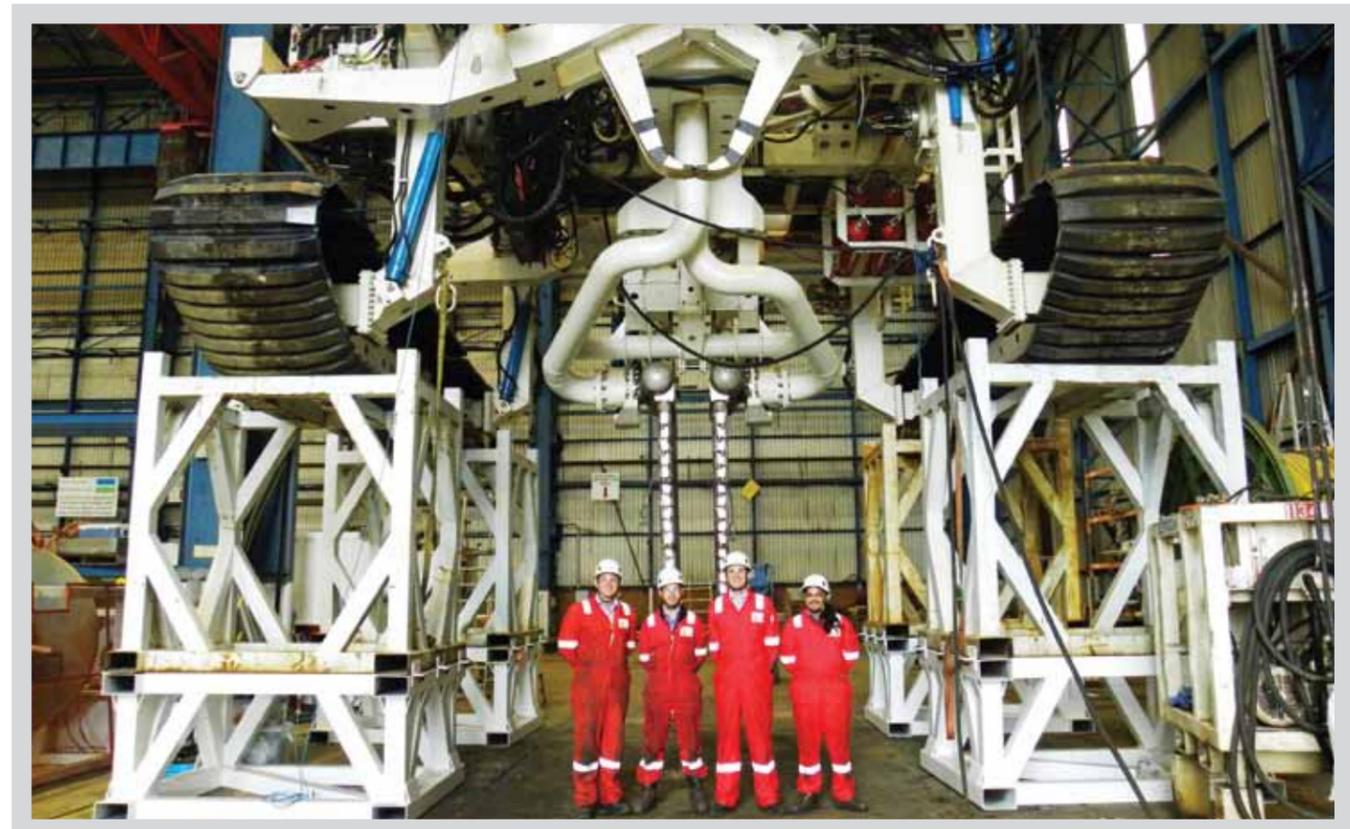
Robbie continues, “We care a lot about our culture at OP, about creating an environment where engineers are empowered to deliver great things. We maintain an open, communicative and mutually supportive environment where our engineers operate to lean systems and processes and without demarcated departments, allowing us to meet our clients commercial requirements without compromising our industry leading safety standards.

“This flexible structure allows us to move fast and respond dynamically to customers’ evolving requirements, whilst at all times maintaining engineering rigour and control of quality. Engineering, particularly offshore engineering, is a creative and highly rewarding vocation and we encourage passion for what we do throughout the team; I believe that this passion and pride comes through in all the projects we deliver.”

OP continues to deliver modification and upgrade projects to a range of clients, with the winter period being a traditionally busy time preparing assets for the coming installation season.

OSBIT Power

[Click to view more info](#)



LET'S TORQUE ABOUT IT!!!

DB Wind UK (a Moventas Group Company) – Floss Chaffer our intrepid interviewer caught up with two of the company's movers and shakers...

Now that it is in the public domain the happy union of Moventas acquiring David Brown Wind gearbox business, I met with two men in the know, to find out in more detail what this means for the future and how it will benefit and impact on the wind industry.

Dave Moss, Service Sales Manager of Moventas and James Clegg, now Service Sales Manager of DB Wind UK formerly of David Brown Gears, educated me further...

THE SAME VISION

From meeting these two gentlemen it was abundantly clear that they both had the ferocious enthusiasm and passion for what their now joined forces can offer the industry, it was like having a conversation in Dolby stereo!

Two peas from the same pod with the same vision! Collectively this means that the newly christened DB Wind UK will become a formidable global offshore wind drivetrain force within engineering, manufacturing and the supply chain.

DAVE MOSS

Dave Moss has been with Moventas for the last 5 years, based at the head office in Finland. Over those years it became clear for the need to have a presence in the UK.

Previously, clients from Germany, Spain, Portugal and Italy were being serviced from Finland, which as a 'green industry' was somewhat of a paradox, logistically and restraining time-wise.

BUSINESS HISTORY

Historically Moventas and David Brown Gears have always enjoyed a healthy and competitive business relationship. Dave Moss mentions that for 3 years Moventas were looking for suitable partner companies for wind gearbox service in the UK, of which David Brown was initially a serious contender. However, at that time it was thought their businesses models were too close and too competitive.

In the meantime they continued to look into several other companies, but there was to be no signing on the dotted line. Alas, in 2011 Moventas OY went into bankruptcy, although the Industrial Gear, Wind Gear and Service Business' continued to operate successfully. This is when Clyde Blowers threw a life line, a leviathan within the engineering world who acquired Moventas, with the entrepreneurial Jim McColl at the helm bringing with it huge weight within the industry.

Working closely together, and having mutual customers and with a combined expertise and experience, Moventas having over 70 years of experience and in particular over 30 years in the wind industry and David Brown an 150 years heritage it was a foregone conclusion that this would be a successful union.

Dave Moss



CO-OPERATION/COLLABORATION

Marko Sormunen, from Moventas in Finland has already spent six months in the Huddersfield service centre now providing technical support, working with the existing David Brown team, establishing and fine tuning workshop processes and procedures to bring them in line with other Moventas Service Centres around the world. The initial process was to provide Moventas with a trusted partner in the UK that was certified as a service partner for Moventas products and to support them.

The object of that exercise was better support for the customer base in the UK and Ireland. Now that David Brown Wind are a Moventas Group Company Marko will return to Huddersfield for a further 12 months to continue the excellent work already done, build on the success so far and strengthen the Huddersfield team.

It is Moventas' concept to continue to provide a global service and to standardise all the processes, which will allow for far greater flexibility in the service offering for their European customers.

This localised service provision and flexibility now allows the team to perform more extensive 'up-tower' work, changing shafts/ bearing and in some cases the complete helical stage for gearboxes up to 2 MW. This union also provides the opportunity for cross fertilisation of innovative ideas in

the design and implementation of their own tooling used in up-tower processes not previously thought possible.

James Clegg states *"With the acquisition of DB Wind UK the process continues – ever increasing the quality and services offered."*

TEST RIG

There will be a major impact in 2014 with the installation of the 3.6 MW test rig in the Huddersfield service centre, which is the only test rig of its kind in the UK – capable of providing full load test for serviced gears. This is of particular importance for MW class gears and is quite a coup. James goes on to discuss the site in Huddersfield which in total is 17 acres, 6 acres of which is dedicated to the wind business.



LOGISTICS AND SERVICING

I was intrigued to learn the process undertaken when the gearboxes arrive for service and repair and was duly educated. The gearbox is stripped, inspected and initial reports are made in one area. Further more detailed inspection of components is carried out in an inspection bay. Re-assembly of the gearboxes takes place in a clean build area.

Access to the clean build area is through a double door system and air lock somewhat STAR TREK style. Currently re-assembled gears are spin tested and the oil during the spin test is continuously filtered and monitored. The oil filtration is carried out to ISO4406 15-12 standard this ensures all serviced gearboxes fully flushed and their internal components cleaned.

WHAT DOES THE FUTURE HOLD?

There are currently thousands of turbines installed already in the UK and Ireland plus other exciting projects nearing fruition. The future looks positive, both for new build gearbox projects and service to the installed base. Being pro-active, innovative and working in ever closer cooperation with their customers they strive to operate and evolve in an efficient cohesive manner. Complacency is not an option for Dave and James as they continue their drive to be at the forefront of a formidable industry leader.

As the companies have joined forces they continue with the 7MW offshore turbine drivetrain development with Samsung Heavy Industries, the first of which will be going live in December 2013 in Scotland. The new company will be manufacturing the 7MW gearboxes for Samsung, from the UK with support from Finland.

James Clegg



Moventas has existing offshore gearbox technology for Areva with their 5MW turbine and the FusionDrive gear and generator combination for DeWind Developed and successfully tested in cooperation with The Switch another Finnish company.

James mentioned H.A.L.T (Highly Accelerated Lifetime Tests) which will be facilitated/ implemented at Narec where the full drive train (Nacelle) can undergo testing. Dave also mentioned, for their existing customer AREVA, who have had a Moventas 5MW gearbox in the nacelle for over a year, this has proven to be the one of the most successful tests ever, with no design changes required - which is a major coup and no mean feat!

UK, IRELAND & EUROPE

When asked what they would be focusing on over the coming months, both gentlemen were keen to implement guarantees and unsurpassed service to their customers.

Though not there yet the goal is a service guarantee to be in place in 2014 which is to undertake to complete any servicing in less than 6 weeks, to respond to the customer within 8 hours and a technician on site within 24 hours and also to assess the situation, components/replacements gearbox within 72 hours

Now in a position with the UK facility to store gearboxes, which is salient to strategic planning, they can now be waiting in abeyance, thus reducing down time for customers during servicing and maintenance.

CONCLUSION

James and Dave concluded, *"This union gives us the ability to be able to support the OEM more than ever before and where the opportunity exists the major utilities and turbine owners– making us the strongest leader in this industry."*

In all, this is a healthy professional relationship and one with a very optimistic exciting future.

Moventas

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[Click to view video 2](#)

MONITORING WIND TURBINE PERFORMANCE THROUGH USED OIL ANALYSIS

Modern offshore wind turbines are sophisticated machines, operating in demanding environments. Unscheduled downtime caused by equipment failure can have a significant impact on the operator's bottom line and, in more severe climates where ambient temperatures can reach as low as -40°C, result in substantial delays to restarts. In order to keep wind turbines operating at full capacity, and to avoid the expense of unplanned maintenance, it is important to select the right lubricant.

INNOVATIVE TESTING

By using innovative tests to monitor the in-service performance of selected lubricants, maintenance professionals will gain the insight needed to optimise wind turbine operation and minimise unscheduled downtime. This article explores how a sophisticated oil analysis program can help address the challenges in wind turbine lubrication, looking specifically at the use of advanced synthetic gear oils in the main wind turbine gearbox.

USED OIL ANALYSIS

One of the most popular maintenance programmes being implemented is Used Oil Analysis, a series of laboratory tests that can determine the condition of equipment components and the condition of the in-service lubricant. Alongside the use of high quality lubricants, oil analysis helps maintenance professionals extend equipment component and lubricant life, provide early warning signs of contamination, and minimise unscheduled maintenance.

In order for O&M managers/engineers to improve productivity and potentially increase profitability through oil and equipment monitoring there are a number of elements to be considered.

START OFF WITH THE BASICS

There is a certain protocol that should be followed to help ensure the accuracy of oil analysis results. First, maintenance professionals should always use a clean, dry container to draw oil samples to ensure an accurate result. Most oil analysis companies will provide the sample bottles for the oil samples to be collected. Usually only 100 ml is sufficient for a standard test suite.

Wind turbine maintenance engineers should where possible draw the oil sample from the appropriate system (main gearbox or hydraulic system) whilst the oil is circulating. Where this is not possible the oil sample should be taken as soon as possible after the system has been shut down, ideally within 30 minutes.

It is critical to ensure consistency that oil samples should always be taken in the same manner and from the same sampling point. There are various system points where oil samples can be taken. Fixed sample points such as on filter units (prior to filtration) are common. If no sample points exist then consider fitting a sampling point. Oil samples can also be taken using a vacuum pump and tubing but take care to use the same length of tubing so that the oil sample is drawn from the same depth each time, which should be approximately midway of the oil level. The tubing is disregarded each time it has been used.

To identify the most appropriate sample point, it is imperative to consult with your oil analysis provider and machine manufacturer for application-specific advice. Once the location has been identified, it should be noted in the maintenance records so samples can always be taken from the same place.

Also, do not sample a turbine immediately after an oil change or after a large amount of make-up oil has been recently added unless the purpose is to just to confirm the oil cleanliness, which can indicate if the oil change has been carried out in a clean manner.

PUTTING OIL TO THE TEST

For many years ExxonMobil has been tracking their advanced synthetic gear oil in the main gearboxes of a wide variety of wind turbines, including different models, sizes and those exposed to many different challenging environments. From January 2000 to August 2013 data on approximately 46,700 oil samples was reviewed. When characterising the performance of the lubricant, an in-depth test slate is usually run. However, in this review the focus was on system wear, oil oxidation stability, viscosity retention and water contamination – the most relevant tests for determining proper gearbox operation. The used oil tests listed below trace the results of using ExxonMobil's advanced synthetic gear oil, Mobilgear SHC™ XMP 320, in the main wind turbine gearbox.

WEAR AS INDICATED BY THE PRESENCE OF IRON AND OTHER METALS

Inductively coupled plasma spectroscopy is used to determine the presence and concentration of wear metals in oil. Iron, copper, chrome, aluminium, lead and tin define this category, with iron the predominant wear metal in wind turbine reducers. As shown in Figure 1, ExxonMobil examined the iron content of 32,000* samples, showing no trend for iron content increase with the used age of the oil, thus verifying the excellent long-term wear protection provided by the lubricant.

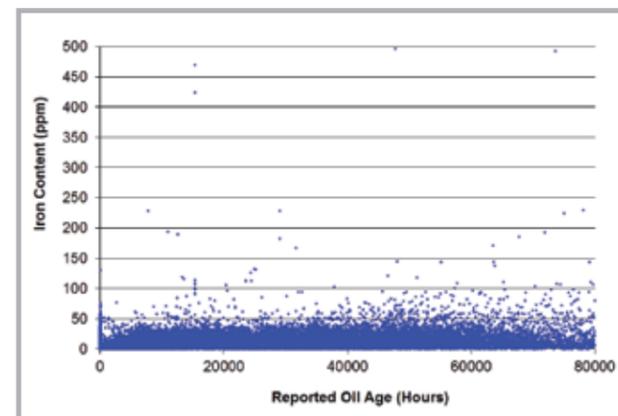


Figure 1 – Iron Content Vs Oil Age

VISCOSITY RETENTION AS AN INDICATOR OF FILM STRENGTH

Viscosity is a measure of a fluid's resistance to flow and most used oil analysis laboratories report it as kinematic viscosity at either 40°C or 100°C. ExxonMobil found that there was no oxidative thickening or shear over time, suggesting the lubricant stayed in viscosity grade throughout the reported service (Figure 2). This is an important finding as it confirms that the oil is able to maintain film strength and provide excellent wear protection throughout its service life.

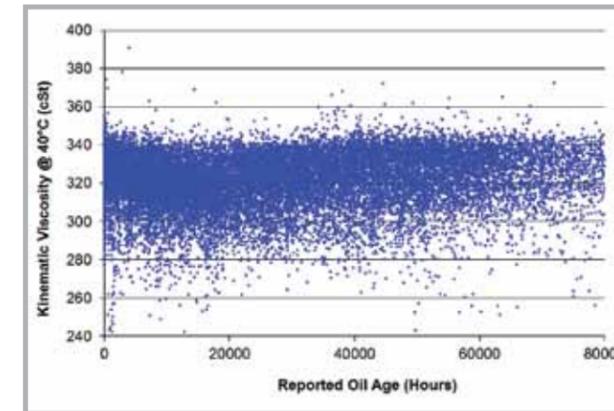


Figure 2 – Kinematic Viscosity Over Time

OIL OXIDATION AS DETERMINED BY TOTAL ACID NUMBER

As oils oxidise over time, chemical change occurs and acid number of the lubricant can rise indicating the lubricant starts to break down. The Total Acid Number (TAN) is the amount of potassium hydroxide in milligrams that is needed to neutralise the acids in one gram of oil and is used as one of the indicators that a lubricant needs changing. As the TAN value of the oil increases, viscosity rises and the lubricating potential of the oil is compromised, leading to increased wear. In addition, the corrosive tendencies of the oil will increase, further exacerbating component wear.

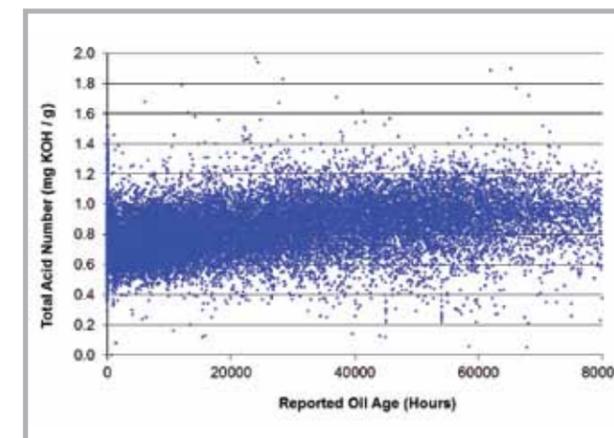


Figure 3 – Total Acid Number over Time

In Figure 3, ExxonMobil examined the results of the samples, demonstrating that over the extended lifetime of the product (3-5 years) TAN shows very little increase over the new product value of 0.9 mgKOH/g (some scatter is evident due to test variability). This means that the life of the advanced synthetic lubricant was not impacted by turbine gearbox operation.



SERVICE WATER LEVELS AND WEAR POTENTIAL

Water as a contaminant is most relevant as its presence may cause additive depletion, viscosity drop and corrosion of components. Figure 4 shows the water concentration in the oil over time, with exceedingly low levels of water in the oil, ensuring no free water and thus protecting against potential corrosive wear. This indicates that certain high performance synthetic lubricants can help reduce downtime and help prolong service performance.

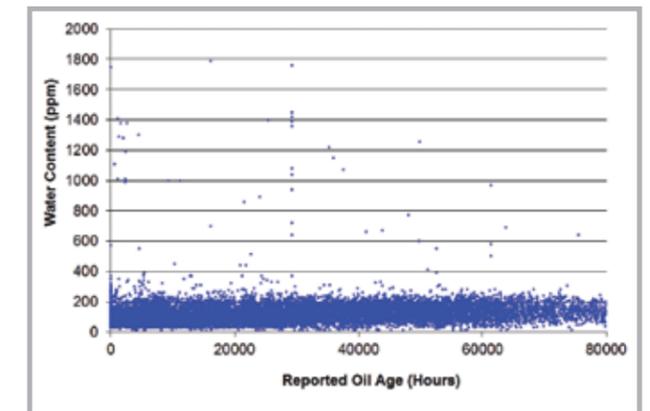


Figure 4 – Water Concentration Over Time

LONG-TERM SUCCESS

By following the recommendations and some of the key in-service oil analysis tests detailed in this article, maintenance professionals can benefit from optimised equipment performance, minimised maintenance and improve turbine availability. Selecting an oil analysis provider that has application-specific expertise, intimate relationships with OEMs and a comprehensive online oil analysis offering will also help maintenance professionals achieve their company's productivity goals as well as their own.

* 32,000 samples with stated running hours

Robert Pears
Wind Energy Sector Specialist
ExxonMobil Fuels & Lubricants

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[Click to view video](#)

NEW TESTS LOOK AT HOW WIND TURBINE BEARING GREASE HELPS TO AVOID WEAR FAILURE

Ensuring wind turbines are effectively lubricated is challenging - not only because of the remoteness of the wind farms, but the ambient conditions in which they operate and the loads and vibrations to which components are exposed.

Selecting greases for wind turbine bearing lubrication requires a deep understanding of the blade bearing application, design and typical failure modes for the bearings and servicing frequency, to name a few.

The blade bearing application involves not only significant vibration, but also minimal rotation for the bearing members. A common failure of blade bearings is that of fretting wear or false brinelling but this wear can be addressed through careful grease choice.

RIPPLE & CORROSION TEST

One of the world's leading manufacturers of blade bearings for wind turbines, Rothe Erde, specifies that greases for use in their blade bearings must pass a specifically designed test called the Rothe Erde/IME Ripple & Corrosion Test. This test was developed specifically by the Institut fuer Maschinenelemente und Maschinengestaltung at Aachen University in Germany to evaluate the performance of blade bearing greases and their tendency to prevent false brinelling due to oscillation and wear.

As part of the test, grease is packed into a four point contact roller bearing through which 1% NaCl solution is passed, and the bearing is then cycled through 1 million cycles of alternating 70 kN axial load. At the end of the testing cycles, the bearings are removed and the ripple depth on the bearing raceway measured. Further visual assessment of the degree of corrosion is conducted with a rating on a scale of 1 to 5, with 1 being the best and last corrosion and 5 the worst and highest level of corrosion. At Shell we were pleased to find that our Shell Gadus S5 V110KP 1.5 blade bearing grease gives a corrosion rating of 1 and ripple depth maximum of 2mm and mean ripple depth of <1mm respectively showing excellent protection against this wear mechanism.



ENHANCED WEAR PROTECTION

The Shell Gadus range has been developed to deliver best value through enhanced wear protection, long grease life and system efficiency. Shell Gadus S5 V110KP 1.5 blade bearing grease has also been run through a number of other industry standard tests to demonstrate its advanced performance in the area of resistance to wear in oscillating and fretting wear type conditions.

Felix Guerzoni
Lubricants Product Application Specialist
Shell



Safety Services for Wind Energy

Safety Technology Ltd provide a range of safety services for individuals working in the Wind Energy sector including:

- ⦿ Training
- ⦿ Equipment
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EXTENDING WIND TURBINE LIFE WITH CONDITION BASED LUBRICATION

Actively combining Lubrication and Condition Monitoring Systems (CMS), SKF Condition Based Lubrication automatically adds additional lubricant to wind turbine bearings, extending their life.

The system enables remote and automatic lubrication of a wind turbine's hard to access bearing system, eliminating the need for an on-site service engineer to perform extra manual lubrication.

INTERFACE

The system is an interface enabling a connection between the Condition Monitoring (SKF WindCon) and SKF or Lincoln Lubrication systems. Reacting to the problems detected by the CMS, SKF Condition Based Lubrication allows a lubrication pump to initiate additional lubrication cycles to the existing time-based cycle. A condition monitoring specialist can set the proper alarm settings to trigger additional lubrication cycles.

SKF Condition Based Lubrication allows the CMS system to monitor lubrication pumps and components, including pump status and grease levels. If failures such as empty or blocked pumps or torn feed lines are detected, operators are notified immediately.

ADD-ON

"As an inclusion to an already planned investment in lubrication systems and CMS, our Condition Based Lubrication is a very cost effective add-on," says Harry Timmerman, Product Manager. "As such it brings the two systems together to create new and unique features, allowing the lubrication regime to react to the SKF WindCon CMS's measurements."

UNNECESSARY OPERATIONS SAVINGS

This early detection of lubrication failures working in combination with automatic lubrication will naturally avoid unnecessary and inconvenient maintenance operations,



which is particularly important for offshore applications. It will also save on downtime and loss of production while waiting for intervention, lengthen the wind turbine's life time, and reduce the risk of cascading failures.

SKF

VESTAS & CASTROL SIGN GLOBAL 3 YEAR DEAL

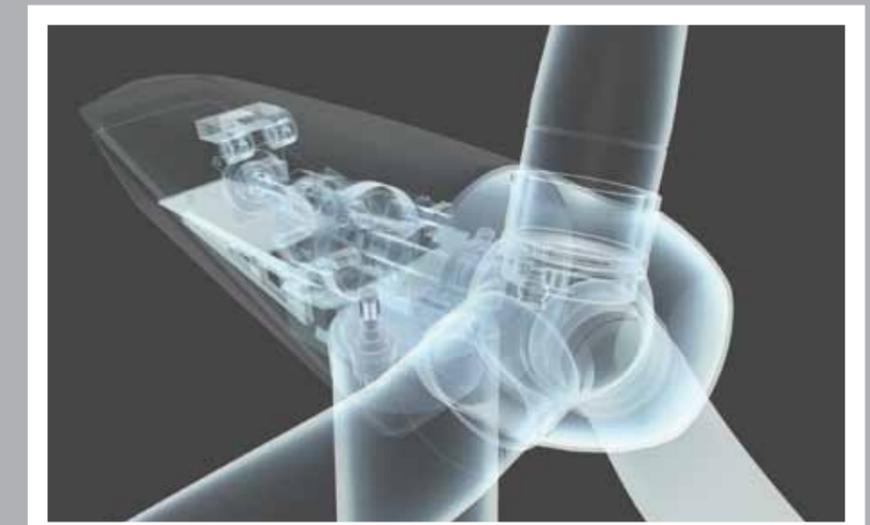
Global lubricants specialist Castrol has signed a global three year deal with Denmark-based Vestas Wind Systems, the world's leading wind turbine manufacturer, to deliver first and service fills for all of its new builds and existing turbines with more than 57 GW of installed capacity worldwide.

1.5 MILLION LITRES A YEAR

It is projected that Castrol will deliver in excess of 1.5 million litres a year under this deal. The agreement follows the full product approval for global use, which came after a three-year trial.

CLOSE COLLABORATION

John Carey, Vice-President, Castrol Lubricants business for Aviation, Industrial, Marine and Energy said: "This agreement is the result of a close collaboration with Vestas using our extensive expertise to deliver the best result for the company. At Castrol, working alongside our customers is key to developing solutions that are able to meet their needs, and Castrol Optigear Synthetic CT gear oil has been formulated specifically for use in wind turbine gear box applications. Designed to perform in some of the most challenging environments and with a very good thermal stability, Castrol Optigear Synthetic CT gear oil high viscosity index makes the product



suitable for operations in a wide range of temperatures. Castrol global footprint allows us to work with the Vestas team and support them worldwide."

Castrol

VESTAS' CIRCA 50,000 WIND TURBINES WORLDWIDE

Vestas is dedicated exclusively to wind energy and one of the clear leaders in its development. It delivers cost-effective wind technologies, products and services with almost 50,000 wind turbines installed worldwide.

OPERATION & MAINTENANCE STRATEGIES

The operational life of wind turbines is becoming more and more under the spotlight as the average life of wind assets is increasing and new approaches to O&M strategies characterise this phase of the wind energy market.

COMMISSIONING AND IN-SERVICE INSPECTIONS

Independent technical inspections play a key-role in the value chain of the operation life of a wind turbine. A considerate approach starts at the beginning of the operational phase with a full commissioning inspection, followed by regular in-service inspections in order to avoid potential unexpected failure of major components and subsequent long down-time.

Technical inspections are vital any time the real conditions of wind assets have to be assessed and linked to the contractual aspects or to implement an effective risk management strategy.

INDEPENDENT INSPECTIONS

The impartiality of an independent technical inspection is its main added value, combined to the assurance of consistent, high quality standards and the implementation of a large range of inspection techniques.

Although main components are designed to last for the certified life of a wind turbine, they often fail earlier than anticipated causing unexpected downtime, bringing down the overall availability and therefore dramatically hitting the cash-flow generated by the wind farm.

PROACTIVE MAINTENANCE APPROACH

A proactive maintenance approach is definitely a must in order to increase the profitability of wind assets as well as to improve their performance throughout the whole lifetime. Bureau Veritas agrees that periodic in-service inspections of main components and structures, combined with careful monitoring of all data available from a wind turbine, considerably reduces down-time and the likelihood of catastrophic failures.

Bureau Veritas wind turbine inspection services are designed to support owner, operators and manufacturers to fully cope with the challenges of operational life of wind turbines and all the O&M contractual milestones.

Bureau Veritas



MID HILL II WIND FARM

Fred. Olsen Renewables (FOR) announced recently that Mid Hill II Wind Farm has been granted consent.

When complete, this will allow the site to fully utilise the 75 MW grid connection and generate enough electricity to power over 38,500 homes.

EXISTING WIND FARM

The existing 25 turbine Mid Hill Wind Farm is located mainly on forestry land in Fetteresso Forest, near Stonehaven, Aberdeenshire. Mid Hill II will be located adjacent to this site and will consist of up to 9 x 2.3MW Siemens turbines.

CURRENT PORTFOLIO

Fred. Olsen Renewables currently has an onshore wind operational portfolio of over 428MW, of which 357 MW is in Scotland equivalent to 8% of the country's total onshore installed wind capacity or 5% of the UK's total onshore installed wind capacity. A further 112MW of onshore wind plant is either under construction or due to shortly enter construction in the UK.



OVERALL STRATEGY

The company's overall strategy is to participate in projects from an early stage. The company is involved in site selection, planning and construction and aims to operate the projects over their lifetime. The approach is based on a successfully demonstrated full lifecycle principle.

David Brunt, CEO at Fred. Olsen Renewables, said: "We are very pleased to confirm that Mid Hill II Wind Farm has been successfully consented. Mid Hill and Mid Hill II provide a combined installed capacity of over 75 MW, helping to meet the Scotland's ambitious renewable energy targets. This brings the combined capacity of projects developed by Fred. Olsen Renewables in the north-east of Scotland to over 230 MW and affirms our position as the UK's leading independent renewable power producer. We look forward to working with stakeholders and local communities to ensure that the benefits associated with these projects have a positive impact through mechanisms such as the already established community benefit funds."

Fred. Olsen Renewables

Training for the Marine, & Offshore Renewable Wind sector

- Renewable UK and GWO Marine Safety Training approved Centre
- Marine training
- Personal Safety Training (MCA approved)
- Proficiency in Survival Craft and Rescue Boats (MCA approved)
- Range of Medical and First Aid training (all MCA approved)
- Basic Offshore Safety Induction and Emergency Training (OPITO approved)
- Helicopter Underwater Escape Training (OPITO approved)
- Further Offshore Emergency Training (OPITO approved)
- WindFarm transfer safety course
- Power Electrical training
- High Voltage Awareness Course (MCA approved)
- Electrical Knowledge for Windfarm Technicians (blended learning)

For further information: Tel: +44 (0)191 427 3772. Email: marine@stc.ac.uk
 Web: www.stc.ac.uk/content/marine-college/offshore-and-safety-training

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DELIVERY THROUGHOUT SCOTLAND



DISTRIBUTED WIND

ICE RENEWABLES CONTINUE TO SUPPORT OUR PUBLICATION BY SPONSORING OUR DISTRIBUTED WIND FEATURE. JULIAN MARTIN (CEO) HAS CONTRIBUTED SOME VERY INTERESTING AND HELPFUL ADVICE TO THIS PARTICULAR SECTOR WITHIN THE INDUSTRY ON A REGULAR BASIS.

We now turn our attention to the company's Director of Operations, Michael Hickey to give us his thoughts...

MICHAEL'S ROLE AT ICE RENEWABLES

Michael has worked for ICE since April 2012; he is responsible for project construction and delivery, turbine installation and fleet operations and maintenance, strategy development and implementation.

Michael is accountable for the development of the internal operations and maintenance team and function. He brings to ICE 7 years of experience from previously working within the renewable sector with Vestas at a senior management level, primarily in manufacturing, supply chain onshore/offshore project management and development.

He also has experience within the retail logistics, manufacturing supply chain and contract logistics fields with globally recognised companies, bringing to ICE a strong commercial leadership and a strategic view towards the company.

SPECIALISED OPERATIONS & MAINTENANCE SERVICE

QUESTION:

You have recently launched a specialised Operations & Maintenance service – why has ICE decided to extend this service to manufacturers, developers and customers in the medium and MW wind sector?

"ICE currently operate and maintain their own wind turbine installations and have 12 turbines from Cornwall to Scotland. We brought the maintenance in house because we were not happy with the quality of the O&M work being contracted out and since then our customers are happier and the performance of the

turbines has improved. The last quarter we hit 99.6% availability, which big wind farms would dream off! As we get more of our own turbines in the ground and with an increase in installations across the UK, it made sense to offer our service and our expertise to a wider selection of turbines in our wind sector."

QUESTION:

Why is Operations & Maintenance so important to the lifetime of a turbine?

"On a practical level you can't just put a wind turbine up and expect it to run for twenty years without looking after it. It is the same principle as running a car. If you look after it and service it regularly it will run more efficiently and last longer. Customer's warranties are also tied in with regular operations and maintenance routines and will be void if you don't look after them."

"If you have financing on the turbine then it is likely that you will also be legally required to have an O&M regime. On a more basic level, a working, efficient turbine will extend its lifetime, reduce costs and increase its availability, offsetting more energy and hitting or exceeding expected income revenues."

QUESTION:

What should customers be looking for from a potential wind turbine provider and maintenance team?

"We hold regular wind turbine owners' club meetings and are always listening to our customers to understand what we are doing right and how we can improve our services."

"What is clear is that they want good communication, fast response time, to minimise their turbine's down time, well trained engineers who have the experience to deal with issues on site, good parts availability, a good relationship with the manufacturer and a set of complementary added value services such as high voltage maintenance work and blade repair, so that they do not have gaps in the service of their turbine."



"However the trade body RenewableUK has recognised this as a growing issue and their small and medium wind strategy group, chaired by ICE Renewables, are committed to setting MSC approved medium wind turbine standards by 2014, on site approval and importantly installation and operations and maintenance, so only qualifying accredited companies can offer an approved level of service."

QUESTION:

There is an ongoing debate about UK standards within the small and medium wind industry. What are your thoughts on this in relation to planned and unplanned services?

"At present there are no uniform standards for the medium wind sector that companies must adhere to, which could damage what is a new but exciting industry. This is especially so for operations and maintenance which can really impact on the financial returns of a turbine."

"We hear stories about customers being left with turbines not working, no proper operations and maintenance contracts, a lack of turbine parts, installers who have walked away or manufacturers not set up to deal with the maintenance of their fleets."

"We need to make sure that for customers, manufacturers and the industry, that there are a set of standards for all aspects of a wind turbine project - especially for operations and maintenance which can really improve the finances."

QUESTION:

How is ICE working to set and maintain these standards in the UK?

"As a company we work to the highest standards. At present there are no defined rules or standards for installers or O&M companies to work to, so the quality of services varies across the UK."

"It is expected that this will be shortly followed by the IEC 61400-1 standard on wind turbine design. Julian Martin our CEO currently chairs the RenewableUK small and medium wind strategy group which is tasked with setting these standards. As a company we feed back the issues we face and the solutions we have found, feeding back what expected standards all O&M providers should deliver, to ensure customers get what they should expect out of their wind projects."

"These are real issues facing the industry and ICE Renewables has set out to improve medium wind standards and offer a quality assured service across the UK."

QUESTION:

What are the main challenges with wind projects and how can customers avoid these?

"Wind projects are split into different phases and each one has its own challenges: Choose the right turbine for your wind project – wind turbines come in all sorts of different shapes and sizes to suit conditions, budgets, planning restriction and constraints on site. A specialist company will be able to advise on the most appropriate turbine to meet your needs and your site's conditions."

"Getting a turbine through planning can be a difficult process and you shouldn't embark on this unless you know that you have a project that they will accept – speaking to specialist wind planners and doing pre-planning work including grid connection limitations, is essential so that it saves you time and money in the long run and ensures your project has a better chance of success."

"Understand how you want to finance your project so you don't get consent for a turbine you can't afford to build: Banks and developers will be more cautious wanting to make sure the project is financially viable, with paybacks in an acceptable timeframe with a good return of investments (ROI). Banks will look at debt coverage whilst developers will be looking for higher wind speeds."

"The reliability of your turbine starts at the design phase so work with companies who really know what they are doing, so that when it comes to erect your turbine it's on solid foundations."

"A good operations and maintenance regime will extend the life of your turbine, reduce costs and increase its availability. A bad regime can leave customers dealing with expensive downtime due to out-of-action parts and system failures which will have a big impact on the financial payback of a turbine, so it is crucial that a quality assured service is offered to customers."

QUESTION:

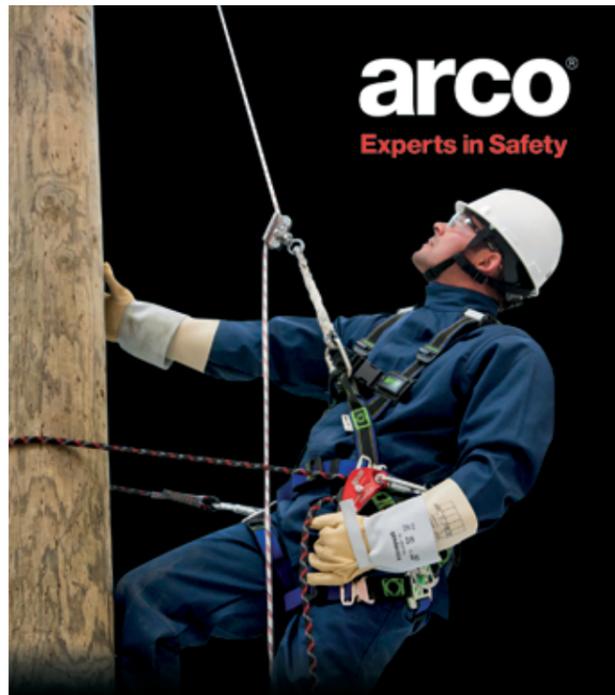
What would your top 5 tips to customers to ensure the best possible financial return from their wind project?

- An appropriate, well sited turbine
- A good O&M strategy
- A good O&M strategy
- A good O&M strategy
- A good O&M strategy!

**Michael Hickey
ICE Renewables**

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*Source: Health and Safety Executive. Image by Honeywell.

EVANCE TURBINES TO POWER SCOTTISH WATER TREATMENT WORKS ON ISLES OF SKYE AND RAASAY

Evance small wind turbines to generate nearly 50% of power needed for supplying water service.

Evance will be commissioning three R9000 small wind turbines at Scottish Water's waste water treatment works at Broadford, on the Isle of Skye and another three at the water treatment works on Raasay.



REDUCING ENERGY COSTS

These turbines will harness the natural wind resource to reduce the energy costs of operating these vital services for the community and next month three turbines will be installed at the Portree waste water treatment works to support its operation. "These nine Evance turbines will make a significant difference to the running cost of the water treatment works as they will generate nearly 50% of the electricity needed to operate these services," commented Tim Sammon, Director of Evance Wind Turbines.

"Scottish Water is looking to take advantage of natural wind resources at some of our sites to reduce our energy bill and in turn, the cost of providing essential services to our customers in Scotland. The commissioning of the turbines on Skye and Raasay follow similar schemes in the Western Isles and Orkney," said Eddie Johnstone, Project Manager with Scottish Water's Energy Team.

GOING FORWARD

Tim Sammon concluded "We are working with Scottish Water on further projects, as they continue to work towards a more sustainable public service."

Evance Wind Turbines



FRENCH WIND TURBINE MANUFACTURER VERGNET AND DERBYSHIRE'S BOWLER ENERGY ANNOUNCE GB PARTNERSHIP

As the medium wind sector continues to grow Vergnet, a global leader in the wind energy industry and manufacturer of medium scale wind turbines, recently announced its partnership with Bowler Energy, covering England, Scotland and Wales.

common values of innovation, quality and customer care. The John Bowler Group has a very strong reputation in the farming sector and like Vergnet, has a very solid business track record spanning 33 years and a reputation for delivering successful projects for customers and developers."

COLLECTIVE STRENGTHS

The partnership between the France-headquartered manufacturer and Derbyshire-based Bowler Energy, which is part of the John Bowler Group, draws on collective strengths and a significant track record of success in the renewable energy, engineering and agricultural sectors.

Over the past 25 years, Vergnet has worked with developers worldwide with a track record of over 830 wind turbines, including 23 in the UK. The John Bowler Group has been trading in the agricultural sector for 33 years, initially providing a full turnkey operation to anyone wishing to enter the world of free range egg production and more recently expanding to include renewables with Bowler Energy.

MOMENTUM

The partnership comes as momentum grows within this sector of the UK wind energy market, almost doubling in size over in 2012, according to a recent report from RenewableUK, with the UK small and medium wind industry market is now worth over £100 million to the British economy.

The partnership enables the two companies to develop turnkey medium wind energy projects including site feasibility, planning, finance, installation, commissioning, FIT (Feed-in Tariff) registration and a full package of warranties and after sales service. In addition, Bowler Energy will work with Vergnet to develop its own wind energy projects and developments on behalf of wind energy investors.

SHARED COMMON VALUES

Diana Popa, UK spokesperson and European Sales Manager for Vergnet commented: "We are delighted to announce our partnership with Bowler Energy, which is based on shared

BOWLER ENERGY

Bowler Energy has in-house planning, construction and financial teams with significant experience across the renewables industry and a proven track record in wind and solar project management.

VERGNET

Vergnet has a growing track record in the UK with a total of 23 medium scale wind turbines to date on farms in Cornwall, Leicester, Lincolnshire, Northamptonshire, Northumberland, Nottinghamshire, Suffolk, Scotland and Northern Ireland.



Lucie Bowler from Bowler Energy commented: "We are a family company, with a proud heritage, passionately committed to excellence through professional, long term relationships with customers, suppliers and employees. We've been very impressed by Vergnet from the outset and it is a partnership that delivers on our core values of honesty, integrity, efficiency, innovation and commitment. We have a number of UK projects in the pipeline and look forward to announcing these in due course."

The company invests significantly in research and development with 70% of its workforce employed in design, engineering and operations and maintenance. The company's medium scale wind turbines (GEV MP) are amongst the best performing in the sector in terms of yield production/price ratio.

Vergnet

UK'S FIRST ENDURANCE X29 TURBINE INSTALLED ON CORNISH FARM

The UK's first Endurance X29 wind turbine has been installed on a farm at Liskeard in Cornwall where it will generate the equivalent electricity used by almost 150 homes.

The installation was carried out by Earthmill, one of the UK's only specialist farm-scale wind turbine installers and suppliers. It is also one of the few authorised suppliers that can install the Endurance X29.

500,000 KWH PER YEAR

The 225kW unit, which was built by Endurance Wind Power at its new factory in Hartlebury, West Midlands, is already generating clean energy on Matthew Rowe's Great Tredinnick Dairy Farm. It will generate power for the dairy farm, up to 500,000 kWh per year.

EFFICIENT GENERATION

"The X29 is modest in size, requiring only a 30m mast which makes it a great option for farms with high power requirements," said Steve Milner, Managing Director of Earthmill. "It has a very efficient generator which operates at a low level resistance, allowing the turbine to start producing energy at a wind speed of just four metres per second, just a light breeze."

He added: "The financial benefits of wind turbines for farms are becoming widely known, with farmers turning to them as an additional source of revenue in the wake of a dramatic fall in income, coupled with rising energy costs."

INVESTMENT

Endurance's investment in new manufacturing facilities is evidence of the boom in the farm wind market. The plant is creating up to 100 new green jobs and will eventually build 100 turbines a year.

DEADLINES

New turbines need to be pre-registered with regulator Ofgem by 31st December and hundreds of farmers are now working to beat the end of year deadline and benefit from the maximum available revenues.

There are now over 500 planning applications being considered by councils across the UK and figures from the leading turbine suppliers show that over 200 farm scale turbines could be connected to the National Grid ahead of the looming energy regulator deadlines.

MEDIUM WIND MARKET

A report on the small and medium wind market published last week by Renewable UK shows that the industry doubled in size last year and the technology is injecting over £100m into the rural economy.

"The report shows the vital role that farm wind is playing in supporting the cash strapped rural economy, with 86 per cent of small-scale turbines installed in rural areas," said Endurance UK Managing Director Dave Rankin.

Endurance



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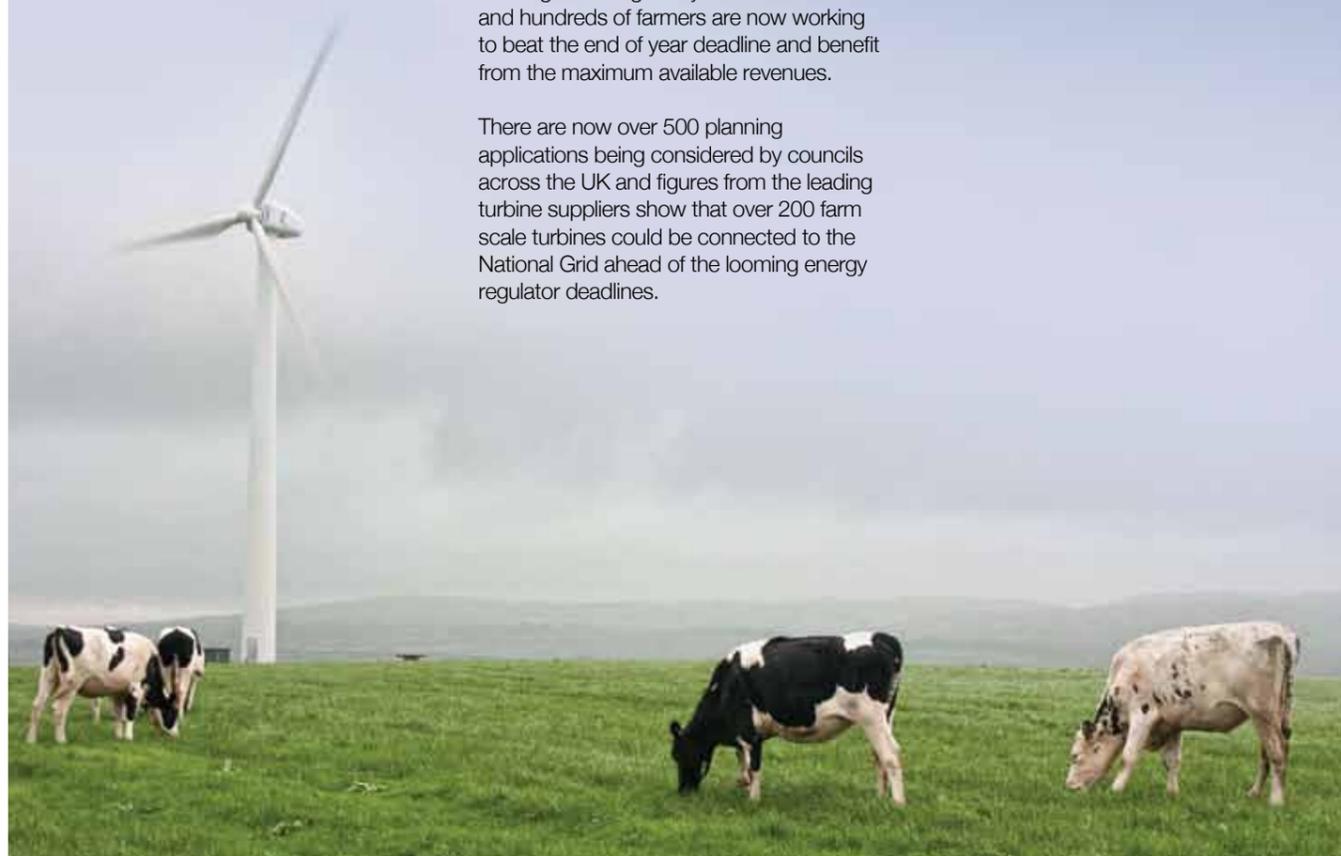
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