

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

# WindEnergy

ISSUE 34 - 2016 | £7.50

NETWORK

**SUBSTATIONS**

**INNOVATIONS**

**PROTECTIVE  
WORKWEAR**

**GANGWAY  
& ACCESS  
SYSTEMS**





**SeaPlanner**

**Reduce costs  
Minimise risk  
Improve efficiency**

Leading marine management and monitoring system, SeaPlanner effectively integrates project information to optimise safety and efficiency.

- PERSONNEL MANAGEMENT
- TRACKING & SURVEILLANCE
- MARINE COORDINATION
- COMMUNICATIONS
- HSE
- ASSET RISK MANAGEMENT

**SeaRoc GROUP**

+44 (0)1243 816 606 ▪ info@searoc.com ▪ www.searoc.com



**MODAL TRAINING**

**THE UK'S FIRST CENTRE FOR MULTI-MODAL LOGISTICS TRAINING**

**Accelerated learning in realistic, simulated environments**

**SEA • ROAD • RAIL • AIR • SUPPORT SERVICES**

T 01469 445667 E info@modaltraining.co.uk W modaltraining.co.uk

# CONTENTS

<b>04</b>	Industry News		<b>40</b>	Trenching	
<b>08</b>	Developing training courses to meet industry requirements		<b>46</b>	Training – Simulation and Virtual Prototyping	
<b>10</b>	Ship Supplies		<b>48</b>	Specialist Lighting	
<b>13</b>	Tax Costs Update		<b>54</b>	Gangways & Access Systems	
<b>14</b>	Lifting and Load Control		<b>60</b>	O & M Vessels	
<b>18</b>	Green Port Hull		<b>66</b>	Innovations	
<b>22</b>	Substations		<b>70</b>	Protective Workwear	
<b>28</b>	ROV Services		<b>75</b>	Rope Access	
<b>34</b>	Why Synthetic Oils?		<b>78</b>	Offshore Communications	

**A WELCOME CHANGE**

We made the decision to join both our Energy Network magazines together for our last publications.

There was some concern that this may have not been wholly welcomed by our readership so we would like to let you know that everyone who we have met since, whether in person at events or by other means of communication have been nothing but positive.

The main positive reasoning given was that both wind and wave/tidal industries can now find out much more about each other simply by turning the joint magazine over and reading from there.

**SUCCESS STORIES**

We have also heard of companies in either sector getting in touch with their counterparts after finding out what their respective companies offer which means that collaborating companies grow and prosper.

Products and services can be different in the two sectors however we have found that many companies offer a very similar product or at least can adapt equipment or their offering to suit a particular challenge encountered.

**NEW MAGAZINE FEATURE**

We would therefore like to hear from any of the companies who have been collaborating across the sectors – we will then feature them in the magazine.

Please get in touch – remember genuine editorial is featured completely free of charge, without any conditions attached.

Duncan McGilvray  
Editor | Wind Energy Network




**GET IN TOUCH**

T 01765 644224  
W www.windenergynetwork.co.uk  
E duncan@greenenergypublishing.co.uk  
E sales@greenenergypublishing.co.uk

**GREEN ENERGY PUBLISHING LTD (SOUTHERN)**  
OrbisEnergy, Wilde Street, Lowestoft, Suffolk NR32 1XH

**GREEN ENERGY PUBLISHING LTD (NORTHERN)**  
The Oaks, Oakwood Park Business Centre, Bishop Thornton, Harrogate, North Yorkshire HG3 3BF



Wind Energy Network magazine is happy to accept unsolicited contributions for consideration. Editorial opinions expressed in this magazine are not necessarily those of Green Energy Publishing Ltd and the company does not accept responsibility for advertising content. The publishers cannot accept any responsibility for omissions or errors. The contents of this magazine are fully protected by copyright and may not be reproduced without written permission.





# THE BEACH GOT BIGGER

**EEEEGR member Gee-Force Hydraulics, specialist supplier of controlled bolting and flange working equipment has moved to new, larger premises on the prestigious Beacon Business Park in Great Yarmouth.**

## THE BEACH GOT BIGGER

'The Beach Got Bigger' was the company's strapline whilst exhibiting at EEEGR's SNS2016 event earlier this year when the company made the announcement about a new rental and training partnership with industry leader HTL. The 'beach' is of course local vernacular for 'onshore' and a previous strapline 'the beach got closer' signified the company's presence in Great Yarmouth, right at the heart of the Southern North Sea oil & gas operations.

The new partnership offers access to an unparalleled hire fleet of controlled bolting and flange working equipment, flushing, test and instrumentation equipment, portable machines as well as cutting and subsea equipment.

The partnership also brings ECITB approved training and testing from the new Beacon Park premises. HTL's team of industry experienced technical trainers ensures that Gee-both companies can continuously deliver approved courses which meet local customer needs, including the new Wind Turbine Bolted Connections courses, MJ131 and MJ132.

## COMPLETE PORTFOLIO OF SOLUTIONS

Managing Director Graeme Cook explained: "Gee-Force Hydraulics already supply controlled bolting and flange working equipment to a wide range of industry sectors including oil & gas, power generation and renewable energy, however a partnership with HTL allows us to offer customers a complete

“WITH THE NEW PREMISES, A MUCH WIDER RANGE OF EQUIPMENT IS READILY AVAILABLE”

*portfolio of solutions through a full range of hire equipment. In discussions with HTL we felt that a partnership could bring about an unrivalled level of customer service to the local area, which has already been enthusiastically received by our customers.*

*"With the new premises, a much wider range of equipment is readily available on our hire shelves as well as a full training calendar filled with courses in demand from industry; the beach has certainly got bigger!"*

**Gee-Force Hydraulics**

# KNOWLEDGE IS POWER IN THE OFFSHORE WIND CABLE MARKET

When it comes to installing and maintaining subsea power cables, UK-headquartered Global Marine Systems can call upon experience and knowledge from a wide variety of successfully completed projects in all corners of the globe. Not only has the company conducted operations at 18 offshore windfarms in European waters, with its 19th planned this summer, the company has a power cable track record that dates back to the late 1980's.

During the intervening period, the company has installed an inter-connector cable between Finland and Estonia, in Asia, whilst completing the Pulau Ketam system achieving a record breaking burial depth of 13.8m. Most recently they connected Margarita Island to the Venezuelan mainland.

## RESPONDING TO SPECIFIC NEEDS

The company's capabilities in engineering and project management means that it can adapt to the specific needs of each contract, whether the requirement is AC or DC, deep water or shallow. The range of services available is comprehensive and includes DTS (Desk Top Study), permitting, route surveys, route engineering, project engineering, installation and ongoing maintenance provision. The combination of services, skill and experience has made Global Marine Systems a trusted supplier known to deliver the most complex of projects.

## WIND INDUSTRY BACKGROUND

The company has been involved in the installation of power cables for the offshore wind sector since the conception of the industry. In fact, the company installed cables for the UK's first commercial windfarm at Kentish Flats, as well as Europe's first at Horns Rev, Denmark. Coming right up to date, the company is about to embark on an inter-array project at the Wikinger offshore windfarm in the Baltic Sea. The installation will be performed by C.S. Sovereign a versatile offshore vessel that has to date installed 17% of inter array cables globally.

## COMMITMENT

Global Marine Systems' commitment to the offshore wind sector has been demonstrated further by the acquisition of CWind, the offshore renewable specialist. CWind delivers both construction and operations & maintenance services to the sector and has operated at 26 windfarms in the North Sea, Irish Sea and Baltic Sea, and works today, for leading wind turbine manufacturers and windfarm owners.

The collaborative offering targets the developing needs of customers in the offshore renewables market.



**Global Marine Systems**



# ADVANCED FIRST AID AND TRAUMA TRAINING COURSE

HFR Solutions CIC, a full service risk prevention and emergency response provider based in the Humber region, has developed a specialist, clinically-governed, advanced first aid training course in-conjunction with Centrica and Trauma Resuscitation Services Ltd, for organisations operating in remote locations and within the offshore renewables sector, in response to heightened risk for offshore workers with the vast distance between shore and wind turbine.



The increase to medical response times for attending the scene of a casualty in the case of a remote emergency means that operators must now place greater emphasis on advanced first aid, emergency care capabilities and the provision of more advanced lifesaving skills.

## 4 DAY TRAINING COURSE

The company is one of the few training providers with the expertise to deliver a 4 Day Immediate Emergency Care & Advanced Trauma Training Course, clinically governed by leading healthcare professionals. This allows their highly-experienced instructors to train delegates to administer on-site pain relief, medicine and prescription drugs at offshore and remote locations and support the provision of medical equipment.

Rob Granger, Lead Instructor from HFR Solutions CIC commented, "It has been recognised that health and safety legislation and basic first aid training is insufficient, should an incident occur where a casualty needs to be stabilised and receive first aid and pain relief offshore. This new course bridges that gap, delivering best practice training that upskills first aiders to advanced first aiders and increases their competence levels for handling such circumstances."

## FUNDAMENTAL REQUIREMENT

Leading operators Centrica, Dong Energy and Statkraft confirm that HFR Solutions CIC have addressed a fundamental requirement launching their URIECA - UK Remote Immediate Emergency Care Advanced 4 Day Training Course by commenting...

- Tracey Nielsen, HSE Engineer, Dong Energy commented: "It is good to be exposed to advanced trauma and immediate emergency care training only in roles that require this knowledge in a day-to-day basis. The course was delivered in an excellent manner and we were made aware of how to react and treat victims in traumatic situations."
- Stephen Adams, Operations Manager, Centrica Renewables commented: "The time taken to respond to a trauma incident offshore has always been a concern. The skills learned on this course will enable a quicker response time in the field and an increased chance of preserving life in the event of a major incident."

- Ross McMillan, Operational Lead, Statkraft – Sheringham Shoal concluded: "From a work perspective the training will enable me to manage a serious situation calmly and methodically based on the algorithm and practical skills given, hopefully enabling speedy treatment to those in remote locations. The course delivery was excellent and although I hope I never have to use it, I gained a great deal of skills which I can maintain due to the E-learning and clinical governance package."

## HFR Solutions CIC



# ENGINEERING SKILLS DEVELOPMENT AND TRAINING SOLUTIONS FOR YOUR SECTOR



OUR SPECIALIST ENGINEERING TEAM PROVIDES TRAINING TO THE RENEWABLE ENERGY SECTOR THAT INCLUDES:

- Competence Assurance
- ECITB (Level 2) Supporting Engineering Construction Activities (SECA)
- Drive System Alignment
- Engineering Skills - Use of Tools & Bench Fitting
- Flange (Bolted Joint) Integrity
- Hot Working - Guidance in Application
- Hydrostatic Testing
- Industrial Pumps & Valves
- Lubrication - Principles & Practice
- Machine Guarding - Principles & Practice
- Mentoring
- Permit to Work Systems - HSG250
- Pipefitting - An Introduction
- Pipework & Instrumentation Diagrams (P&ID's)
- Safe Isolation of Plant & Equipment - HSG253
- Diploma (Level 3 ECITB ACE Card) in Mechanical Maintenance, Fitting, Plating, Pipefitting and Welding
- Diploma (Level 2) in Process Technology (C&G 0610)

The Grimsby Institute group is a leading provider of training to the Engineering Services and Renewable Energy sector with over 200 clients regionally, nationally and internationally.

Research plus Staff plus Skills plus World-class Training equals Business Success. It all adds up, so call us now to see how we can help your business.



0800 012 6656  
commercialtraining.co.uk  
grimsby.ac.uk | training@grimsby.ac.uk



# Installing fibre optic and power cables for the offshore energy sector

Download the free Global Marine app. Hold your device over the images to see the C.S. Sovereign and the Q1000 brought to life.



SEARCH FOR GMSL APP



globalmarinesystems.com

sales@globalmarinesystems.com

+44 (0)1245 702000

# DEVELOPING TRAINING COURSES TO MEET INDUSTRY REQUIREMENTS

You've probably been there before – or you will be there soon. You've just landed a huge offshore project, and now you need personnel – lots of it.

How can you find the well-trained personnel you need? Who can you trust to train them?

## OFFSHORE MARINE ACADEMY (OMA)

Since 2008, has been developing training programmes that not only increase the skills of the individual attendees, but also benefit companies and the industry as a whole.

The training company firmly believe that, as people age, and the demand for wind renewables increases, the knowledge and skills gap that already exists in this industry will expand to create a very real risk to safe operations offshore.

## MISSION

That's why OMA's mission is more important than ever: they strive to deliver the highest quality, practical knowledge to assist in both the development of individuals and the longevity of offshore industries in general. The company's aim is to be the provider of choice for all organisations and individuals seeking training, education, and development in the renewable energy, telecommunications, and oil & gas industries.

In the last two years in particular they have seen increased demand for their Offshore Client Representative programme, and with each course they hear about new issues that participants have been struggling with in the real world. This is the type of course delivery the makes OMA unique in terms of ability to provide unique knowledge and understanding of the offshore industry in each offering.

## OFFSHORE CLIENT REPRESENTATIVE PROGRAMME

The Offshore Client Representative Programme allows contact with companies to discuss how Onshore Managers work with Offshore Client

Representatives. As a result, it soon becomes apparent that there is a real need to align these two key roles.

Effective communication is paramount for the successful delivery of any project, and the best way to achieve that communication is to develop a structure that highlights what is expected both onshore and offshore. To fulfill both of these roles effectively, they must work together seamlessly.

The programme's aim is to highlight key planning and management requirements to equip Onshore Managers with a better understanding of vessel operations and constraints. At the same time, the programme focuses on communication and information transfer between onshore and offshore management teams to aid greatly in the day-to-day management of project delivery.

The Offshore Management for Onshore Managers programme is new to the OMA ranks, but it's one they expect to see delivered throughout the UK and Europe in 2017.

## UNDERSTANDING UXO RISK MANAGEMENT

In addition the company has designed the new Understanding UXO Risk Management for Offshore Wind Renewables programme.

Because of the expanding pace of Wind Renewable projects in Europe it's become commonplace for crews to occasionally come across unexploded ordnance, which is not only dangerous, but can cause serious delay if not addressed in the proper way.

OMA has developed this programme in close collaboration with a UXO expert whose 30+ years' experience has helped us empower managers of offshore renewable projects to deal with UXO risk effectively and confidently while also communicating with their respective suppliers in common industry language.

## INCREASED KNOWLEDGE AND INSIGHT

OMA's goal, upon completion of our training courses, is to ensure the increased knowledge and insight into the procedures your people will need to lessen the risk and potential delays that can result from a knowledge or a skills gap in in your onshore or offshore team.

Antony Lewis, Business Manager at OMA concluded: *"My colleagues and I work hard to ensure that the courses benefit people who simply want to develop their careers in a challenging and competitive labour market."*

## Offshore Marine Academy



# THE INDUSTRY ONE-STOP SHOP WHICH NEVER STOPS

**We introduce The Huttons Group as our sponsor for our Ship Supplies feature following their initial company profile in our last edition.**

The Huttons Group has been in the maritime and shipping sector for almost 200 years and their history has been concentrated on supplying goods and services to vessels coming to and leaving the UK. They are therefore well suited and positioned to serve the growing needs of the wind industry and have been doing so for the past few years.

## WORKING TOGETHER

When both visiting the company HQ in Hull and continuing with conversations with company staff since then, the one message which crops up again and again is the importance of working together to provide a one-stop-shop to meet and ensure clients' continued needs.

Alex Taylor, Managing Director of the Huttons Group stated: *"It is our aim to deliver only quality supplies on time, at the right price and in optimum condition. We stand by our belief that quality supply is crucial to the continuation of valued partnerships between supplier and customer"*.

## 24/7 SERVICES

Among the myriad services which the company provides is a fully customs approved order processing of bonded products with rapid supply and distribution through their national network to all UK ports and continental Europe in temperature controlled vehicles, operating 24 hours a day seven days a week.



## WIND INDUSTRY SPECIFICS

One point Alex made in his interview in the last edition is worth repeating here...

Alex explained that seamen who are used to travelling at sea all year round accept the difficulties in sourcing particular goods and services – they have lived with those situations and continue to live with it!

The offshore wind industry has however had to employ largely shore based workers and technicians who expect and demand the sort of goods/specific brands and services they have experienced wherever they have been based onshore. This throws up challenges and has brought the supply industry to new levels of service where goods and services have had to meet those demands... wherever possible of course.

Alex has however taken this in his stride and likens the service to the cruise market in which the company is experienced, so is very happy to further develop and embrace future industry requirements.

## PRODUCTS

Products include fully managed systems and budget controlled workbooks, medical locker management system which provides pharmaceuticals and equipment to ensure the vessels medical contents comply with legislation.

## ACCREDITATIONS

Hutton's has been awarded the International Organisation for Standardisation (ISO) quality management standard ISO9001, environmental management standard ISO14001 and British occupational health and safety standard (OHSAS)18001 which confirm that the company's services and systems meet and exceed global expectations.

## Huttons Group



# CONTINUING CONTRACT IN THE OFFSHORE WIND INDUSTRY

Admiral Harding Limited has extended its contract to supply one of the world's largest OSW companies for an undisclosed period.



The company is currently supplying this and many others companies throughout the UK with its full range of provision and hotel ware, along with technical supplies utilising its experienced team of purchasers led by 4 of the company's directors, who play an active role in all operational aspects of the business.

## EXPERIENCE AND KNOWLEDGE

This experienced team has a combined knowledge of the ships and offshore supply industry of over 100 years something that cannot be equaled by any other ship company within the UK.

With the current 23 operational windfarms off the UK Coast, and their network of offices throughout the UK the company are able to supply from the small Beatrice in Scotland to the larger 160 turbines of The Gwynt y Mor off the coast of North Wales.

## CHALLENGES

This business has brought great challenges that have tested their knowledge and resources within the supply chain.

One order recently received on a Friday Evening at 1900 hrs for 10,000 stainless steel nuts, bolts and washers, was required to reach the PSV by 0900 hrs on the Saturday morning.

These were sourced and, despite the time of the order and the distance of the items from the delivery point were still able to be delivered at 0700 hrs, to the satisfaction of the owners and engineers who were waiting to complete the work.

## TIME IS MONEY

'Time is Money' as they say and the company is very much aware of that fact. The company understands that catering

companies, who are controlling the provisioning of these projects, also have feeding rates to work to. Bulk purchasing-power, as the largest UK Ship Supplier, enables them to be able to meet this criteria, without jeopardising the quality of products and services.

## 24/7 OPERATION

Admiral Harding operates a 24/7 supply and delivery service and tailors its operation around customer needs.

## ADMIRAL HARDING LIMITED



## FORTHCOMING CHANGES WILL LEAD TO INCREASED TAX COSTS

Kate Mitchell from PwC provides an update on two key developments in UK corporation tax set to come into force from 1 April 2017...

### SLOWER RELIEF FOR EXCESS LOSSES

The first key development relates to the way in which corporate tax losses can be utilised against profits. An unwelcome aspect is that, subject to a £5 million de minimis, it will only be possible to utilise losses carried forward from a previous period against a maximum of 50% of profits.

Companies constructing significant capex projects, where excess tax losses tend to be generated in the early years through significant capital allowance claims, are likely to find they are paying tax much sooner than under the old rules. Whilst another aspect of the changes is that there will be more flexibility in terms of which type of taxable profits losses can be used against, this is a relatively minor, though still welcome, change.

### INTEREST DEDUCTIONS CAPPED AT 30%

The second key development, which has been prompted by the OECD's work on cross-border tax avoidance, relates to tax relief on interest. Broadly, the headline restriction is that the amount of tax relief available for interest (and similar finance costs) in UK companies will be capped at 30% of (tax adjusted) EBITDA. In what is likely to be a highly complex set

of rules (no draft legislation has yet been issued), further tests have been put forward that could either increase or reduce this 30% restriction in certain circumstances, and proposals that deal with both excess interest and excess capacity.

Whilst these rules are targeted at larger businesses (it is thought that 95% of businesses will be outside the rules as there is a £2 million de minimis), again it is likely that these rules could significantly impact the return on large infrastructure investments.

There is a little hope that renewables projects may be able to take advantage of a 'public benefit infrastructure exemption', which would see more generous tax relief given for interest on such projects that are typically highly geared. However, as currently proposed, it appears that this exemption is likely to be too narrowly drawn to help.

### BE PREPARED – ACT NOW

As we have draft legislation in respect of the rules on losses, businesses can, and should, be assessing the likely impact of the rules on their tax position, in particular, because there may be action that can be taken in respect of prior year computations that could mitigate any adverse impact.

The position is far less clear in relation

to interest deductibility. With no draft legislation and some speculation that the introduction of the rules may be delayed, it is more difficult to do a full assessment, though the direction of travel in the consultation paper is clear.

In either case, we continue to encourage businesses to act now to try understand the likely impact of the proposed rules, rather than waiting until they come into force.

Kate Mitchell  
PwC



← **SCAN/CLICK**  
**TO SEE THE FEATURES IN THE UPCOMING EDITIONS**

**WindEnergy**  
NETWORK

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

# INNOVATION AT WORK ON RAMPION

Work on the Rampion Offshore Wind project restarted in July with Houlder equipment playing a major role in the installation of turbine foundations. The 400MW Rampion project is being built by E.ON, the UK Green Investment Bank plc and Canadian energy company Enbridge. It is due to be completed in 2018.

## INSTALLATION VESSELS

Both the projects' installation vessels, the Swire Blue Ocean Pacific Orca and MPI Discovery, now have Houlder Pile Restraining Arms and Pile Upending Tools on board. Houlder's award winning "Gripper" Pile Restraint Arms ensure foundation piles up to 850t in weight are kept vertical as they are hammered into the seabed.

## SUCCESSFUL OPERATION

The first pair of arms has been successfully operating on the MPI Discovery vessel since 2013, when MPI contracted Houlder to provide an innovative solution and add capability to their vessel. The second pair was installed over summer while the Swire Blue Ocean Pacific Orca was in Teesport through a leasing agreement direct with Rampion Offshore Windfarm. As with the majority of its projects, Houlder supplied the arms on a turnkey basis - supervising their construction, installation and commissioning.

## PILE UPENDING TOOLS

Houlder has also supplied Pile Upending Tools for each vessel. These speed up lifting and upending pile foundations while maintaining safety through remotely hooking the piles up to the ships' crane. This keeps personnel away from hazardous deck locations and provides the optimal solution where the lifting point overhangs the deck or is otherwise inaccessible. They are self-contained, wireless systems with rechargeable hydraulic and electric supplies. This avoids the need for additional umbilical connections or power lines during lifting operations.



## KNOWLEDGE AND EXPERIENCE

James Russell, Houlder's Marine Equipment Director commented *"The fact we have pile handling equipment on both the MPI Discovery and Swire Pacific Orca working on Rampion construction is testament to the knowledge and experience of our engineers."*

*"They know moving large heavy foundations safely and cost effectively requires ingenious thinking, rigorous analysis and well thought through planning. Now they are operational, we have a chance to learn lessons and improve future iterations. It's an exciting time to be working in offshore wind."*

## Houlder



# RECORD-BREAKING TRANSPORT OF WIND TURBINE BLADE

Turnkey solution provider for the wind energy industry, Mammoet Wind, has successfully transported the world's longest wind turbine blade from LM Wind Power's pilot plant in Lunderskov to the Blaest Test Center in Aalborg. Being the longest blade in the world no transport equipment has been previously planned for such scale, so LM Wind Power needed a specialist transport company to carry out this unique operation.

## PRECISE ROUTE PLANNING

The blade measures 88.4 metres in length, with a height of 4.47 metres when loaded on the truck. Precise planning was essential to this operation as the clearance to pass under bridges measured just three centimetres. The initial route surveys were conducted based on the preliminary drawings of the blade. Along the planning, the blade size was increased in terms of width and overall height, which led to transport unit adjustments such as longer overhang due to the movement of the tip support point. All road modifications, like traffic signs positions and removal of trees had changed during the process. All these adjustments have been approved by the local authorities, police and the Danish road authorities. Strong relationships between all involved parties made this a smooth and safe operation.

## COORDINATION

The transport planning started approximately one year prior to the actual transport. Meetings with the police, local authorities and the road authorities were held on site at different pinch points on the route, discussing the intended methods and expected time for different maneuvers. Close coordination with the authorities and all other parties involved enabled the successful completion of this one of a kind transport. With the route precisely planned in advance and experts on point temporarily dismantling guardrails and road signs the successful completion of the transport represented a proud moment for both Mammoet Wind and LM Wind Power.



## PROJECT EXECUTION

Alex Wagner, Transport & Engineering Manager at Mammoet Wind explained the detail: "The transport of the LM 88.4 blade went 100% as planned, even a little faster than expected. A major part of the transport running smoothly was due to long term partner, Arkil Road, Kurt Larsen Storm, taking care of a lot of the planning involving the road authorities and all road modifications such as permanent relocation of traffic signal, temporary removal of traffic signs, and removal of crash barriers allowing the transport to drive against flow of traffic on the motorway. "On site Mammoet personnel, Søren Pacholski and Michael Nygaard, as well as escort vehicles drivers did a great job working closely together as 'one team' as always. I can only be satisfied with the way the transport went, and the way that people worked together."

“STRONG RELATIONSHIPS BETWEEN ALL INVOLVED PARTIES MADE THIS A SMOOTH AND SAFE OPERATION”

## TEAMWORK

Koos Van Der Zee, Transport Manager at LM Wind Power concluded: "The entire trip went smoothly, without any problems, thanks to incredible teamwork between all the companies involved."

Mammoet

WindEnergy NETWORK

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

# 2017 YEAR PLANNER



Limited Spaces, Don't miss out! Book your place.

CALL CARLY NOW  
01765 644224

# ALBI-GRIPS & CHINESE FINGERS

A HIGHLY SUCCESSFUL AND COMPREHENSIVE RANGE OF CABLE GRIPS, CHINESE FINGERS & CABLE SUPPORTS DIRECT FROM THE MANUFACTURER



T: 01953 605983  
sales@albionmanufacturing.com  
www.albionmanufacturing.com

# KONECRANES®

## Lifting Businesses™



**Konecranes for versatile, easy and effective equipment handling solutions in manufacturing for the wind energy industry**

See our full range of lifting solutions at

[www.konecranes.co.uk](http://www.konecranes.co.uk)

Simply Innovative

Konecranes UK Industrial Crane Division,  
College Milton, East Kilbride, Glasgow G74 5LR

T: +44(0)1355 220591 F: +44(0)1355 263654 E: gordon.adie@konecranes.com





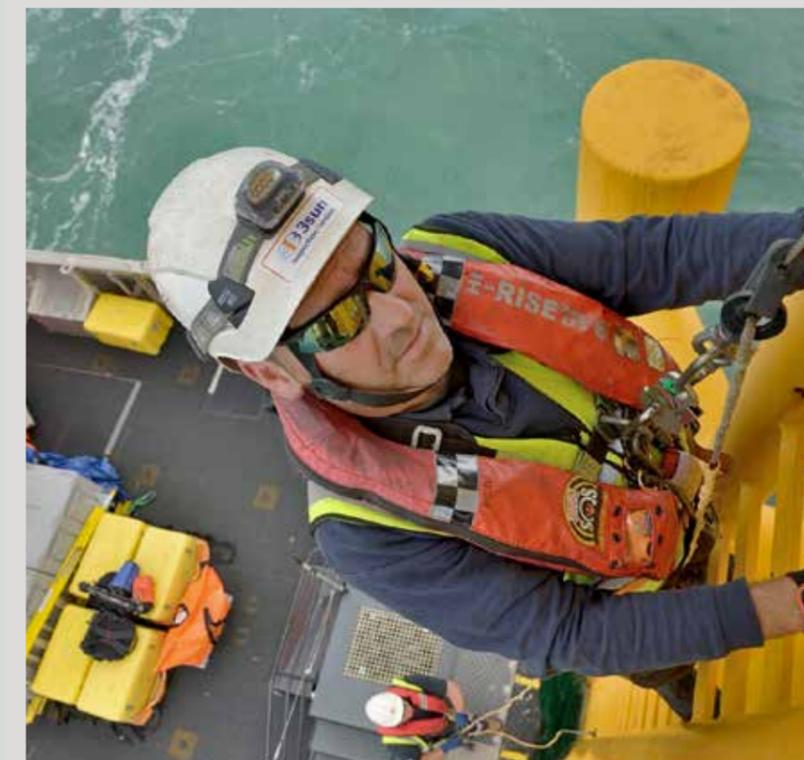
# RELOCATION TO THE HEART OF THE UK'S ENERGY ESTUARY

**With a fantastic natural location, established infrastructure, knowledge, expertise and the capability to handle a diverse energy mix, the Humber area is capitalising on its strengths to put the region on the world stage for renewable energy.**

Not only does the UK's 'energy estuary' have ports in a strategic position close to major Round 3 windfarm zones in the North Sea, but the area offers the renewables industry an excellent range of opportunities for manufacturing, pre-assembly, installation, and supply chain products and services.

#### DESIRED LOCATION

Hull and the East Riding is the desired location for renewable energy development for a number of reasons.



It has over 500 hectares of employment land, some with direct quayside access, and a programme of investment totaling £1 billion underway in the city, along with extensive infrastructure and logistics capability. The area has excellent connectivity by road, rail, sea and air, with 50 per cent of UK manufacturing capacity within two hours' drive time.

With a population of 5.2 million people, a labour pool of 2.5 million and the youngest workforce in the UK, Hull and the East Riding boasts competitive employment costs. The area also has a large skills base in advanced engineering, employing more than 12,500 people in industries such as marine engineering and in the offshore environment.

#### INVESTMENT

This is something which has been identified by supply chain companies serving the energy sector. Since Siemens invested £160m to create a wind turbine blade manufacturing facility at Hull's Alexandra Dock, business confidence and inward investment in the region have steadily grown. The number of companies relocating to the area has increased as completion of the factory nears. This is so they can take advantage of Hull and the East Riding's premium port capacity, infrastructure and unique skill set.

#### GREEN PORT HULL – WORKING TOGETHER

Hull City Council, East Riding Council and Associated British Ports (ABP), along with partner organisations, formed Green Port Hull to help establish the area as a world-class centre for renewable energy. They have been working together to ensure that this ambitious vision becomes a reality and to foster £280m of inward investment from companies.

This is being done through the Green Port Growth Programme, which is supported by the Regional Growth Fund. Inward investor support includes Enterprise Zone incentives, which allow renewable energy sector businesses locating in the area to benefit from a package of measures to make setting up business easier. A dedicated team also provides support to assist companies investing in the region and advises on processes such as site selection, planning and building control, funding, and skills and employment, to ensure investment decisions run smoothly.

#### COMPANY PROFILE 1 – 3SUN GROUP

One business that has consulted the Green Port Growth Programme to initiate a move into Hull is 3sun Group, a specialist provider of products and services to the global energy industry. The company



opened a base in the city in May to meet the demand for installation, inspection and maintenance services for the offshore wind industry in the UK and Europe.

Since inception in 2007, 3sun Group has grown rapidly to now employ over 280 people across the group, and has earned a global reputation for resolving some of the key energy engineering challenges facing the energy sector.

*"We wanted to support local energy firms such as Siemens who have recently invested in the region as part of their commitments following a number of the up and coming offshore wind contracts off the UK coast."* said Gary Horner, Renewables Operations Co-Coordinator at 3sun Group.

*"Our site in Hull allows us to continue to advance our strategic growth plans in the UK. We're looking forward to an exciting new chapter, strengthening our position as experts in the offshore wind industry. By providing a local base, we are ensuring that we continue to exceed our customers' expectations and meet the demand for services in the region."*

3sun Group began recruitment in July, with the aim to provide positions for 50 local people. The Group will provide specialist training to the new employees at their Hull base through in-house training provider 3sun Academy.

Gary added: *"We are committed to employing and developing a local workforce and our core electrical/mechanical technician roles will require the expertise of those who live in close proximity to Hull."*

**COMPANY PROFILE 2  
– TRG WIND LTD**

3sun Group is not the only business serving the energy sector that has chosen to lay down roots in Hull. In June, wind turbine support company TRG Wind Ltd chose the city as a base for its European offshore operations.

TRG Wind provides wind turbine technicians and supervisory services to wind turbine manufacturers and operators. From a handful of people based in Bromley, the business expanded to build a team of nearly 60, two of whom have set up the Hull operation. Further recruitment is planned as TRG Wind expands its services and builds on a customer base of four major manufacturers in 18 countries.

*"The availability of experienced people, plus the close links to the continent, were key to the decision to move to Hull, where the investment by some of the biggest names in the industry will support our ambitious growth plans."* said Jimmy Overton, Field Operations Director at TRG Wind, who is leading the business in Hull.

*"We launched the business in 2014 and our turnover was just under £1.5million last year. Even if we don't get any more orders, we expect to be up to about £4million this year. Most of the work is onshore but the move to Hull will change that and the split is expected to be half and half very soon. We are also looking to do more work with pre-assembly of components and we want to develop the industry here with local people in mind."*

**“FURTHER RECRUITMENT IS PLANNED AS TRG WIND EXPANDS ITS SERVICES”**

*"Hull's port facilities were a big factor in our decision to set up a base in the city, as was the presence of the growing renewables sector. Added to that, a lot of people there have worked offshore, which makes it less of a stretch for them to work in our business."*

TRG Wind has already added three technical staff to its team since opening an office in Hull.

**Green Port Hull**



**Investment opportunities at Green Port Hull**

Green Port Hull aims to establish Hull and the East Riding of Yorkshire as a world-class centre for renewable energy and offers investors a wide range of benefits including:

- Close proximity to a third of the country's designated Round 3 offshore wind farm zones
- Siemens and ABP have jointly invested £310m in an offshore wind turbine blade manufacturing facility in Hull
- Over £1 billion of capital investment currently underway in the city, which is home to a broad range of businesses with renewable energy support capabilities
- 500ha of development land with Enterprise Zone status including 100% business rate discount, enhanced capital allowances, simplified planning approaches and super fast broadband
- Investors and local businesses can also access support offered by the Green Port Growth Programme for employment and skills, business grants, business support, and research development & innovation

If your business is looking to invest in the region, or for information about the Green Port Growth Programme, contact The Business Support Team on **+44 (0) 1482 391639** or visit **www.greenporthull.co.uk**



\*Businesses must be located in Hull and the East Riding of Yorkshire

**...connecting markets**

MPI Offshore's fleet of purpose-built offshore foundation and wind turbine installation vessels plus an experienced team make us a world leader in offshore wind installation.

See us at **Offshore Energy, RAI Amsterdam, 25 & 26 October: Stand 11.062B**

**Exactly where you need us**

MPI Workboats operate a fleet of high speed crew transfer and offshore workboats - designed to operate in the demanding environment for the Offshore Wind Industry.

**+44 (0) 1642 742200**  
**info@uk.mpi-offshore.com**  
**www.mpi-offshore.com**

# A RISING FORCE

The rise of wind power not only brings with it a cleaner future for the energy market, but also provides a place for industry to innovate and grow to meet these challenges. Over the past few years, Mech-Tool Engineering Ltd (MTE) has provided a number of solutions for a wide range of industrial sectors including the offshore wind sector.

## FIRE & BLAST SOLUTIONS

Supplied in high integrity, fully welded and bolted Carbon Steel, 316L or Duplex grade Stainless Steel, MTE's external and internal wall systems are pre-engineered, weight optimised and cost effective. Approved by Lloyds Register and DNV and certified to A60, H60, H120 and J120 fire ratings, the company's fire and blast walls have been designed to withstand blast ratings up to 7 barg.

Their high integrity carbon steel plate construction option provides a highly durable, economical and wear resistant solution, whilst stainless steel and duplex options are proven, corrosion resistant and lightweight; MTE provides a spectrum of proven solutions including a fire rated sandwich panel option.

In addition, panels are insulated with approved non-combustible materials, and prevent the passage of smoke and flame for up to one hour in class A fire tests, or two hours in class H fire tests.

Fire & Blast walls also come in non-load bearing and stressed skin systems, and can be installed to existing platforms and offshore sub-stations for future upgrades. The quality of the bespoke, cost-effective and world class fire and blast protection solutions are currently well proven on the Galloper II Windfarm Development on the Outer Thames Estuary where the provision of 1900 m<sup>2</sup> of stainless steel fire walls together with, louvered walls, fire shutters and doors are demonstrating unrivalled capability in the offshore wind environment.

## SHERINGHAM SHOAL OFFSHORE SUBSTATIONS

The integrity of the MTE bespoke fire and blast systems have also been demonstrated for several years on the two Sheringham Shoal offshore substations located in the North Sea, off the Norfolk Coast and in operation since 2009. As part of this well recognised offshore windfarm, operating at 317 MW and consisting of 88 turbines, MTE was the provider of choice for the installation of 1920 m<sup>2</sup> of Fire Walls, 488 m<sup>2</sup> of Blast Walls, 36 m<sup>2</sup> of Stainless Steel 316 Blast relief panels and the supply of louvres and doors.

## EXTENSIVE EXPERIENCE

The company's extensive experience in the offshore wind sector has continued to grow with the company being selected as preferred supplier on some of the most prestigious and well known schemes in the UK and beyond.

This was again demonstrated in 2015 when MTE was selected to supply the Dudgeon windfarm development with 1350 m<sup>2</sup> of stainless steel stressed skin fire and blast resistant panels for the offshore substation. The 402 MW offshore windfarm is located 20 miles off the coast of North Norfolk, and is expected to be fully operational by late 2017.



## MODULAR SOLUTIONS

Increasingly, many windfarms have more than one substation, to increase security of export, and each with their own additional functions. These include the provision of refuge as well as either temporary and/or permanent accommodation or equipment housing.

Complete with all electrical, HVAC and packaged equipment systems installed, tested and commissioned, MTE's modular buildings are available and constructed for a range of operations and come in sizes of up to 1000 tonnes ranging from small, road transportable units to larger units loaded from MTE's quayside facility and delivered by sea as complete turnkey modular units.

## FLEXIBILITY

The flexibility of the company's bespoke fire, blast and acoustically rated modules – delivered by one of the most experienced Modular Solutions teams in the world – is currently well proven on the Greater Gabbard Offshore Windfarm located in Lowestoft, Suffolk.

Supplied by MTE to Hartlepool based Offshore Engineering firm, Heerema, the company was responsible for the design, manufacture and supply of a Local Equipment Room (LER) together with accommodation modules for the 140 turbine site, providing enough renewable energy to supply around 530,000 homes each year.

## OFFSHORE WIND EXPERIENCE

The company's offshore wind experience is extensive and far reaching with the company having been responsible for the supply of a total turnkey approach; Design Consultancy, Modular Solutions, Fire & Blast Walls, Heatshields, Wind Walls, Louvres and Blast Relief Systems and the supply of doors on some of the highest profile offshore wind projects operating to date.

In 2009 alone, these included four of the first, and largest, windfarm developments to take place in the UK including The Wood Group, Sheringham Shoal Number 2 project, the SLP, Thanet scheme, Galloper, and Greater Gabbard.

These projects have been followed in quick succession over the last seven years with Galloper 2, the addition of the Centrica operated Lincolnshire Offshore project in 2010, a contract with Harland & Wolff for the Gwynt Y Mor Project in 2012 and a commission from Sembmarine for the Dudgeon scheme in 2015 all adding to MTE's impressive portfolio of highly acclaimed offshore wind projects.

## Mech-Tool Engineering Limited



MORE INFO



BROCHURE

# FABRICATION CONTRACT WIN FOR OFFSHORE TRANSFORMER MODULES

**Babcock, from its facility in Rosyth, was awarded a contract to construct two Offshore Transformer Modules (OTM) destined for the Beatrice Offshore Windfarm Limited (BOWL) project in the Outer Moray Firth.**

Working with its client, Siemens – Transmission and Distribution, the company will develop and deliver the OTMs during the first half of 2018.

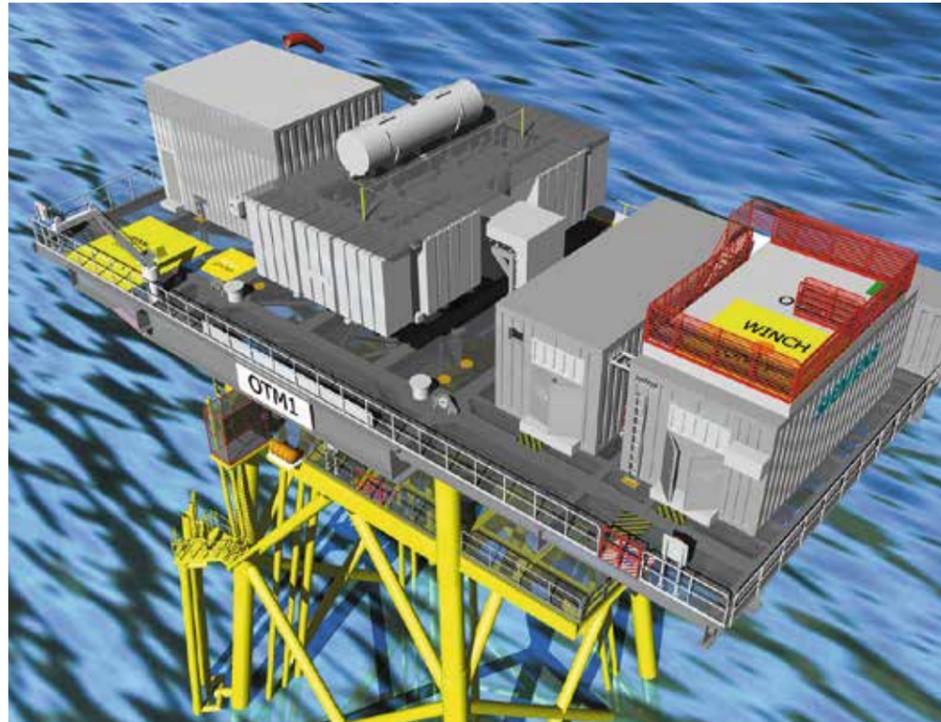
## CONTRACT DETAIL

Sustaining at least 60 skilled jobs during the contract, the work will involve client and third party interface, Project and Quality managers, Engineering and Supply Chain managers, Designers, Fabricators, Manufacturing and Heavy Handling expertise.

Drawing upon the company's ability to manage complex projects from a location steeped in a heritage of engineering excellence, the multi-faceted project provides the UK's leading engineering support services company with another significant opportunity to showcase how its innovative and specialised integrated engineering and manufacturing services deliver top quality results.

## LOCATION

Once complete, the transformers, each suitable for 300MW when connected into the grid system via an onshore substation, will take their place in the 131.5km<sup>2</sup> development site – around 13.5km off the Caithness coastline.



Ian Donnelly, Babcock's Managing Director, Energy and Marine Services, said: *"We are delighted to be selected by Siemens for this important project in the Beatrice Offshore Windfarm Limited project."*

## COMMITMENT

*"With our extensive capability and capacity in integrated engineering and manufacture projects, our commitment to quality and our passion for excellence, we are the perfect choice for Siemens to work with to develop these critical components."*

*"The skills and experience our people bring to the energy sector have been recognised by Siemens and that can only be a positive thing for our company, our employees and the long-term future of our Rosyth facility as Babcock continues to build a solid reputation and a significant presence in the offshore energy sector."*

**Babcock**

# MAKING INFORMED DECISIONS

The number of design decisions that developers must make is vast. At times, such decisions must be based upon uncertain or incomplete data, leading to potentially sub-optimal solutions. Kinewell Energy's innovative KLOC software can help calculate the optimised inter-array cable cost sensitivities to uncertain data, allowing for decisions to be better informed leading to an overall lower levelised cost of energy.

## CASE STUDY

In a recent case study of the currently operating 576 MW Gwynt-y-mor offshore windfarm, the cost sensitivities of moving the offshore substations was investigated. During the process it was found that value could be delivered by moving the West substation by 1.3 km.

Overall the redesign returned a saving of £2.2m, or 3% of the installed cable cost, relative to what has been installed by the developer.

It is not just the substation location that can be considered however; any input data can be varied to see its impact on the optimised inter-array cable cost. That allows the cost sensitivities of; turbine types, cable types, their installation costs based on seabed conditions, their electrical characteristics along with any thermal constraint derating requirements based on seabed conditions, and turbine and substation locations amongst others to be calculated.

With constant input data and without considering the cost sensitivity to uncertainties, the KLOC software typically delivers savings in the region of £3m - £30m per GW of installed capacity.

**Kinewell Energy**

## REVOLUTIONARY

The revolutionary KLOC software rapidly designs an optimised inter-array cable layout of an offshore windfarm based on the information it is presented with. By taking advantage of the software's incredible speed and utilising it many times with slightly changed input data each time, the cost sensitivities of an optimised inter-array cable layout can be determined.

Prior to the availability of the KLOC software, such analysis was not possible due to the prohibitive time and cost of undertaking such a calculation.



**Mech-Tool Engineering, a market leader in the design and build of fire and blast protection and modular solutions to the renewable energy market.**

[www.mechtool.co.uk](http://www.mechtool.co.uk)

Design Consultancy    Fire & Blast Solutions    Modular Solutions

- ☒ Design Consultancy
- ☒ Modular Solutions
- ☒ Fire & Blast Walls
- ☒ Heatshields
- ☒ Wind Walls
- ☒ Louvres
- ☒ Blast Relief Systems

# NEW BOAT LANDING SYSTEMS MAINTENANCE SERVICE

Trelleborg's engineered products operation has launched a new maintenance service for Boat Landing Systems (BLS). The new service is designed to identify degradation in BLS performance before it has the potential to cause damage to an offshore platform and a berthing vessel's structural integrity, which can result in huge costs and downtime.



## ANNUAL MAINTENANCE SURVEY

The company's expertly trained engineers will conduct the BLS maintenance survey on an annual basis to identify areas of weakness and potential wear and tear. From best practice design, manufacture and testing, to full in-life support, it helps to establish and implement a best practice maintenance regime tailored to BLS requirements. With an expert knowledge of Boat Landing Systems, the company offers an unrivalled in-depth understanding about the product, ensuring that extra eye for detail, ideal during maintenance surveys. In addition, should the product need to be repaired or replaced, they can supply the most suitable solution on a project-by-project basis.

“THE NEW SERVICE IS DESIGNED TO IDENTIFY DEGRADATION”

## MANUFACTURING AND TESTING

Trelleborg's engineered products operation designs, manufactures and tests its BLS to the highest of standards. Based in the company's laboratory for full-scale research and development is its test press – the largest in the world of its type, with a load capacity of 18,300 metric tons and weighing in at 600 tons.

Additionally, the company formulates unique polymers for each project's shock cells in-house. Total transparency and an unrivalled understanding of materials technology is integral to every product made.

**Trelleborg**

## RELIABILITY

Often utilised for projects in remote locations, it's imperative that BLS are robust and reliable. The company's new maintenance service includes an annual survey designed to check the BLS for cracks on the rubber surface, de-bonding, permanent deformation and corrosion. With this thorough analysis degradation can be identified in performance before it could become a problem for the platform.

JP Chia, Engineering Manager within Trelleborg's engineered products operation explained: “BLS come under general inspection during routine maintenance schedules of the entire platform, a task that is usually carried out by a maintenance contractor. However, if

not surveyed accurately, cracks on the rubber surface of the Eccentric Bumper Ring (EBR), de-bonding of the rubber and pipe, deformation and / or corrosion can go undetected, potentially resulting in costly remedial repair and even replacement of the BLS.

“Offshore platform operators and contractors can reduce the degradation risks often associated with boat landing systems by working directly with an experienced product manufacturer. By doing this, contactors and operators can be sure the BLS in situ is reliable, tailored to the demands they are likely to face and importantly, perform for the long-term. After all, no one knows the product like a manufacturer.”



## PORTABLE RELAY AND CONTROL ROOMS FOR SUBSTATIONS

**Expertise in power system protection design and manufacturing enables Acrastyle to provide portable relay and control rooms for use in an electricity substation. These allow customers to quickly integrate the protection system on site with Plug-and-Play connectivity. The portable relay rooms are self-contained, fully integrated portable buildings containing several interconnected sub-systems.**

They can be positioned at the wind-farm site or substation, often near the project completion date and simply cabled up to a single marshalling kiosk. One significant project included four fully equipped portable relay rooms, eleven marshalling kiosks, a suite of ten 110kV protection panels & a 110kV, 3 bay mosaic mimic control panel. The project was an extension to previously supplied protection & control equipment by the company delivered to a substation in Northern Ireland.

## PROTECTION PANEL SUITE

A suite of twelve 110kV protection panels were supplied consisting of two inter-bus transformer protection panels, eight feeder protection panels, a busbar protection panel & a bus-coupler protection panel. Prior to despatch the panels underwent comprehensive factory acceptance testing (FAT) witnessed by the customer.

## MIMIC CONTROL PANEL

A fully equipped, wired & factory tested 110kV mosaic mimic control panel was also supplied to the same project. The mosaic mimic spanned across three integral 800mm wide cubicle bays & was delivered as a single unit after undergoing rigorous simulation testing at Acrastyle's premises.

One of the advantages of a mosaic style mimic is that they can be easily modified in the future should any of the external plant change. Mimic control panels also provide a very user-friendly graphical interface for operational personnel.

## OUTDOOR MARSHALLING KIOSKS

In addition to the protection & control equipment above, the company also supplied eleven stainless steel outdoor marshalling kiosks which were a double-bay style with segregated AC & DC compartments.

These stainless steel kiosks were painted on the exterior in line with the client's specification and were finished internally with Acrastyle's standard anti-condensation paint.

The kiosks house distribution boards, terminal boards for cable marshalling, bus zone CT test blocks, AC site socket outlets, control switches & thermostatically controlled heaters.

## Acrastyle



# ROV INNOVATION IN THE OFFSHORE WIND INDUSTRY

The first subsea Remote Operated Vehicles (ROVs) made an appearance in the 1960s within the US Military sector for deep sea rescue and recoveries, and then later by the Royal Navy specifically to locate and recover torpedoes from practice firings. This rapidly evolved in the commercial sector of oil & gas for the deep developments beyond the reach of divers. Now, ROVs vary from the excavation or trenching spreads to easily recognisable big and powerful Work Class ROVs, capable of large scale subsea engineering, to the small micro and eyeball ROVs that are perfectly suited to monitoring and observation.

Apart from a dormant period of development during the 1980s, when oil prices were low and a recession gripped the world, the ROV sector has been leading the way with subsea technological developments. Controlled via an umbilical from the surface by a pilot, ROVs now have systems that allow accurate positioning or tracking and are capable of keeping station even in relatively significant tidal currents.



## HEALTH, SAFETY AND THE ENVIRONMENT

The driving force behind all modern day engineering projects is safety. This, obviously needs to be tied to efficiency and profitability but the 'safety first' culture quite rightly takes precedence, with ROVs more and more reducing the need for divers and some offshore sectors now actively and aggressively discouraging the use of divers. The ROV now holds counsel over subsea engineering projects (after all it is preferable to risk a repair to an ROV than it is to risk a human life.) Additionally an ROV will operate in environments that exclude divers.

Modern day ROV systems also carefully examine environmental impact, including utilising biodegradable oil in their hydraulic system, should the worst happen! Additionally the more efficient the system the less vessel time and fuel consumption, reducing carbon outputs.

## FOCUS AND CHALLENGES

As well as safety, the motivation for developing current systems and looking at alternatives is the drive for cost reduction (often associated with reduced vessel time). These efficiencies can be traced through reduced time in the water...So, leaving Automated Underwater Vehicles aside (which are a whole different story!) how is this achieved?

Well, with a raft of new technology in the form of control and sensor software advances, the ability to withstand increased pressure and higher temperature ranges, as well as protection from radiation (for the Nuclear energy ROVs) the advances are wide-ranging and extensive. In particular the hardware, and the way an ROV is utilised....ROVs are becoming modular!

## MDS3

Offshore Marine Management Limited (OMM) are known for their ability to look at a problem, think outside the box and develop a bespoke solution. They are therefore taken the ROV concept and turned it into a multiple mattress deployment system. With the constant requirement of a large number of mattresses to be installed on the seabed, the laborious methodology of installation has now been given some ROV treatment.

OMM's MDS3 (Mattress Deployment System 3) is capable of not only lifting and installing 3 mattresses rather than 1 per deployment, it can position them with pinpoint accuracy using the ROV technology of control thrusters and sensors. In essence an ROV that delivers mattresses safely and at speed, reducing the vessel time that the normal Mattress Installation Frame demands.



## FROM THE STANDARD 'DUMB' MATTRESS INSTALLATION FRAME TO THE INTELLIGENT MDS3

Negating the need for divers or an ROV to operate the MIF, holding steady in considerable current, with the ability to install mattresses in shallow water and to work in zero visibility (utilising Blue View imaging sensors) the MDS3 is OMM's view of the future of ROVs.

Not only this, but her modular design can, in effect, be broken into key component parts and reassembled according to the operational requirements: For example, the company is looking to convert the MDS3 so that the main operational platform has various other functional systems that easily integrate to it.

This would allow, for example, the mattress installation system be changed out for an orange peel grab should debris

be found during a campaign, without the need for a complete extra spread or even another mobilisation to deal with this unforeseen event. Equally multi-faceted campaigns can be planned all around the one spread. The cost saving implications are significant.

So the future is modular, but in the meantime the MDS3 will be accurately laying mattresses at speed, safely and in an ROV manner.

**Offshore Marine Management Limited**



“OFFSHORE MARINE MANAGEMENT LIMITED ARE KNOWN FOR THEIR ABILITY TO LOOK AT A PROBLEM”

# SUPPLYING SPECIALISED UNDERWATER ROBOTICS TECHNOLOGY

**Stinger Technology AS has taken delivery of a customised Seaeye Falcon ROV to be used for offshore subsea operations under a contract awarded by Dong Energy.**

The assignment includes environmental sampling and inspection inside the oil storage tank of the Siri platform. Siri is located in block 5604/20 in the north-western part of Denmark's North Sea sector, about 220 kilometres off the Danish coast. Production on the Siri platform first started in 1999. DONG Energy is 100% licensee of the Siri licence. The Siri platform is also host for the nearby Nini, Nini East, Cecilie and Stine fields.

The storage tank in question measures 50 x 66 metres and is 17.5 metres high, with a designed storage volume of 50,000 cubic metres. It is split internally into 16 compartments, some of which are only accessible through a 10-inch jumper pipe.

## SCOPE OF SUPPLY

Stinger selected the MacArtney Seaeye Falcon ROV in order for it to perform as a carrier for a small VideoRay vehicle which is small enough to go into the different compartments of the tank. Therefore, they developed a TMS for the purpose of mounting it under the Falcon ROV carrying the VideoRay umbilical.

The Falcon has therefore been supplied in a customised version with add-ons such as additional power and electric motor for driving the TMS. The scope of supply also includes an extensive spare parts package, FAT and a technical training course. The FAT and training were held at the facilities of MacArtney Norway in Stavanger.

## SOLVING COMPLEX CHALLENGES

*"Stinger is a very innovative company that really thinks out of the box when it comes to solving complex challenges."* states Mats Ekström, Managing Director of MacArtney Norway. *"That is why we are so fond of doing business with this company, which challenges us on our competences and enable us to demonstrate our expertise and ingenuity mastering customer requirements for technically advanced solutions."*

## GLOBAL SUPPLIER

MacArtney Norway is part of the MacArtney Group, a global supplier of underwater technology products specialising in design, manufacture, sales and service of a wide range of systems to oil & gas offshore operators, ROV, diving, and survey contractors, the renewable energy ocean science institutes and navies around the world.

The Group provides optimal solutions and proven systems and components, which adhere to the highest standards of service and quality, and is backed by an inter-national network of subsidiaries and sales representatives providing local access to global services.

**MacArtney Group**



# MAINTAINING ASSET INTEGRITY SAFELY

**According to the Wind Energy Association, total investments for the construction and refinancing of offshore windfarms and transmission assets have hit a record level of \$18billion. There are now 84 offshore windfarms in Europe alone.**

Alongside this increased confidence in offshore wind, is a need for technological innovation as projects become more and more complex.

In addition to the development of higher capacity turbines to increase generating capacity, projects also include an intricate network of foundations, cables and subsea structures and require extensive inspection and maintenance for the operational life of the asset.

## KEY DRIVER

Maintaining asset integrity safely is a key driver for the use for Remotely Operated Vehicles (ROVs). At ROVOP the company is focused on delivering the correct vehicle for the job while increasing efficiency and reducing costs.

Their 15-strong fleet includes a variety of the most advanced ROV systems on the market, both electric and work class, and the company continues to invest heavily to ensure they are competitive and meet client's requirements. This diversity means that ROVOP can always recommend the right vehicle to meet necessities as well as desires.

“MAINTAINING ASSET INTEGRITY SAFELY IS A KEY DRIVER”

## HISTORY

When the company was incorporated they worked with the wind industry alone, so the company is set-up with the industries prerequisites at its heart.

They carved out an industry niche by focusing solely on the provision of ROV services, being independent of all vessel owners and charterers and hand-picking the most experienced ROV professionals.

## SPECIALIST KNOWLEDGE AND EXPERIENCE

The company has the specialist knowledge and experience to tackle the wind sector's projects and the determination to provide the best service possible has seen them expand into oil & gas, telecoms and power transmission industries.

The future is bright for offshore wind, and ROVOP aspires to remain at the helm of this vital and exciting industry.

**ROVOP**



# A CONTINUING SUCCESS STORY

**Fife-based ROV specialist, Utility ROV Services (URS) recently unveiled two brand new bespoke ROV Systems at their base in Glenrothes, demonstrating a £6m investment in the future of the company.**

As a result of the additional capacity the extra systems will provide, the company is recruiting an additional 28 offshore employees who will work on back-to-back shifts operating the systems.

## RAPID GROWTH

Undergoing a phase of rapid growth the company has just secured investment to build a total of five units – amounting to a total investment of some £9m.

URS was established in 2013, bringing the subsea capabilities and expertise the team have from their background in commercial salvage to the energy sector. Since then the ROV specialists have built a successful business serving the decommissioning and renewables sectors across Europe.

## ENABLING TECHNOLOGY

The company's enabling technology is the UTROV, it is a remotely operated tool carrier which is suspended from a surface vessel via a load bearing umbilical. It's equipped with thrusters to control its orientation and assist with positioning during operations.

Operator feedback is provided through the cameras and lights mounted on the UTROV along with various sensors that monitor the status and health of the system. Once mobilised the UTROV can be furnished with a number of specially designed tools to carry out subsea cutting, dredging and handling operations.

## EXCITING MILESTONE

Patrick Crawford, Utility ROV's Founder and Managing Director said: "This is a very important and exciting milestone for us. Back in 2013 we took the risk of designing and building the first UTROV for commercial use, uncertain if the market would accept our unique approach to subsea operations despite the savings it offers. We have built the business brick-by-brick from there."



## INVESTMENT

"Our success since then has been significant, this is down to the investment we have made in our team and equipment enabling us to provide a quality service. Thanks to that and a robust growth strategy we have managed to secure further private investment to help us move into new sectors and new countries."

"When we operated in the commercial salvage business, we sold our services on a no cure, no pay basis. This approach meant that we had no choice but to make sure our system and team was the best there is."

## SERVICES

URS's services to the energy industry include the positing of subsea equipment, survey and inspection, route clearance and mattress lay and recovery. The company is currently conducting research and development to launch a range of tools specifically designed for reducing the cost of decommissioning.

SCAN/CLICK

Utility ROV Services  
MORE INFO



## 12 MONTH DEAL FOR THE FORMER SKANDI INSPECTOR

**Pharos Offshore Group are in the process of mobilising the newly named DP2 Deepsea Worker with a Work Class ROV, an Observation Class ROV and a subsea excavation spread, ready for 2016/2017 operations.**

Aleron Subsea will be Pharos Offshore's ROV partner during the period, providing a comprehensive vehicle support package, whilst Pharos operates the equipment.

Amongst the equipment to become available on the vessel will be a full Pre-Lay Grapple Run spread, boulder clearance spread and cable recovery spread.

## VESSEL SPECIFICATION

The company entered discussions with the vessel owners in early February for the vessel, which has become available after her 5-yearly inspection. The vessel, with a clear deck space of 540m<sup>2</sup> and 50te construction crane, will be mobilised in Bergen and re-birthed in the Port

of Blyth alongside Pharos Offshore's quayside storage facility.

Speaking on the news of the announcement, Phil Walker, CEO of Pharos Offshore Group, commented "Pharos Offshore has an excellent reputation within the offshore market as a marine contractor with specialist knowledge, kit and experience. We are looking forward to bringing forward our subsea solutions to the offshore market from the Deepsea Worker and we hope to develop from our commendable track record."

## IN-HOUSE EXPERTISE

"Pharos Offshore delivers engineering solutions for subsea cable installation,

“PHAROS OFFSHORE DELIVERS ENGINEERING SOLUTIONS FOR SUBSEA CABLE INSTALLATION, MAINTENANCE AND REPAIR.”

*maintenance and repair. We work with clients across the offshore oil & gas, submarine telecoms and renewable power industries. Our in-house expertise includes highly skilled and experienced offshore technical professionals and onshore engineering management and operational support teams. Pharos Offshore develops subsea cable handling and burial solutions, including vehicle and handling systems, with a proven track record in taking projects from concept design, delivery, testing and on-going support.”*

## INNOVATION

"We deliver innovative engineering solutions by combining state of the art technology with knowledge gained from real operational experience. Pharos offshore personnel are experienced in all major manufacturers of remote operated vehicles, plough systems and launch and recovery systems. Our multi-disciplined team have an extensive track record in subsea trenching, survey and ROV support."

**Pharos Offshore Group**

**Always Innovating to Outperform**

Utility ROV Services pioneered the Subsea Tool Carrier, a single Utility system to power and control multiple subsea implements. Providing innovative and practical solutions to the Offshore Renewable and Oil & Gas markets, including:

- Mattress Removal
- Mattress Lay
- Boulder Clearance / Route Clearance
- Survey, Video & Inspection
- Positioning Subsea Equipment
- Subsea Excavation/Dredging

www.utrov.com

+44 (0)1592 77 33 44

enquiries@utrov.com

# WHY SYNTHETIC OILS?

As an operator in the wind industry, you will be aware of how oil related failures in wind turbines can impact productivity, and how much any downtime can cost, which is why for trouble-free, smooth operation of wind turbines, even under extreme conditions, the right lubricant solution must be selected.

"As the importance of wind power increases, so too will the challenges to be met by wind power plants in terms of efficiency, downtime, shorter maintenance intervals, complex supplier management, and storage costs. These are just some of the challenges influencing an operators' success, but with high-quality, tailor-made products and a comprehensive portfolio of services for the wind industry, Klüber Lubrication helps operators to overcome these challenges." Stated Thomas Jørgensen, Sales Development Manager, Business Unit Wind Energy, Klüber Lubrication.

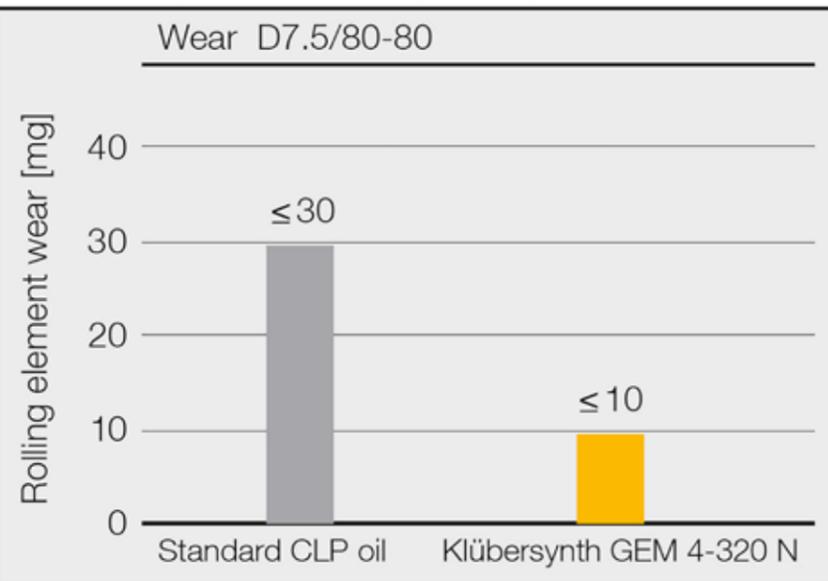
## SUPERIOR PERFORMANCE

Synthetic lubricants offer a superior performance compared to those of conventional mineral oils, which is why high-performance products from Klüber Lubrication are selected by world renowned component and installation manufacturers for initial fill and used in numerous wind power plants worldwide, with many others being prepared for lubricant changeover.

## WHY USE HIGH-PERFORMANCE GEAR OILS?

In wind turbines the risk of scuffing or micro-pitting damage which can change the shape of the tooth flank and may affect the mesh dynamics and the noise characteristics of the gears is particularly high. This is due to shock loads, vibration, high surface pressures and high sliding friction, all prevalent in wind turbines. Highly loaded gears are more susceptible, and the cracks associated with micro-pitting may even propagate, resulting in actual gear pitting and consequently premature gear failure.

## FE8 rolling bearing test (results)



In an effort to overcome the weaknesses of existing products on the market and accommodate the high loads experienced in wind turbine gears, Klüber Lubrication developed Klübersynth GEM 4-320 N. With its advanced additives, Klübersynth GEM 4-320 N has a high micro-pitting resistance of load stage  $\geq$  LS 10 (GFT "high") according to the FVA 54/7 test, not only at 90°C, but also at 60°C, which is the usual inlet temperature in wind turbine gears.

The gear oil offers a good resistance to load and ageing, as well as low friction, which enables longer oil change intervals, lower power losses and provides higher plant yield - by up to several thousand pounds over the service life of a wind turbine.

## WHAT'S GOOD FOR GEARS NEEDS TO BE GOOD FOR ROLLING BEARINGS

Gear damage is frequently associated with rolling bearing damage, which is why the company manufacture products that are suitable for gears and the bearings in the gearbox. In the FE8 rolling bearing test developed by bearing manufacturer FAG wear should be less than 30mg, Klübersynth GEM 4-320 N delivers extremely good results with a wear rate of <10mg, far below the permissible maximum, thereby delivering huge cost savings to manufacturers and operators of wind turbines.

## OPTIMALLY EQUIPPED, WHATEVER THE APPLICATION

Klüberplex BEM 34-131 N, a new speciality grease for rolling bearings offering excellent corrosion protection in very high, or very low operating temperatures where gears are exposed - as high as 120°C and as low as -30°C. The excellent wear protection even when subjected to vibration or oscillating movements extends the service life of the bearings and therefore the reliability of the wind turbine.

Klübersynth GE 46-1200, this synthetic gear grease can be used for a variety of applications and was developed to lubricate spur gears, bevel gears and worm gears in particular. The grease can also be used to lubricate toothed couplings, ball and roller guides, and rolling and sliding bearings. The product has the benefits of polyglycol base oil in a fluid grease form, offering a high resistance to oxidation for a longer life with a low coefficient of friction.

Klübersynth AG 14-61, is an adhesive lubricant for gear rim and pinion drives, and delivers excellent wear protection and good load-carrying, contributing to the extended lifetime of the gear rim and pinion drives. Developed specifically for use at low temperatures to ensure wind energy supply during challenging winter months. This product remains suitably soft even at temperatures as



low as -30°C and can be applied by means of a central lubricating systems. Another benefit of Klübersynth AG 14-61 is its good adhesion and light colour. "The black lubricants used so far for yaw and pitch bearings often contain graphite, thus causing contamination inside and outside the wind turbine... used lubricating grease leaking from the tower and the blades pollutes the environment...and is a safety hazard for staff operating the plant", explained Dr. Victor Camargos, Head of Business Unit Wind Energy at Klüber Lubrication.

Klüber Summit Varnasolv HV is a high viscosity synthetic cleaning concentrate, which matches the gear oil to deliver the efficient cleaning of enclosed gearboxes. The used oil is subsequently drained to flush out any unwanted residues, and fresh, clean oil can be applied - for example the synthetic gear oil Klübersynth GEM 4-320 N, which has proven highly

effective in numerous wind power plants worldwide. With its high scuffing and micro-pitting strength, its high degree of wear protection, as well as its resistance to ageing and oxidation, The product is particularly suited to the specific requirements of the wind power sector.

## BELLOW CARTRIDGES FOR AIR-FREE GREASE REFILL IN WIND TURBINES

In the wind market there is an increasing need for efficient refilling solutions of permanently installed automatic lubrication systems. All newer turbines are equipped with these systems and many older turbines are being retrofitted with them, however regardless of turbine age and the size of the grease reservoir, all systems will need to be refilled during scheduled maintenance intervals, typically every six months.

In order to avoid any malfunctions of the automatic lubrication systems during refilling it is important that no air gets into the system, which is why Klüber Lubrication have created and launched an improved bellow cartridge. The new air free bellow cartridge meets the increasing demand for efficient refilling solutions, is compatible with existing service re-lubrication pump units and is available in 3kg and 5kg sizes for use with Klüberplex BEM greases.

## Klüber Lubrication



# NEXT GENERATION SYNTHETIC LUBRICANTS

The wind energy sector is one of the most dynamic industrial sectors. The technological requirements for wind turbines and nameplate capacities of wind turbines are continuously increasing, and require specific hardware maintenance regimes to ensure reliable and safe operations even in toughest conditions and remote locations.



At the same time, the striving to control and reduce these maintenance costs is increasing with windfarm operators continually seeking ways to improve turbine reliability and to reduce unplanned outages and hence lower their overall operating costs.

## CRITICAL ROLE

Lubricants play a critical role throughout the lifetime of a wind turbine installation and can help enhance turbine availability, lifespan of the hardware and levelised cost of energy.

Consider the operation of wind turbines in coastal or even the more demanding offshore environments – where high moisture levels can create corrosion risks to bearings and gears. Protection against the destructive effects of sea-water is vital, given the remote location of these units. The risks associated with water contamination are seen as a real threat in today's wind turbines gearboxes.

## TESTING

The SKF® EMCOR test (ASTM D6138), globally accepted as a measure of the corrosion protection provided by grease in rolling element bearings, has now been adopted by numerous OEMs to stipulate corrosion protection performance requirements for fluid lubricants.

Whilst the gear oil can withstand levels of water contamination, it is when this water is combined with lubricant degradation products that new consequential threats can be generated, in the form of acid and sludge generation.

## ADVANCED FULLY SYNTHETIC GEAR OIL

Shell Omala S5 Wind 320 advanced fully synthetic gear oil is formulated to provide protection against the initial corrosion challenge to the rotating equipment in the wind turbine gearbox (as measured by the

“LUBRICANTS PLAY A CRITICAL ROLE THROUGHOUT THE LIFETIME OF A WIND TURBINE”

ASTM D6138 test), and further to extend this protection against the additional, but crucial, task of minimising the acid and sludge formation threat.

Furthermore, the high oxidation stability of the product can contribute to longer oil drains and cleaner main gearbox system components due to its fine filtration performance and rapid air release properties, which help promote long equipment life.

Peter Morrey & Nils Bunjes

Shell Lubricants



## Closer to you.

Conditions in the wind and wave energy industry can be tough: extreme temperatures and high mechanical loads.

Our readily biodegradable speciality lubricants are the clean choice for clean energy and are so eco-friendly that they are used widely in one of the world's most sensitive eco-systems – the Arctic.

Whether it's extreme loads, sophisticated materials, or optimum performance – our speciality lubricants deliver increased performance of turbines on land, or out at sea.

Our experts will go to great lengths to ensure your turbines run trouble-free, so if it's about pushing the limit of what is possible then Klüber Lubrication solutions are in demand.

info@uk.klueber.com  
www.klueber.com/wind-power-industry

your global specialist



WindEnergy NETWORK  
COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY  
**HUMBER SPECIAL EDITION**  
LAST CHANCE TO GET INVOLVED  
SCAN/CLICK  
MORE INFO

READ THE SERIES OF OIL/LUBRICANT TECHNICAL ARTICLES HERE...

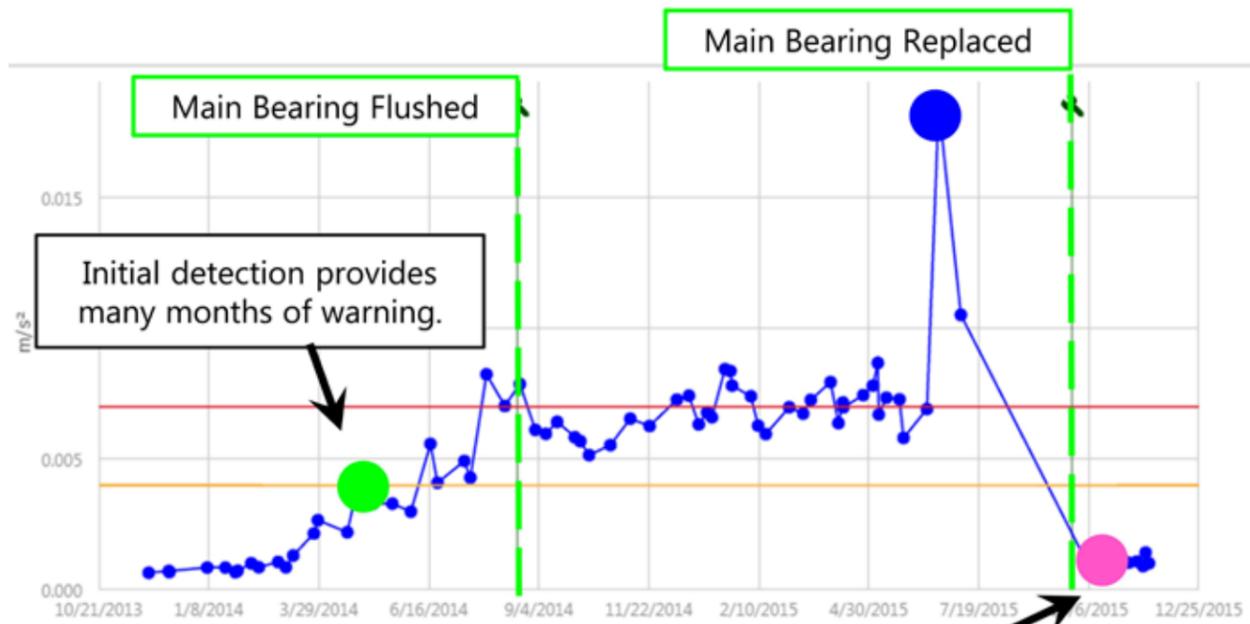
Mobil Industrial Lubricants

... simply better  
**Peter Lonsdorfer** Wind-Energy® Oil Service Unit

**Gear and hydraulic oil changes on wind turbines onshore and offshore across Europe and beyond.**

onshore  
offshore

Please contact us:  
0044 1560485854  
0049 4841 991-0  
inbox@lonsdorfer.co.uk | www.lonsdorfer.co.uk  
info@lonsdorfer.de | www.lonsdorfer.de



# A DAY IN THE LIFE OF A MAIN BEARING GREASE FLUSHER

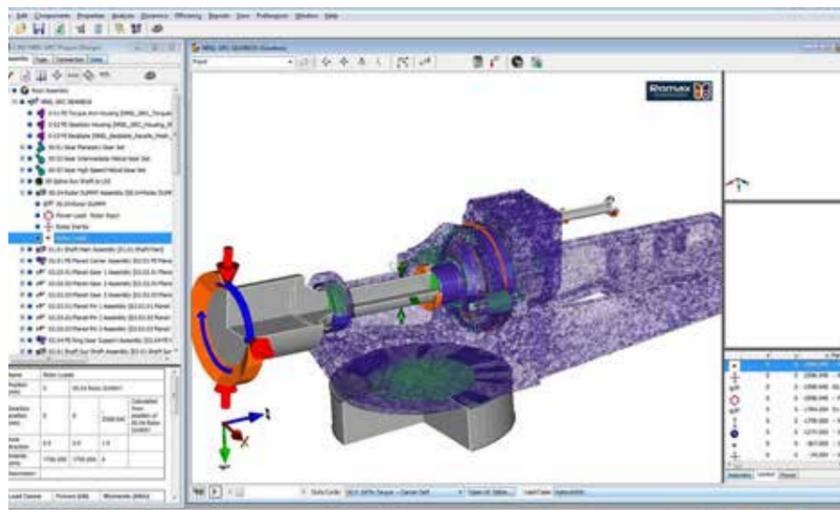
A fresh day dawns on a farm building come family run hotel just outside Londonderry. It is still only six o'clock but we, along with our equipment, are in the van on a wet and windy day heading towards yet another windfarm in the area to flush a main bearing.

Our visit was prompted by reports of blackened grease and high vibration levels detected by the Romax Fleet Monitor CMS software. On arrival, the site manager informs us that wind is gusting at around 12m/s throwing the day's work into some doubt. We sit and wait for an hour before the wind starts to die down.

## THE TEAM AND EQUIPMENT

There are two of us from Romax and two supporting technicians from the home team, we discuss the work ahead, safety concerns and attend the site induction. Driving to the wind turbine the wind speed is checked again. More waiting for a break in the weather follows before lifting the equipment to the nacelle.

There are 5 bags to stow, all are necessary for safe completion of the work: an endoscope, tooling, PPE, flushing rig and hoses, filters and sealed solvent containers. Lifting is the responsibility of



the home team and once completed I don my harness, climbing gloves and hardhat before commencing the 60m tower climb.

## SAFETY CHECKS AND PROCEDURES

After a thorough safety check and sure that all is as it should be in the nacelle with no unforeseen hazards, we set about removing the main bearing covers to allow access to the bearing. Removal of the grease catch pan reveals further evidence of contaminated blackened grease purged from the bearing. Removing the collar bolts the immediate

area around the bearing is roughly cleaned and a grease sample taken. We attach the flushing covers and assemble the rig ready for flushing.

The supporting technician is shown how to operate the pump so the flow of solvent to the bearing is controlled. The area is prepared for operation, protective suits and respirators are donned and checked. The first plug on the cover is removed, the flushing wand inserted, I check with my colleague that he is ready on his side before giving the go ahead to the supporting technician to start the pump.

## WORKING TOGETHER

Between us we work the wands between each roller and raceway spraying solvent and dissolving the grease, stopping intermittently to check our progress. The wands are set down so that filters can be changed and solvent reservoir checked. Once removed visual inspection of the filter is made for signs of metallic particles caught in the mesh. A further cycle is concluded, after which a brief stop and clean up precedes our delicious up-tower lunch of petrol station bought sandwiches. We really are living the high life.

Normally this is a good opportunity to attend to basic needs not so well provided for in the nacelle or to enjoy the view from the top of the tower, but today wet weather and mist mean the views of the picturesque Northern Irish countryside are off limits. After a tidy up, the rig is charged for another cycle and nearing the bottom of the bearing visible signs of damage are apparent on the downwind race.

The bearing is checked, ensuring as much grease as possible has been removed. The bearing is allowed time to dry briefly and when ready, an endoscope inspection is made. Access is limited and there is still some residual grease on one side but only minor signs of damage are apparent compared with what is normally observed.

## ONWARDS AND DOWNWARDS

Photographs are taken documenting the damage and general condition of the bearing and it is time to reattach the main bearing covers. It's already five-thirty when the auto-greaser is set up ready to repack the bearing with 12kg of fresh grease. The rig is dismantled, the equipment and nacelle are thoroughly cleaned before the process of returning everything to the ground via the nacelle crane.

While the auto-greaser does its thing, the day's work is discussed with the supporting technicians. My colleague climbs down the tower and starts to load the van. I finish filling the bearing with grease, pack away the auto-greaser in the last remaining bag and re-don my climbing harness and gear for the descent.

There is a final debrief in the site office. Our waste solvent-grease mixture is safely disposed of into the site waste facilities and it's time to sign off.

## A PLEASANT EVENING – BUT AN EARLY NIGHT!

Showered, suited and booted we leave the hotel to see what delights can be found at nine o'clock in this sleepy village. A couple of pints of Guinness at the local and a Chinese takeaway are the order of the day and we eat in the company of the hotel owner who is most hospitable in sharing some Irish whiskey.

We could have stayed longer but today was the last flush of the trip and conscious of an early morning flight we make our excuses and head for bed, our jet setting lives set to continue at seven in the morning with a flight from Belfast to East Midlands Airport.



SCAN/CLICK  
  
 MORE INFO  
**Dave Moss**  
 Commercial Manager  
 Romax

# EVOTORQUE<sup>®</sup> 2

## AN EVOLUTION FOR TORQUE CONTROL



- USB and Bluetooth<sup>®</sup> 4.0 data transfer
- New Audit Torque mode enables users to check pre-tightened bolts
- Delivers accurate torque regardless of fluctuating voltage
- IP44 protected
- Approved for application of final torque
- 3,000 reading memory, time and date stamped
- Complimentary PC software 'EvoLog' for data management and tool configuration



+44 (0) 1295 753600 | enquiry@norbar.com | www.norbar.com

# PRE-LAY TRENCHING FOR CABLE INSTALLATION

Route clearance and integrity of the cable installation process continue to be an area of project risk for offshore wind export cable and subsea interconnector markets. The installation processes are maturing and as the cable runs become longer and in deeper water, the burial tools need to be smarter and more capable.

Windfarm boulder clearance often becomes a long and costly process with grabs and other dumb equipment used as a pre-cursor for bringing the cable lay and trenching equipment on site. Much of the existing subsea trenching assets such as multi-pass jet technology or single-pass power cable slot ploughs are not capable of handling surface or sub-surface boulders. Mechanical handling of a subsea power cable is also a risk for cable manufacturers and requires dexterity of equipment and operators with the increased number of export cable inherent faults evidenced in the press.

## STRATEGIC PROGRAMME – IT'S ALL ABOUT THE CABLE

SMD has analysed the cable installation requirements, fault and failure criteria of power cables under its strategic programme 'It's all about the cable' and developed a hybrid multifunctional pre-lay plough offering variable depth without recovery to service with a tried and tested plough share design suitable for a range of conditions. The plough will bring down the cost of installation by combining route clearance and pre-lay trenching on one platform, mobilised off line from the cable lay process and using cheaper and more readily available support vessels.

The plough has three modes of operation; boulder clearance, single or multi-pass pre-lay trenching and post lay backfill. All of these operational modes are accommodated on a single, fully instrumented, steerable plough that does not touch or handle the product at any stage.

In boulder clearance mode the plough will move surface or sub-surface boulders and shed these to the side of the route. In trench mode, the plough share creates a 'Y' shaped engineered trench profile. The trench profile is suitable for laying cable into a wide enough target area to be viable and then centralised into a secure trench pocket. Using our knowledge about trenching in rock, we have used proven plough tip technology to allow operating in all ground conditions, from a soft silt or mud seabed to rippable rock.

## POST-TRENCH CABLE LAYING PROCESS

The post-trench cable laying process can be used directly or in combination with a jet trencher for sediment removal, trench floor clearance and cable as-laid monitoring. The cable lay vessel is then independent of the towed plough or slowed down by the trenching process. Cable lay speed can be improved and cable assurance can be fed back to the vessel from the trencher. Progress rates can be transformed from the norm, 50 – 100m/hr, to the new norm, 200 – 300m/hr.

In backfill mode, the plough can be re-configured with pivoting mouldboards to recover the spoil into the open trench as required.

## PROVEN EXPERIENCE

The plough which utilises the company's proven pipeline and cable trenching experience, features triple mode front skids, for boulder clearing, trenching and backfill. Maximum cable protection is

afforded by positioning the cable within a safe pocket at the base of a vertically sided trench base. The trench profile can accommodate cable lay bundles up to 600mm diameter and lower the product 1.5m below seabed. The plough design is scale-able, with options for 3.0m and 5.0m depths using share extensions and multi-pass arrangements. Vessel requirements increase to 250Te and 350Te bollard pull respectively.

To ensure maximum efficiency of operations, the company can provide a turnkey solution with the pre-lay plough and launch and recovery system for safe operations up to sea state 6. This approach maximises asset availability for operators and reduces operational risk, by having all elements of the system integrated and tested prior to delivery. SMD's turnkey approach also means reduced commercial complexity and simplified supplier management for the end-user.

## ADVANTAGES

SMD envisage the combined cable protection improvement, lower vessel costs, minimal cable handling and the project risk mitigation from surface and subsurface boulders removal prior to lay, create an unrivalled project process suitable for a wide range of long distance cable projects.



SCAN/CLICK  
MORE INFO

SMD





# PROMOTION THROUGH ANIMATION – A CASE STUDY

SMD have been working with award-winning animation studio Kuro Dragon for the last five years to produce stunning 3D technical visualisations that bring significant benefits to their business.

## THE RELATIONSHIP

The two companies have been working together since 2011 and over the years they've successfully worked on a wide range of projects producing visualisations of SMD's trenchers and ROVs.

## THE PROJECT

Kuro Dragon produced the Q1400 Trencher animation for SMD's client Fugro which has been viewed by more than 25000 people on youtube. SMD required a 3D animation that would demonstrate both the trencher's engineering innovation and its unique capabilities. It was essential that the animation was highly detailed in order to reflect the superior specifications of the product.

help enable potential customers to easily understand the product and its benefits.

These animations are also used at exhibitions, meetings and as an online showcase. In addition to this, the animations are also a highly effective training tool helping facilitate knowledge of the products for SMD's staff.

Stuart Howard founder of Kuro Dragon said "It's been a huge privilege to work so closely with one of the world's leading manufacturers of remote intervention equipment. We've seen SMD grow from strength to strength and we look forward to continuing our working relationship in the future."

Kuro Dragon

## POSITIVE OUTCOME

Victoria Bosi at SMD said "Working with the team at Kuro Dragon is always a pleasure. Over the past five years they have always produced animations of the highest quality. They have a great understanding of our requirements and endeavour to ensure that these are not only met, but exceeded. The high level of detail of these animations can be very influential in helping us to secure new business from our clients."

## BENEFITS OF ANIMATION

SMD are able to use the animations produced for a multitude of purposes. They use these as major sales tools to



“OVER THE PAST FIVE YEARS THEY HAVE ALWAYS PRODUCED ANIMATIONS OF THE HIGHEST QUALITY”



## Hi-Traq

A new dimension in trenching capability

Protects all inter array and export cables in all seabeds



AHC crane launch (SS4)



Unrivalled manoeuvrability



2.3m chain cutter

The technology innovator.

IHC Engineering Business  
 ebl@royalihc.com  
 www.ihceb.com

SPIRIT  
 ENERGY  
 FUTURE



At DeepOcean we have spirit and passion for innovation and technology. In the challenging offshore environment, our world-class expertise is depended upon for the successful development and reliable servicing of the renewables market.

Bridging present and future energy needs is essential, and it is DeepOcean that provides the vital connection between new energy systems and existing grids.

DeepOcean plays a leading role in the global supply of offshore wind power, providing a range of reliable and proven solutions under its core service areas.

- SURVEY AND SEABED-MAPPING
- SUBSEA INSTALLATION
- SEABED INTERVENTION (TRENCHING)
- SURF (Subsea Umbilicals, Risers, and Flowline Installation)
- INSPECTION, MAINTENANCE AND REPAIR
- DECOMMISSIONING

**DEEPOCEAN**  
 www.deepoceangroup.com

DeepOcean is a global provider of safe, high quality, innovative solutions for the subsea industry. A fleet of owned and chartered subsea support vessels are available to serve clients requirements, in addition, a newbuild interconnector vessel will join the fleet in 2016.

THE NETHERLANDS NORWAY UNITED KINGDOM MEXICO BRAZIL SINGAPORE



# LATEST TECHNOLOGY SHOWCASED IN 3 NEW CABLE TRENCHING MACHINES

With a history stretching back 20 years IHC Engineering Business has always led from the front in trenching technology. For the safe and reliable burial of subsea pipes and cable the offshore industry has made the company its first port of call. Three high-profile projects to be completed this year are reinforcing an enviable track record in subsea ploughs and tracked trenchers.

## CABLE PLOUGHS

The Sea Stallion range of cable ploughs have buried in excess of 10,000km of cables throughout the world. In its latest form, due for delivery to the USA in November, the Sea Stallion 3, operating in 2,000m of water, can bury cables up to 150mm diameter to a trench depth of 3m. The new machine will trench in soil strengths from 5kPa up to strong clays of 350kPa.

Another brand new system, the all-new Advanced Cable Plough 2 (ACP2) is the first in the offshore industry to be optimised for high performance in all areas but especially for the safe handling of large diameter power cables. This soon to be-completed machine is unique in its ability to accommodate products up to 300mm diameter with a minimum bend radius of 5m and to offer both simultaneous lay and trench and post lay trenching (seabed cable loading).

An interesting feature to assist in shore approaches is the addition of an anti-cavitation jetting system. ACP2 is designed to DeepOcean's specification and is destined for their state of the art power cable installation vessel Maersk Connector.

## WINDFARM CABLE TRENCHING

The all-new Hi-Traq is the world's first subsea trencher specifically designed for the installation and burial of wind-farm power cables. The notoriously harsh shallow water environments, typical of windfarms on the European continental shelf, present a special set of challenges for installation contractors. Hi-Traq, with its unique four-track chassis, is designed to provide enhanced steering and traction performance in the toughest subsea environments.

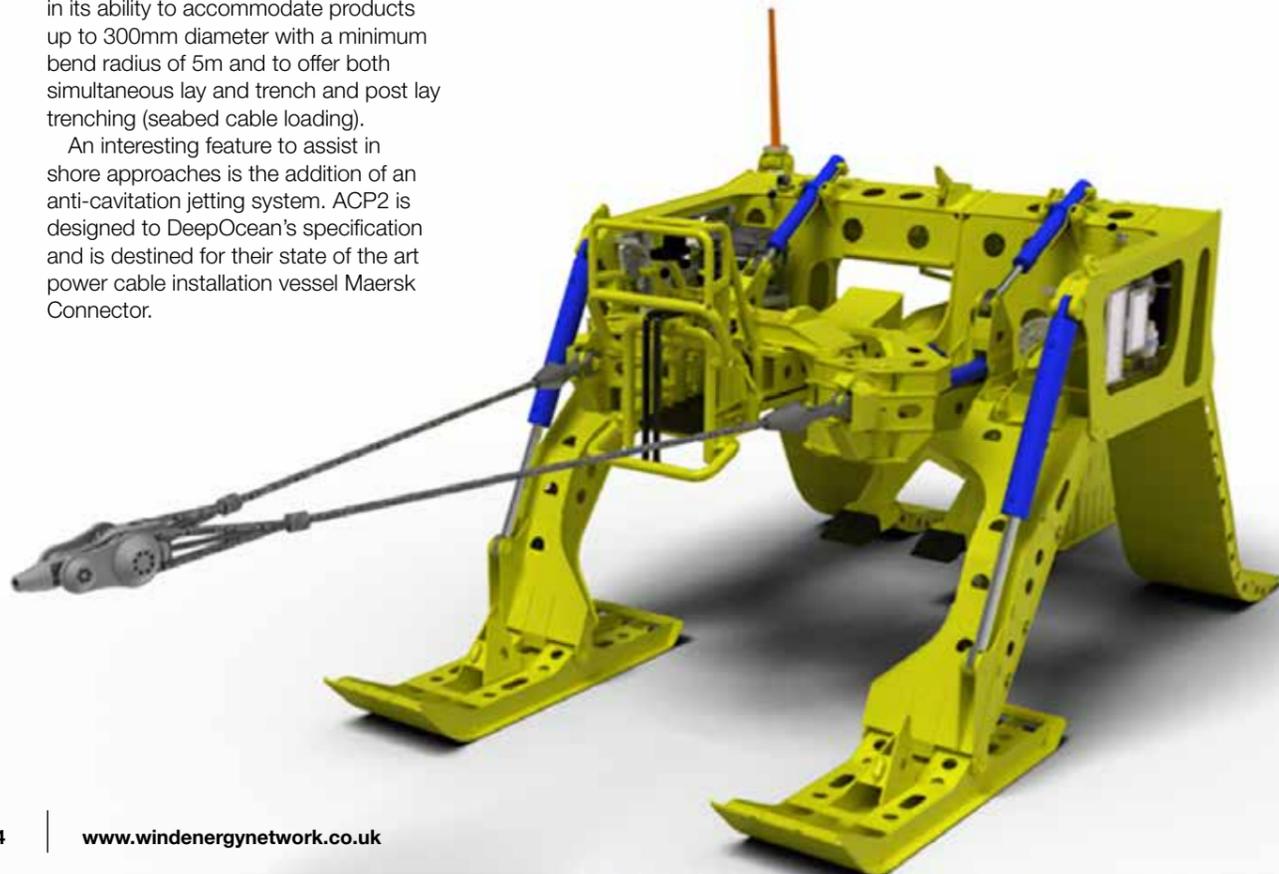
The ability to operate from a range of vessels, its extended weather window and high sea-state launch and recovery capability all combine to reduce project risk, time and cost.

Hi-Traq is currently undergoing final assembly in readiness for testing and full operation early in 2017.

## IHC Engineering Business



“THE NEW MACHINE WILL TRENCH IN SOIL STRENGTHS FROM 5KPA UP TO STRONG CLAYS OF 350KPA”



COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

# 2017 YEAR PLANNER

Limited Spaces, Don't miss out!  
Book your place.

**CALL CARLY NOW**  
01765 644224

KURO DRAGON ANIMATION

+44 (0) 191 490 9126  
hello@kurodragon.com  
@kuro\_dragon  
@kurodragon  
www.kurodragon.com

# HUGHES

SUB SURFACE ENGINEERING

## TOWER & CABLE SUPPORT TEAMS

Hughes SSE have extensive experience working on complex offshore projects across Europe in both the Offshore Renewable and Oil & Gas Sectors.

### TOWER AND CABLE SUPPORT

- Pre-Rigging of Pull-In Equipment
- Installation Of Messenger Wires
- Cable Pull-In Teams and Equipment
- Hang Off and Cable Stripping
- De-Rigging of Pull-in Equipment

### SHORE END AND CABLE BEACH PULL IN'S

Hughes SSE have developed a strategic partnership to offer a turnkey solution to shore end and export cable beach pull in operations to include:

- Shallow Water Cable Burial Personnel and Equipment
- Specialist Equipment, Winches, Excavators, Rollers and Cable Floats
- Cable Protection

For further information visit [www.hsse.co.uk](http://www.hsse.co.uk), or call +44(0)151 922 2023 / email [info@hsse.co.uk](mailto:info@hsse.co.uk)

# SIMULATION AND VIRTUAL PROTOTYPING

## The route to increased skills and efficiency

Global investment in renewables is increasing, with some of the world's biggest energy firms putting down roots in the UK. In the first six months of 2016, Europe's offshore wind projects attracted €14.bn of investment, of which the UK secured £8.7bn – almost 75 per cent.

“THAT'S WHY MODAL TRAINING HAVE RECENTLY APPOINTED SIMULATOR SPECIALIST”

To cement our status as a leader in the ever-growing renewables sector, we need to focus on two things: building a skilled and experienced workforce, and developing working methods to increase efficiency. High-tech simulators – providing realistic work experience and invaluable training – can help us address both demands.

### EQUIPPING THE WORKFORCE WITH THE RIGHT SKILLS

Most large energy companies recognise the industry's recruitment needs and provide a solution in the form of apprenticeship programmes, to ensure a steady supply of next-generation workforce. However, we also need to refresh, enhance and develop the skills of the existing workforce to maintain high standards and keep up with the pace of change.

As oil prices have fallen in recent times, more experienced technicians from the oil & gas industry have made the switch to offshore wind. Even with experience of complicated crane operations, they need to develop specific skills for offshore wind. For example, they will be required to learn the workings of complex turbine units, and understand the systems and procedures required to install and maintain them.

Although most positions within the renewables sector are for wind turbine installation technicians and maintenance engineers, we also need to consider the skills required for support roles. These include logistics, vessel operation and charter, ship build and repair, and port and portside services.

### TAILORED AND TARGETED TRAINING

Tailored, targeted training is vital to ensure those working in these jobs are operating safely and efficiently. It is important, too, to consider the critical part teamwork plays in these roles, making group training essential to ensure seamless working with clear communication and understanding.

Simulation training provides the perfect solution. It is safe, effective and cost efficient, and gives those who will be working in dangerous offshore wind locations the vital skills required. It enables users to gain experience of a variety of cranes and operations, including movement of supplies and equipment from portside to vessels, from vessels to rig, and the subsea lifting and installation of equipment. Often these are carried out in extreme weather conditions, making them even harder to complete swiftly, safely and accurately. Learning these operations would take years in the workplace, but can be achieved in just a few days in simulation.

### OFFSHORE SIMULATOR CENTRE AS

That's why Modal Training have recently appointed simulator specialist, Offshore Simulator Centre AS (OSC), to create a sophisticated crane driver simulator training suite, unique to the new £7m centre in Immingham.

At the heart of the new suite will be two crane simulators housed in domes, each with seven projectors, capable of creating realistic training environments. There will also be six desktop classroom crane simulators, four deck personnel simulators, an instructor station and a debrief room.

The suite will see individuals train to drive all types of cranes, across a wide range of portside and offshore operations. Cranes are used on vessels and rigs, both to move items between the two, or vessel to vessel. They are also used for subsea operations and installations. The simulators are designed to give trainees the skills and experience they need to work on all of these, as well as carry out turbine installation.

Importantly, the crane simulators can also be used to simulate offshore ship's bridge and underwater ROV vehicle applications. This will allow whole teams of crane drivers, deck hands and offshore vessel operators to train together in a wide range of critical scenarios.

### USING VIRTUAL PROTOTYPING TO MANAGE RISK AND INCREASE EFFICIENCIES

As the offshore wind sector grows as such a rapid pace, the boundaries of technology are constantly being pushed, with new techniques being introduced. To generate more power, turbine size is increasing, with larger blades being installed on windfarms, adding complexity to installation, maintenance and modification.

With new territory and technology comes risk. Testing new, innovative ideas in such a volatile environment as the North Sea, with high winds and strong waves, can be dangerous and costly. That's why the major energy companies are turning to virtual prototyping in simulation to find smarter solutions and to solve problems.

Studies show that simulator training can reduce risk factors and time by up to 50 percent. This means any new ways of working can be trialed in a controlled, safe environment, before being used in a real-life scenario. It also enables those who will be carrying out the new procedure to gain knowledge and valuable practice. This ensures a smooth and swift process out at sea, minimising any errors and lengthy timeframes, which can be expensive.

We're confident our new OSC crane simulation suite will help to create a new generation of highly-skilled offshore operators and will be key to streamlining the processes for offshore windfarm installation and service.

**Patrick Henry**  
Managing Director  
Modal Training



# A BRIGHT IDEA – TURN OFF THE LIGHTS

## RADAR PROVIDES A SOLUTION TO CONTROL OBSTRUCTION LIGHTING BY EDWARD LUNDQUIST

While radar control of wind turbine aircraft warning lights are not new in Europe, they have yet to catch on in America. Edward Lundquist reports that operators want to offer the 'on-off' switch; communities want 'dark skies'; and in some cases regulation requires windfarms to have obstruction lighting control. But, he tells us, solutions must meet stringent requirements to be certified.

### OBSTRUCTION LIGHTING CONTROL

Kingdom Community Wind may be the first operating windfarm to adopt obstruction lighting control to switch blinking lights off at night.

Dotty Schnure of Green Mountain Power (GMP), a utility serving 265,000 customers in Vermont, says GMP wanted to install the Obstacle Collision Avoidance System (OCAS) radar at the beginning, when the 21 turbines began generating power in four years ago. In fact, the company specified the capability when it applied for its permit in 2010, and hoped to be able to install it when construction started, or have it available to install when the facility became operational in 2012.

"We promised the community we would build Kingdom Community Wind to the highest standards, and that included installing equipment that would keep warning lights off unless oncoming aircraft was detected," said Schnure. "We thought of it as part of our all-encompassing effort to be a good neighbour in the community which so strongly supported this project before and after it was built."

### LOWELL MOUNTAIN

The turbines, located on Lowell Mountain in Lowell, Vermont, have eight aircraft warning lights that meet the requirements of the Federal Aviation Administration. The capability to turn those lights on and off, depending on the presence of aircraft in the vicinity, requires certification by the FAA.

The utility is dedicated to a clean, cost-effective and reliable energy future, and to listening to residents. "GMP will help Vermont achieve its goal of achieving 90 percent of the state's energy from renewable sources by 2050," stated Schnure.

### RENEWABLE ENERGY SITING BILL

Furthermore, in June, Vermont Governor Peter Shumlin signed the 'Renewable Energy Siting Bill', designed to improve regional and town energy planning and to enhance community input into the siting of energy projects. The law requires that "Any new wind generation facility of four or more turbines minimize visual impact at nighttime by installing radar-controlled lights."

The lighting requirements are specified in "Safe, Efficient Use, and Preservation of the Navigable Airspace," and state that structures above 200 feet (61 metres) above ground level, "should be marked and/or lighted with FAA-approved paint markings or lighting fixtures to ensure that they are visible to pilots at night."

The FAA has recognised that because the number of telecommunication towers and wind turbines are growing, the number of required lighting fixtures has greatly increased. As a result, the FAA says it has created light concerns to some residents living near these facilities.

### AIRCRAFT DETECTION LIGHTING SYSTEMS

Aircraft detection lighting systems continuously monitor the airspace around an obstruction or group of obstructions for aircraft and when the detection system detects an aircraft in its airspace, the system sends an electronic signal to the lighting control unit, which turns on the lights. Once the aircraft clears the obstruction area and there are no longer any safety concerns, the detection system turns off the lights and the system returns to standby mode.

Other companies have also been approached by OCAS, which has now been acquired by Vestas North America. According to Jim Patterson, manager of the FAA's airport safety R&D section at the William J Hughes Technical Center in Atlantic City, N.J., that caused a lot of problems for projects considering OCAS because, "OCAS had not yet demonstrated to the FAA that their technology was even worthy of performing the task."

### CAPABILITY – MEETING STANDARDS

Several companies have proposed radar solutions to detect aircraft and control the lights, but to date, the FAA has only certified two companies as being able to effectively detect aircraft within three miles of one of the turbines.

"With that 3-mile distance in mind, we worked with a company called Laufer Wind Group, out of New York City, and we were able to facilitate an evaluation of their technology with the Department of Energy at the National Renewable Energy Lab, or NREL, in Boulder, Colorado. Laufer was able to install their sensors on some prototype wind turbines out in Boulder, and we used an aircraft to fly and validate their system to prove that it met the standards that we had put down. We published that report on our website," Patterson said.

"We also started working with a company called Terma on their obstruction lighting control, or OLC. The company has very heavy ties to military and their technology is quite proven for port and harbor protection in its ability to find small vessels, ships and any type of movement that might be on a body of water," continued Patterson.

“KINGDOM COMMUNITY WIND MAY BE THE FIRST OPERATING WINDFARM TO ADOPT OBSTRUCTION LIGHTING CONTROL”

"It's a longer-range sensor, and a little bit bigger than the Laufer system as far as the sensor requirements. But all-in-all, we were able to facilitate a demonstration of that out in Mojave, California. That solution has been approved, and that report is now published and available on our website, as well. So as of right now, we've got two technologies out there: the Laufer system and the Terma system that we have finished our research reports and have those available on our website."

### ADDITIONAL BENEFITS

Patterson says radar lighting control has additional benefits. "It prevents birds from being attracted to our FAA obstruction lighting, so it's got a very positive impact on wildlife. And it helps the nearby communities be more accepting of renewable energy."

"We've proven that it still needs the range we need to keep aircraft safe and let pilots still see the same lighting configuration they would see with or without the technology. It could be considered a more expensive 'switch' to turn the aircraft warning lights on and off, and that's true, but it seems to be a solution that's really helping all parties involved."

### Terma AS



# THE FLEXIBLE DAY-NIGHT BEACON

Quantec Signals is a fully integrated part of the Quantec Group with its main focus on sales and service. The Quantec Signals portfolio is mostly designed to offer clients a complete service package, covering delivery, installation and the operation of beaconing systems. The company operates worldwide within the wind industry and serves a variety of different clients.

As part of the Quantec group, Quantec Signals cooperates with the sister companies, who work closely with Quantec Networks on communication networks and interface technology, and alongside Quantec Sensors on demand-controlled night identification (ADLS solutions).

## HIGH DEGREE OF FLEXIBILITY

In order to comply with international regulations, it is not only the programming that provides a high degree of flexibility.

The company tries to implement as many features as possible into their products. A new design of hardware and software is based on the requirements and the feedback they receive from their customers. They work continuously on improving products to meet customer demands.

## MARKET DEMANDS

In order to meet the increasing demand on the market for lower levelised cost on energy (LCOE) and the request for less article numbers, the company has developed a modulated day/night beacon system.

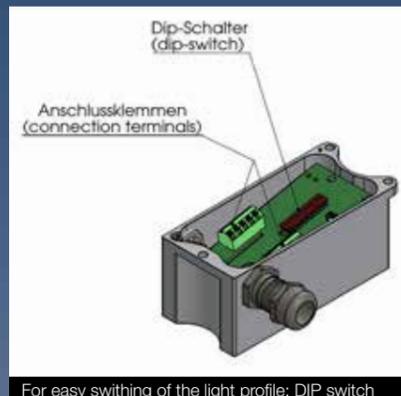
## SPECIFICATIONS AND FEATURES

The day/night 20.000 cd day/2000 cd red or white night beacon with dipswitches, allows adjusting of the flash rate as well as the light combination according to ICAO A/A or A/B and includes up to 12 other functions.

The beacon is offered with add-on modules such as heating (cold climate version) and Infrared. The module system also makes it possible to build beacons with up to 50.000 cd white daylight.

The last feature highlights the possibility to select preassembled cables with plug or specified cable type.

Claus Larsen (CCO)  
Quantec Signals GmbH



For easy swithing of the light profile: DIP switch

“THEY WORK CONTINUOUSLY ON IMPROVING PRODUCTS TO MEET CUSTOMER DEMANDS”

# LIGHTING SOLUTIONS FOR UNDERWATER APPLICATIONS

In addition to aerial technology for turbine inspections, offshore windfarms require underwater inspections and maintenance. Remote Operated Vehicles (ROVs) with attached lights and cameras are one common option for surveying underwater conditions and inspecting equipment. While cameras provide the image, lighting plays a critical role in the ability to locate and view potential concerns.

## THE UNDERWATER DIFFERENCE

Illumination is a challenge underwater because light behaves differently. When submerged, light does not follow direct lines to the subject. Macroscopic life and water volume distort the luminosity of light sources, thus obscuring visibility. Light also suffers from attenuation: a gradual loss in light intensity as water molecules absorb light photons.

Another effect, known as scattering, occurs when variations in the water such as temperature changes and suspended

particles diffuse illumination. Scattering diminishes contrast between a subject and its surroundings, which can blur an image and wash out a subject.

## CHOOSING A LIGHT

ROV piloting and other inspection methods require broad, diffused lights optimised for scattering conditions so that equipment can reliably manoeuvre to the worksite and avoid hazards and obstacles. Total luminous flux, dimming range, and Correlated Color Temperature (CCT, measured as Kelvin) are also important considerations.

A high luminous flux supports detection of low contrast and/or distant subjects, while dimming capabilities can compensate for high backscatter. Greater than 5000 Kelvin is ideal for inspections, as this high CCT lighting allows better detection for both distant and low-contrast objects.

Some companies still opt for halogen lighting solutions, yet LEDs tend to be more efficient and offer optimal colour temperature options. Other benefits are



shock and vibration resistance, precise dimming, and safe operation in air during deck tests.

## CONCLUSION

Light behaves differently underwater, creating challenges that require subsea-specific equipment to mitigate. Knowing what characteristics to look for in lights when managing offshore windfarms will support safe and effective operations.

DeepSea

## OnShore? OffShore? BE SURE...

**Rely On Peli**

- ▶ Rugged, Rechargeable & Portable
- ▶ Easy and quick to set up
- ▶ Battery can be swapped to extend light duration
- ▶ Mast extends above 1.8 metres
- ▶ Intelligent control to programme light up to 24 hours
- ▶ Self-contained system

10%  
AREA LIGHTING  
OFF

Use code:  
LIGHTUPTHEDARK16

## 9490

AREA WORK LIGHT

T: 01457 869999

PELIProducts.co.uk

## LED REMOTE AREA LIGHTING

Peli UK have a long track record as a specialist partner to the wind energy market supplying protective equipment cases and lighting products to suit the particular needs of working in remote and demanding conditions.

### 9420 AND 9490 MODELS

Compact, portable and reliable, the Peli 9420 and 9490 models in the remote area lighting range are ideally suited for wind energy construction, engineering and maintenance works.

### 9420 SPECIFICATIONS

The 9420 is a rechargeable light which weighs 3.81 kg and offers 1000 lumens of light on high power. The mast extends to above 1.5 metres providing a wide area of illumination. The work light is fast to set up and an angled head directs light to precisely where you need it. It folds down quickly to under 74cm long taking up little storage space.

There are two versions of the 9420 available, standard and XL, with the latter including a case, shoulder strap and two battery packs. The low weight and portability of the 9420 makes it ideal the work light for remote or difficult to access areas.

### 9490 LED SPECIFICATION

The Peli 9490 LED is the latest addition to the area lighting range and features a 10 LED head that extends to above 1.8 metres to provide a wide area light. The mast can be rotated and the head angled to position the light where required and offers up to 6000 lumens of bright white light.

The unit has 3 pre-set light levels; high, medium and low or preferred run time of up to 24 hours can be selected with the intelligent control mode. Rechargeable battery packs can be swapped out to increase lighting run times.

### RUGGED WITH A LIFETIME GUARANTEE

The Peli range of LED lighting systems are a rugged, ecologically responsible and highly portable alternative to generator powered lights.

The range of cases and torches carry the legendary "You break it, we replace it" lifetime guarantee.



SCAN/CLICK  
**Peli Products  
 (UK) Ltd**  
 MORE INFO



9490 Remote Area Lighting System

## BUOY RENTALS, INSTALLATION, AND MONITORING SERVICES

Sealite, the world's fastest growing manufacturer of marine aids to navigation, recently announced the commencement of several new products and services for the offshore wind market in the United Kingdom.

### MARINE BUOY RENTAL

An innovative rental programme is now offered for Sealite's extensive line of marine buoys, all of which are manufactured in the United Kingdom. The new rental service will allow windfarm owners and operators, service contractors, marine constructors and engineers, and turbine manufacturers, to affordably provide perimeter marking of offshore windfarms and turbines during both the construction and completed installation phases, whilst eliminating inventory management challenges.

“UNPARALLELED  
 PRODUCT INTEGRITY  
 AND SUPPORT”

### INSTALLATION, MAINTENANCE, SERVICE AND MONITORING PROGRAMME

The Lowestoft-based company is also launching an installation, maintenance, service and monitoring programme across its complete solution portfolio. The monitoring service offers customers a single point of contact for recording and reporting of information on their AtoN's performance and power supply.

This installation and service offering covers both rented and purchased buoys, as well as the company's line of temporary (construction phase) and permanent lighting solutions for the offshore renewable market.



### OFFSHORE WIND MARKET OPPORTUNITIES

The offshore windfarm segment is one of the fastest growing sectors of the renewable energy market, and Sealite UK's turn-key marking and lighting solutions provide wind energy customers with unparalleled product integrity and support, from the initial rental process through the product installation phase to on-going monitoring.

Commented Sealite United Kingdom Ltd. Managing Director, Mr Robert Simons, "The offshore market is expanding at a rapid rate and the introduction of these services is an important milestone for our business as we strive to offer our customers a solution for their total needs."

**Sealite UK Ltd**



# BRIDGING A GAP

**“If you are good at building bridges, you will never fall into the abyss!”**

- Mehmet Murat Ildan, Turkish Novelist & Playwright

Accessing offshore wind turbine foundations during construction and operations has traditionally been achieved using fast, small and light ships (dubbed ‘CTV’ for Crew Transfer Vessel) coming from port to the foundation (sometimes multiple times a day), then pushing up against the boat landing fenders on the superstructure while the technicians and engineers step across to climb up the outside ladder. This has been termed ‘Bump & Jump’ and involves skill, both of the vessel master who needs to constantly monitor wind, wave and currents to determine when it is safe or not to make the jump, and of the technician or engineer who needs to make the transfer quickly when given the go ahead.



## WHY JUMP WHEN YOU CAN WALK?

Recent years have seen the rise of a new foundation access approach. In particular on those projects further from shore (such as UK Round 3 or German North Sea) where prevalent weather conditions make ‘Bump & Jump’ access solutions unsafe and where return trips to port are not economically feasible due to the amount of time lost in transiting to and from shore, there has arisen a demand for high personnel capacity, offshore vessels with the ability to directly access foundations in high sea states.

This has heralded a new type of offshore service vessel, known as the W2W (‘Walk-to-Work’) SOV (Service Operations Vessel). These high capacity vessels utilise advanced motion compensated gangways to create temporary ‘bridges’ between the vessel and the foundation, reducing the need to climb ladders before commencing their critical work.

Siem Offshore Contractors’ 2011 concept of the ‘Siem Duo’ of the cable lay vessel Siem Aimery and its installation support and W2W vessel Siem Moxie (see Issue 31), was addressing a need Siem Offshore Contractors had identified within the specific world of subsea cable installation: How to safely increase the windows of opportunity for getting personnel and equipment on and off the



foundations during the cable installation segment of the offshore windfarm construction as well as operation and maintenance processes (seen above in 2016 on the Nordsee One project).

Since then Siem Offshore Contractors have transferred over 60,000 personnel across more than 15,000 connections using W2W gangways from four in-group owned and operated vessels (three of which are featured here) and learnt many lessons.

## ONE SIZE DOES NOT FIT ALL

Lesson No. 1: not all foundation access requirements are the same. One project might only be accessible with a tall gangway, such as the Amrumbank West offshore windfarm was for the Siem Moxie (pictured above left). Whereas another

project may have a shorter foundation, meaning using a low access gangway, such as Siem Offshore Contractors had to with their Siem Garnet (pictured above right) during the construction of the Baltic 2 project.

Then of course there are those special cases, where the foundation fall into neither category, however requires special consideration due to e.g. the specific access point location, or the offset required between the vessel and the foundation such as can be seen in this picture of the Siem Marlin on duty at the BARD Offshore 1 windfarm.

## GANGWAY TO SUCCESS?

Lesson 2: Gangways differ in capability. In the offshore oil & gas market, similar gangways have been utilised for many

years to transfer large numbers (300+) of personnel on and off single structures every day, primarily to transfer personnel between their accommodation vessel and the production facility, with the gangway effectively remaining connected for the whole day.

In an offshore windfarm one must consider the frequency of transfers required and the number of structures visited. On a project such as the Amrumbank West which consists of 80 wind turbines; safety, speed and efficiency of transfer is key. In one 24 hour period, the Siem Moxie undertook 51 dockings transferring 154 personnel, and that in significant wave heights of over 2.5 metres and high wind speeds.

The choice of gangway impacts efficiency and speed. Whereas the Siem Moxie has a permanently built-in Uptime

International gangway, which allows an unlimited number of personnel to transfer as long as a safe connection is made, both the Siem Marlin and the Siem Garnet examples used Ampelmann gangways, which have a cap on the number of personnel, who could transfer at each connection. Also as the vessels were originally not specifically designed around W2W services, the total number of transfers per day is lower and depending on the model/type the weather capabilities are reduced. However you have the flexibility of being able to move or remove the gangway once you have completed the respective W2W project.

## FUTURE DEMAND ON GANGWAY CAPABILITIES

Future projects are putting even more demand on gangway capabilities. Numerous gangway manufacturers have developed gangways, which can also be used for cargo transfers with varying load capabilities – therewith being able to make a W2W vessel without a suitable crane even more versatile.

The growth of the market segment has given rise to continued interest with organisations such as DNV GL and Bureau Veritas developing certifications specifically for gangways, and the International Marine Contractors Association setting up a dedicated renewables W2W subgroup.

This market is growing, and Siem Offshore Contractors is currently in the process of mobilising additional vessels with a variety of W2W gangway solutions for a broad range of project requirements, drawing from an in-group fleet of 53 vessels.



**Alex Gauntt**  
Siem Offshore  
Contractors GmbH

# NEW PONTOONS FOR WINDCAT WORKBOATS AND KNRM

At the beginning of the Trawlerkade in the Fishdock, sixty metres of new quayside has been realised together with two new floating pontoons. The pontoons offer a dedicated Crew Transfer Vessel (CTV) berth for six vessels of Windcat Workboats and two life boats of the KNRM.

## NEW QUAYSIDE AND PONTOONS

Sixty metres of concrete quayside has been replaced by steel sheet piling. At the same time the terrain of the Royal Dutch Lifeboat Association (KNRM) has been extended. On the quayside two floating pontoons with a total length of 46 metres to offer berths for six of Windcat's CTV's and two of the KNRM's lifeboats.

A wave protection barrier gives access to both pontoons via two moving walkways.

The pontoons are made to give access to the vessels on main deck level.

Windcat Workboats transports personnel and material from the dedicated boat landings in the IJmond harbour to offshore windfarms off the coast of IJmuiden.

The office of the volunteers organisation KNRM together with their workshop is located on the corner of the Fishdock. The lifeboat station is also located on this site where 20 volunteer crew are available 24 hours a day for saving people and animals in the port and at sea.

## SAFE AND SUSTAINABLE

Rescue ladders are provided on the new quayside and on the pontoons. The navigation light is powered by solar panels. LED-lights and connections for shore power reduce CO2 emissions. Whilst alongside the ships can switch off their engines and load their batteries through the shore power. Water points are also provided on the pontoon.

## EXECUTION

In close consultation with the users, KNRM and Windcat Workboats, this project has been executed by construction company de Boer & de Groot Civil Works from Harlingen on behalf of the Port of IJmuiden.

These berths further strengthen the offshore wind cluster in the port of IJmuiden with companies such as Breman Offshore, C-Ventus, MHI Vestas Offshore, Noordzeewind and Windcat Workboats located in IJmuiden.

“A WAVE PROTECTION BARRIER GIVES ACCESS TO BOTH PONTOONS VIA TWO MOVING WALKWAYS”

## RENEWABLE ENERGY

For the supply of green, renewable energy a supply contract has been executed with ENECO. ENECO is developer and owner of the offshore windfarms Princes Amalia and Luchterduinen, both mainly operated from IJmuiden. In this way, the energy produced offshore IJmuiden is supplied to the maintenance vessels berthed in the port of IJmuiden.

## Port of IJmuiden



# MEETING THE GROWING DEMANDS OF THE INDUSTRY

Leading offshore engineering and technology company, Osbit Ltd, has further expanded its access offering to help meet the growing need for more advanced systems in the offshore wind sector.

The company, which already offers a range of passive and active motion compensated systems, has recently developed several new access options to suit an enhanced range of windfarm construction and support applications.



“SAFE, EFFICIENT OFFSHORE ACCESS IS CRUCIAL IN THE OFFSHORE WIND INDUSTRY”

## BESPOKE SOLUTIONS

Osbit specialises in tailoring each access solution to suit client requirements, utilising existing modules to form the optimal combination of gangway length, performance and pedestal to suit each vessel and operation.

## VARIABLE HEIGHT & CARGO TRANSFER ACCESS

Safely and efficiently transferring personnel and cargo to a wide range of platform heights is a key requirement in offshore wind operations, yet is often complicated by varying tidal conditions and foundation designs.

Through working with vessel operators and designers, Osbit has developed an innovative solution to combat these issues. Its Variable Height Tower (VHT) system adjusts the gangway height to match that of the landing platform, thereby offering greater flexibility and increasing the gangway's operational window.

The VHT's design is compact and versatile, allowing it to accommodate a greater range of transfer operations; the system features internal stairs to permit

access at multiple levels, and can also incorporate a dedicated personnel and cargo elevator to facilitate step-less transfer of cargo trolleys to the turbine.

## TAILOR-MADE SYSTEMS BUILT WITH PROVEN COMPONENTS

In addition to its standard systems, Osbit also excels in delivering bespoke systems, where a standard design will not fulfil operational requirements.

The company's recent supply of a P12-R system to Dutch offshore wind installation contractor Van Oord is one such example. The access system, which was delivered to meet a demanding 18-week design and manufacturing lead-time, was customised to suit the nature of the turbine foundation installation operation it is supporting.

The system was specially adapted to enable safe access to transition pieces, in an area with a significantly wide tidal range. Osbit's engineers developed a roller system which enables vertical gangway movement without operator intervention, allowing the system to adjust to tidal conditions automatically.

The system was also fitted with a swivelling end step to enable safe access,

even when the gangway is not directly facing the transition piece's boat landing access ladder.

The gangway was delivered on schedule to support the HLV Svanen's operations at the Burbo Bank Extension windfarm.

## WORKING TOGETHER

Brendon Hayward, Osbit's Managing Director comments: "We worked closely with Van Oord to develop a safe, cost-effective solution which can operate in a range of tidal and weather conditions. Our ability to deliver on spec, budget and in time in this short lead-time demonstrates our team's agility in meeting the challenging requirements of the offshore wind sector."

Brendon concluded: "Safe, efficient offshore access is crucial in the offshore wind industry and we are proud of the part we are playing in this technology-driven sector."

### Osbit Ltd



Design & manufacture of aluminium gangways, bridges and lightweight telescopic walk to work access systems.



Tyne Gangway are a world leader in the design and manufacture of marine access systems. On and offshore systems can be developed to suit customer requirements.

Please contact us to discuss your project requirements.

tel: 0044 191 2623657  
sales@tynegangway.com www.tynegangway.com



### Hydrography & Marine Support

- Surface & Subsea Positioning
- Construction Support
- Hydrographic Survey
- ROV Inspection

**T 44 (0)1208 77033 • www.insight-marine.com**



Delivering offshore access systems On Spec, Budget and In Time

**MaXcess Access Systems**  
Improving the safety and weather limits of offshore transfers.

Each system is bespoke, with active and passive options to suit various vessel sizes and applications.

+44 (0) 1434 682 505  
team@osbit.com  
www.osbit.com





# O&M VESSEL SELECTION – A KEY DECISION

**It is often exciting to be involved in a young industry, and that is certainly so in the case of the specialist vessel industry which has developed to support renewable energy generation by offshore windfarms.**

The offshore wind industry will continue to develop and mature for many years to come, and offshore windfarm operators will maintain the search for new ways to increase the efficiency of their windfarms whilst seeking to reduce operational costs.

For an offshore windfarm to be efficient, all its turbines must be in service when the wind blows, and this requires regular preventative maintenance and the speedy rectification of breakdowns. Transporting turbine technicians, and spare parts and

equipment, to the windfarm as quickly and safely as possible is therefore an essential element of the operations and maintenance (O&M) process.

## FACTORS AFFECTING THE CHOICE OF VESSEL

The choice of vessels to support O&M is a key decision for all offshore windfarm businesses; it is affected by two main factors – the length of the journey out to

the site from the windfarm base, and the model of turbine maintenance used – and is becoming ever more selective.

Leo Hambro, the Commercial Director of Tidal Transit explains: *“With windfarms situated at varying distance from the UK coast, from just 1.6 kilometres (Blyth Offshore) to 23 kilometres (Greater Gabbard), and the development of Dudgeon at 32 kilometres offshore and the Dogger Bank development even further out to sea in the pipeline, it*

*follows that the type of vessel needed to access the windfarms differs greatly from site to site.*

*“Importantly, operators will strive to minimise the cost of transportation and the amount of travel time that impacts on the working day.”*

The second factor affecting choice of vessel is the maintenance model undertaken by operators. Emergency repairs apart, the maintenance model can vary from a daily operation to block maintenance, either of which can involve technicians on site for prolonged periods. Efficient maintenance for turbines which are further offshore will be enhanced by larger accommodation vessels; the management team at the Dudgeon Offshore Windfarm has chosen to use an SOV (Support Offshore Vessel) and over the next few years the industry will doubtless be very interested to hear of its experiences.

## VESSEL OF CHOICE

There is a growing number of companies contracting vessels to the UK offshore windfarm industry. Tidal Transit, based in North Norfolk, was established in 2010 specifically to provide purpose-designed Personnel Transfer Vessels (PTVs) to enable offshore windfarm developers and operators to transport technicians, tools and equipment to their places of work quickly and easily on a daily basis. Its fleet of vessels, which can accommodate 12 passengers and a crew of 4 in comfort, all have a fully equipped galley, comfortable beds, bathrooms and internet access, and can stay at sea for several days at a time as recent trips to the Dogger Bank met-mast recently proved. Since the company took delivery of its first PTV in 2011, its vessels have been in constant demand.

## GAME CHANGER

Conscious that ‘one size doesn’t always fit all’ Tidal Transit came to the conclusion that a larger, faster vessel capable of reaching the more distant sites quickly and efficiently was likely to be of appeal to some windfarm operators.

*“With this mind, we starting working with Norwegian ship builder Umoe Mondal, and in late January 2016 we became the ship operator for the WaveCraft vessel, Umoe Firmus,” commented Leo. “For a number of offshore windfarms, we firmly believe this could be a ‘game changing’ vessel.”*

## A NEW GENERATION

The WaveCraft is a next generation Surface Effect Ship (SES) with a small draught created by air cushions between its twin hulls. These provide the vessel

with easy access to most ports, a high speed of 40 knots and a low fuel consumption that gives it a range of over 700 nautical miles. An added advantage of the WaveCraft is that management of the air cushions allows smoother and safer transfer from vessel to turbine in wave heights of up to 2.5 metres, giving technicians access to their place of work in what might otherwise be an impossibly dangerous situation.

Leo further explained “Different situations call for different solutions, and we acknowledge the need for diverse vessels within the offshore wind energy industry. We are therefore operating Umoe Firmus alongside our existing fleet of PTVs.”

Umoe Firmus has recently completed its first 6 month charter contract with Statkraft at Sheringham Shoal Offshore Windfarm, and Leo Hambro is confident that it will be playing an integral role in the development and operation of offshore windfarms for many years to come. “Our plans for the development and growth of Tidal Transit will ensure that we are always able to offer the right vessel for the job.” Leo added.

“THE CHOICE OF VESSELS TO SUPPORT O&M IS A KEY DECISION FOR ALL OFFSHORE WINDFARM BUSINESSES”

## SHERINGHAM SHOAL OFFSHORE WINDFARM

Russ Hill, Marine and Logistics Manager at the Sheringham Shoal Offshore Windfarm commented: *“We are very proud to have been the first UK offshore windfarm to charter a WaveCraft vessel, and have been impressed by its capabilities. As a vessel that can operate successfully in rough weather conditions and high sea-states, it provides an ideal solution where a windfarm’s O&M model dictates that turbine technicians go offshore every day.”*

## Tidal Transit



MORE INFO



PLAY VIDEO

# UK FIRST

**THE UK's first 24-hour full engine service and Inboard Propulsion System (IPS) on a windfarm support vessel was successfully completed by specialist marine engine supplier, James Troop & Co which is approaching its 150th anniversary.**

The contract for windfarm crew transfer company Njord Offshore saw the year-old catamaran Njord Freyr hauled out of the water at a Wirral slipway for the first time after 1,500 hours' service to allow planned maintenance to the underwater parts of the vessel's IPS.

## WORK INVOLVED

Bob Troop, Chairman and Managing Director explained: *"The work also included servicing Njord Freyr's 'quad installation' – four Volvo Penta D13-700/IPS 900 engines with our staff working flat out over a weekend."*

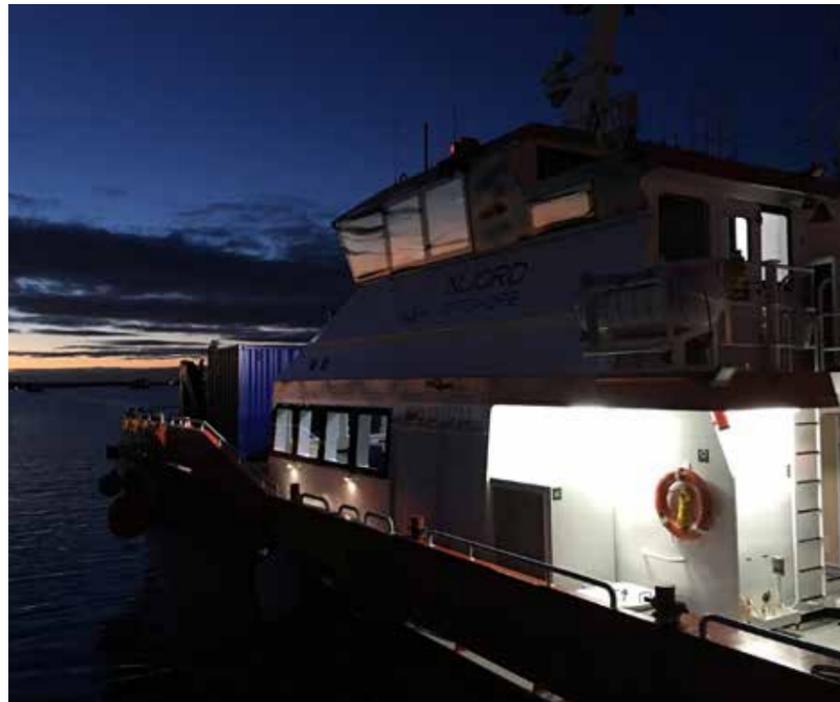
*"After the vessel was slipped on a Saturday morning, staff worked for 16 hours continuously followed on Sunday by 10 hours' work, so she could be refloated that evening. Weekend shifts are standard practice for Troops – like the Beatles we work eight days a week!"*

## NJORD OFFSHORE CONTRACT

*"This was a crucial part of the contract with Njord Offshore to ensure the vessel was back on station at her Barrow-in-Furness base ready for her next windfarm support sailings in the Northern Irish Sea."*

Njord Freyr is a highly-specialist, 115-tonne vessel and one of a class of four built in Singapore, with a length of 26m, a beam of 9m and top speed of 28 knots.

Alan Railton, Troops technical manager, and Andrew Thwaites, Njord Offshore marine superintendent, oversaw the



24-hour turnaround, with the very tight timetable dictated by customer costs.

Bob continued: *"Luckily, before the contract started, the three staff members on this job had been on an intensive training course at the Volvo Penta Training Centre, in Warwick."*

*"We were over the moon to get top marks from Njord Offshore in our customer survey. As a direct result of the success of the Njord Freyr job, we got a £150,000 contract to give 6,000 hour overhauls to four MTU QL3 V8 2000 series engines at our Astmoor Workshops, Runcorn."*

## WIND INDUSTRY ACTIVITY

*"We're very active in the windfarm support vessel market and we're authorised service dealers for MTU and MAN engines, as well as Volvo Penta."*

*"Activity has restarted in the windfarm market after stagnating for the last five years, which is to our benefit. Although Liverpool City Region-based, we're busy all around the country, especially in the other windfarm bases at Barrow and Grimsby."* Bob concluded.

**James Troop & Co**

# SUPERSIZED OFFSHORE VESSELS WELCOMED TO TEESPORT UPGRADED £35 MILLION QUAY



PD Ports has welcomed one of the biggest windfarm installation vessels in the world, Pacific Orca, to its newly redeveloped £35 million quay at Teesport. Measuring a massive 161m long and 49m wide, she will be berthed at Number One Quay for several weeks while being fitted with a pile gripper that has been constructed on site.

The 550m long quay which measures 14.5m deep has been significantly strengthened so can now take loads of 10 tonnes per square metre, therefore making it suitable for the mobilisation of windfarm installation vessels.

## FIRST CLASS FACILITIES

David Robinson, PD Ports' CEO said attracting a vessel as renowned as Pacific Orca illustrated the first class facilities Teesport had to offer. *"Pacific Orca is a sight to behold. Our Number One Quay has only just been declared open for business and one of the biggest windfarm installation vessels in the world is berthed there already."*

*"We have just invested £35 million in our quay to ensure it can meet customer demands. It demonstrates our capabilities and we are excited about future projects it will deliver."*

## FUNDING

Funding to upgrade the quay was secured through the Regional Growth Fund and the application was supported by Tees Valley Unlimited.

Pacific Orca is the second supersised vessel to sail into Teesport in recent weeks following a visit by the Jumbo Javelin, a heavy lift vessel with two 900 tonne cranes. It was involved in moving wind turbine transition pieces by overside transfer.

## RAMPION OFFSHORE WINDFARM

Following her inaugural visit to Teesport, the self-elevating Pacific Orca will sail down the east coast to the English Channel. Owned by Swire Pacific Offshore, she has been engaged to work on the Rampion Offshore Windfarm project

“ONE OF THE BIGGEST WINDFARM INSTALLATION VESSELS IN THE WORLD”

located 13km due south of Brighton, where she will help position wind turbine piles into the seabed.

## SPECIFICATIONS

The vessel has a load-bearing capacity of 12.8 tonnes and can withstand extreme weather and sea conditions. It can be floated up to 56ft above the surface of the water using its six jack-up legs each measuring 345ft in length.

**PD Ports**



# MAKING WAVES

2016 is proving to be a big year for Icen Marine Services.

**With two new crew transfer vessels on order, Icen have just relocated to new, much larger premises in Lowestoft.**

Situated within sight of the Orbis Energy hub, the new building provides space for extensive spares ranges for all of Icen's current eight vessel fleet, as well as offices and fully equipped training rooms.

## REASSURANCE AND CONVENIENCE

As Richard Thurlow explains: "Having a range of essential spares on hand for each vessel provides that extra level of reassurance and convenience for our crews - whilst the location and increased space have also made a massive difference. With two new 23m CTV's being delivered in early 2017 it was essential that we made the move now."

## NEW VESSELS

The new vessels are both South Boats IOW 23m, developed following an extensive hull form research and development programme, ensuring that the vessels can operate in the harshest environments and deliver technicians fit and able to fulfil their tasks offshore.

Both vessels will be powered by twin MAN V12-1400 main engines - Icen Defender will be fitted with Hamilton HM651 water jet units whilst Icen Legend will feature Servogear HD295 reduction 'V' drive gearboxes driving a Servogear Ecoflow Propulsor system with 1225mm CPP propellers.

The vessels will have resiliently mounted superstructures ensuring low noise and vibration levels for twelve personnel whilst passing to and from site, together with forward and aft cargo decks capable of carrying 15 tonnes of equipment.

## EXISTING VESSELS

Existing 23m vessels, in service with Icen Marine Services, have proven exceptional, with class leading sea keeping and transfer capabilities. In January this year, one of Icen's existing 23m CTV's registered safe transfers in 2.2m HSig with a passage speed of over 27kts in the same condition.

## CONFIDENT FUTURE

*"We are constantly striving to punch above our weight - so Icen Defender launching in January '17 and Icen Legend, launching later next Spring, together with our new premises and spares centre will give us one of the most technically advanced and versatile CTV fleets currently in operation in the UK."* Concluded Richard.

**Icen Marine Services**

# 20 QUESTIONS

## WHO ARE YOU?

Graham Hacon, Chief Executive Officer of 3sun Group

## WHAT BROUGHT YOU INTO THE INDUSTRY/YOUR POSITION?

My father was running an offshore employment agency, and I was an instrument technician in the army at the time considering coming out. He told me what great opportunities there were.

## FAMILY STATUS?

Married with three sons (hence the name 3sun Group). Wife, Leonie, and eldest son Andrew work in the business and the middle son Kyle is currently completing a pre-apprenticeship with Great Yarmouth College in conjunction with 3sun Group. Dylan, the youngest son, wants to be a professional footballer.

## WHO IS YOUR HERO AND WHY?

Jack Welch, former Chairman and CEO of General Electric, because of his approach to business.

## WHAT IS THE BEST ADVICE YOU HAVE EVER BEEN GIVEN?

Recruit people for places, don't create places for people.

## WHAT SPORT DO YOU PARTICIPATE IN/WATCH THE MOST?

Football, we have a corporate box at Carrow Road (Norwich City).

## WHAT IS THE MOST BIZARRE QUESTION YOU HAVE EVER BEEN ASKED .... APART FROM THIS ONE!?

"Are you busy?"

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

My own offshore windfarm!

## WHAT 3 WORDS WOULD BEST DESCRIBE YOU?

Friendly, perceptive and intuitive.

## WHAT TALENT WOULD YOU LIKE TO HAVE?

To be able to speak foreign languages.

## WHAT LAW/LEGISLATION WOULD YOU LIKE TO SEE INTRODUCED?

Legally binding climate change regulation.



## WHAT PROMINENT PERSON WOULD YOU LIKE TO MEET?

Leonardo Da Vinci - the founder of modern engineering.

## WHERE WOULD YOU LIKE TO BE 10 YEARS FROM NOW?

Chairman of the 3sun Group board, working in a widespread, mature renewables industry.

## WHAT DO YOU CONSIDER YOUR GREATEST ACHIEVEMENT IN YOUR CAREER?

Some of the deals we've achieved such as securing £10m investment from the Business Growth Fund.

## WHAT DO YOU CONSIDER YOUR GREATEST ACHIEVEMENT OUTSIDE OF WORK?

My family.

## HAVE YOU GOT ANY EXCITING PLANS FOR THE COMING YEAR?

Looking to expand further overseas.

## WHAT EXCITES YOU ABOUT THE DEVELOPMENT OF THE OFFSHORE WIND INDUSTRY?

Being in it from the start, seeing it mature and having an active role in cost reduction within the industry.

## DO YOU HAVE ANY FAVOURITE QUESTIONS WHEN HIRING?

What value can you bring to our company?

## WHAT ONE THING WOULD YOU LIKE TO HAVE BEEN TOLD WHEN YOU FIRST STARTED 3SUN?

Whenever we've moved premises we've run out of space within 2 years, so whatever expectations we had we should have doubled them.

## 3SUN HAVE WON SOME MAJOR CONTRACTS RECENTLY, HOW DO YOU PREPARE A COMPANY FOR CONSISTENT GROWTH?

In the words of Richard Branson "Train people well enough so they can leave, treat them well enough so they don't want to".

**3sun Group**



# INNOVATIVE WIND TOWER ALIGNMENT TOOL

Equalizer International, award-winning, world-leading designer and supplier of innovative flange maintenance tools for the energy industry, has increased its presence in the global renewables sector through the development of a flange alignment tool for use within wind turbine towers.



The Wind Turbine Tower Alignment Tool stemmed from the company's existing knowledge and expertise in flange alignment. This tool is used to resolve bolt hole misalignment on flanges inside wind turbine tower sections during their assembly or installation.

## DEVELOPMENT

The tool was developed in direct response to a request from European wind turbine manufacturing major Siemens Wind Power via Equalizer's Danish distributor Hytor.

The company, which has an international reputation for innovation and development of flange alignment tools, took the development of this tool from concept to delivery in less than 10 weeks.

Wind turbine towers are made up of pipe sections with internal bolted flange connections and sometimes during fabrication these sections become ovalised. This can result in misalignment of the bolt holes, which increases the difficulty and lengthens the time taken to assemble the towers. Equalizer's tool addresses this issue and ensures simpler, safer and more efficient assembly and installation.

## TRANSFERABLE SKILLS

Alan Morrison, Group Business Development Manager at Equalizer International, said the company is well-poised to support the growth of the renewables industry.

*"The expertise which we have developed over the past 22 years in the oil & gas industry is very transferrable to renewables both off and onshore,"* he said.

*"Both sectors face similar issues in pipework and flange alignment and maintenance. Our tools are already used in the renewable sector but this is the first developed specifically for the wind energy industry. We were able to react very quickly to meet Siemen's requirements and we have been equally responsive to other requests from the industry."*

*"The turbine tower alignment tool follows the same principle as all Equalizer tools in that it delivers significant safety, time and cost saving benefits and it can be used by any company involved in the manufacture or installation of wind turbine tower sections."*

## ADDITIONAL AVAILABLE EQUIPMENT

Additionally to the Tower Alignment Tool, the company has recently launched the Nut Splitter range in response to industry calls for a more effective tool to split nuts on flange joints both on and offshore. These Nut Splitters introduce a number of key benefits over nut splitting tools currently available on the market.

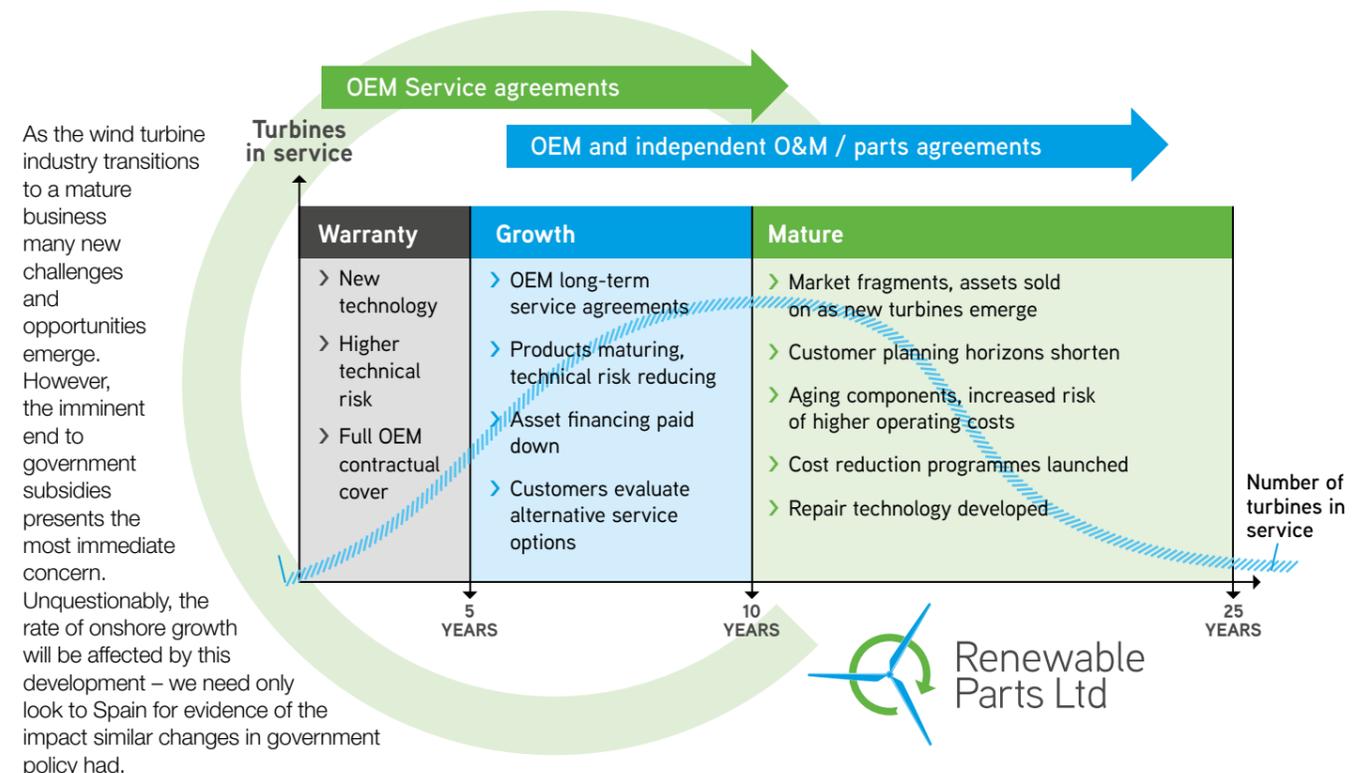
The optimised cutting head geometry allows the Nut Splitter to be used on a wide range of flange joints, many of which were previously too tight for conventional nut splitters.

### Equalizer International



# REDUCING LIFECYCLE COSTS THROUGH INNOVATION

In post government-subsidy world, innovation is key to our industry's ongoing success. Renewable Parts' Innovation Programme recognises this by specialising in new repair technology.



## OPTIMISM

But there is cause for optimism. Our industry's resilience to this change will depend largely on its ability to deliver cost reduction and life extension programmes which lower cost of ownership and prolong turbine lives. Strong parallels can be found in other industries, notably Aerospace, where aggressive cost reduction has been key to extending lifecycle. Arguably it has been the wind industry's intense focus on growth that has inhibited a stronger effort to reduce through-life cost, essential to sustaining a long term business.

## INDUSTRY SPECIALIST

Supply chain specialist Renewable Parts, is a business leading the drive for efficiency through improved inventory and logistics management. However,

the launch of its Innovation Programme presents the greatest potential for wind turbine investors and operators. Focused on parts repair engineering, the company's ability to recycle customers' unserviceable material has been allowing operators to reduce cost and waste for several years.

The expansion of this programme, in partnership with Higher Education, will enable a significant increase in the scope and scale of repair solutions, ranging from mechanical and hydraulic components to circuit boards and more complicated assemblies.

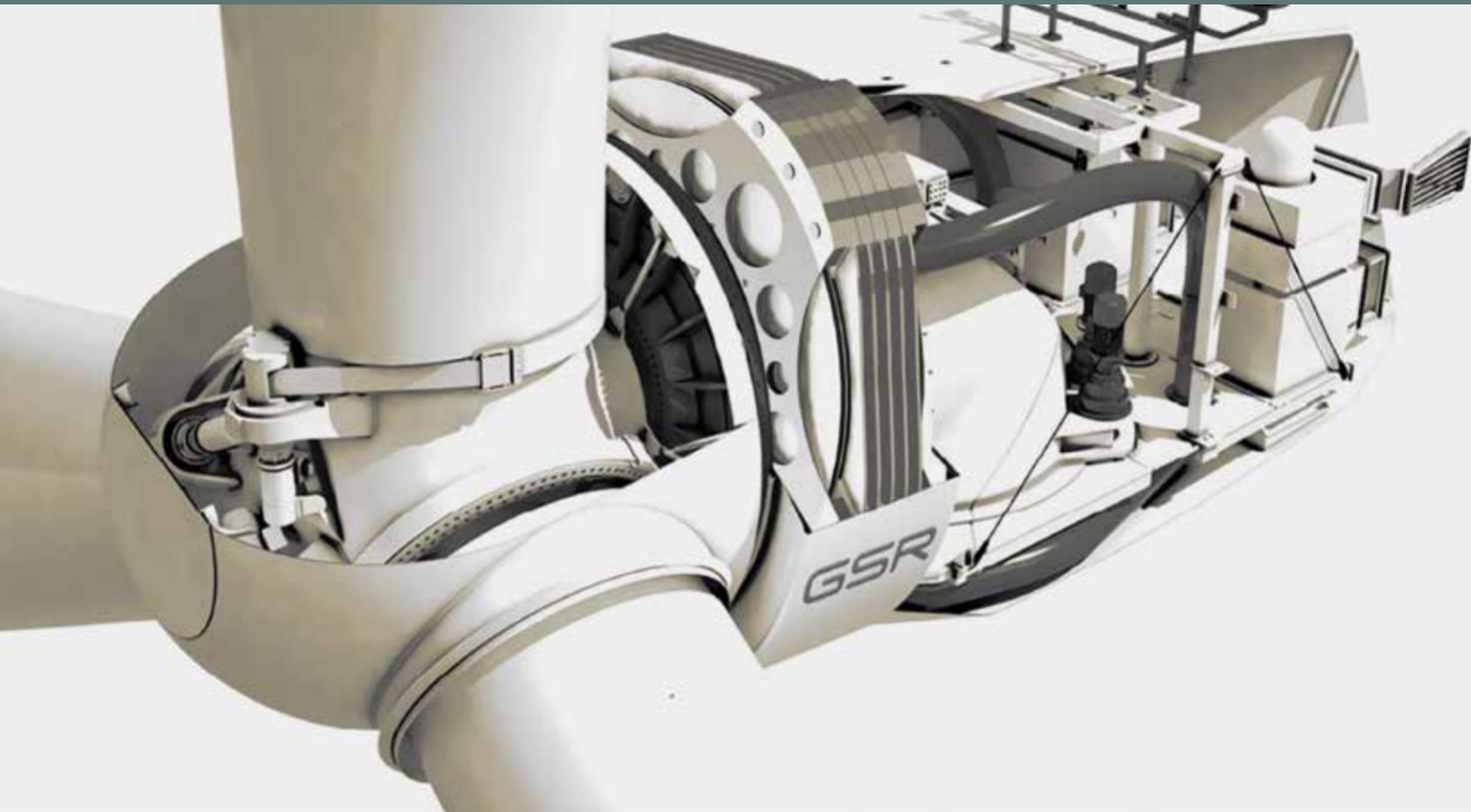
## LEGACY EQUIPMENT

This repair activity is primarily directed towards legacy equipment, particularly those turbines that have reached the mature phase of their lifecycle at 10 years and beyond. (see figure)

The relative inefficiency of older turbines coupled to increased wear of aging components means cost reduction is essential to retain competitiveness. Greater innovation in new repair techniques is unquestionably the single most important area for the wind turbine industry to embrace if it is to sustain health in a world post subsidy.

### Renewable Parts





## A NEW GENERATOR THAT CAN DRIVE DOWN LCOE

### INNOVATION

GreenSpur Renewables has developed a new low cost direct drive (DD) permanent magnet generator (PMG) for the wind turbine market. The company's USP is that its generator uses ferrites to create the magnetic field, which is a significant source of cost reduction. The use of ferrite could also eliminate an industry wide reliance on Neodymium Iron Boron (NdFeB), the scarce and expensive rare magnet used in existing designs.

### RARE EARTH MAGNETS INTRODUCE SUPPLY AND PRICE RISKS

Security of supply of NdFeB is a major risk issue. Almost 95% of global rare earth market production originates from China and is in high demand from other powerful industries, including defence, aerospace, electrical vehicles, medical, computing and mobile phones. The 2015 annual production of neodymium amounted to 35,900 tonnes.

By contrast ferrite magnets are made from iron ore, an abundant material with worldwide reserves estimated at 800 billion tonnes. NdFeB is also expensive. Although ferrite magnets are 1/3rd less

powerful they are 1/30th of the cost by mass of rare earth magnets. In simple terms magnet costs could fall to 1/10th of current levels and simultaneously eliminate supply risk.

### WHAT'S DIFFERENT?

The Greenspur DD PMG is a patented novel axial flux design. It embodies a number of innovations that make it possible to assemble a ferrite only DD PMG with a similar mass and space envelope to current offerings. It is also less sensitive to the cooling problems that face existing DD PMGs, as ferrite has a Curie point of 460°C as compared to 180°C for NdFeB magnets.

### COST ADVANTAGES

LCOE savings of about 0.5% have been estimated by BVG Associates and there is potential to go much further as the design is optimised.

### DEVELOPMENT PATH

The Greenspur DD PMG has been proven at prototype scale. A Finite Element Analysis model has been built by the University of Cambridge, which can

accurately model output and costs of multi-MW units. A 50kW unit will be in test by the end of the year. The company then plans to build an optimised 250kW unit, which will be quickly followed by a fully optimised 1MW unit.

This will provide the stepping stone to much larger units in the 6MW to 15MW range suitable for deployment from the early 2020s onwards. The company is looking to establish relationships with leading suppliers that will guide designs suitable for volume manufacture.

### Greenspur

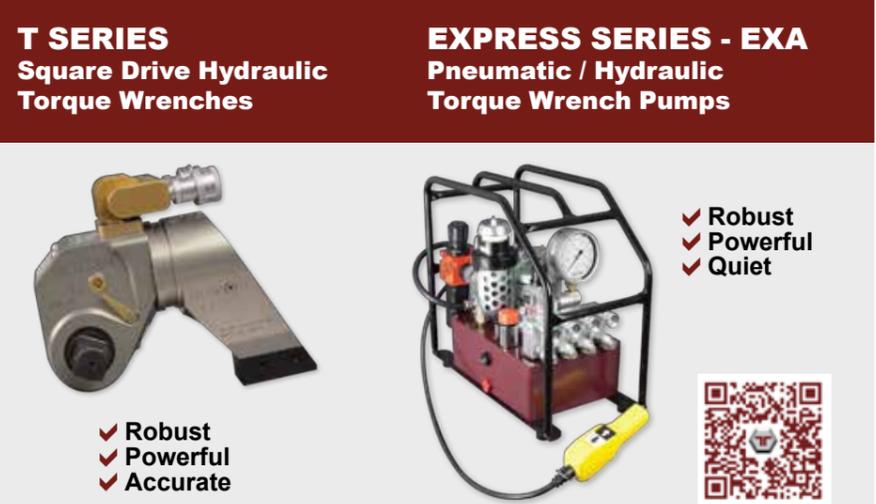







**T SERIES**  
Square Drive Hydraulic Torque Wrenches

- ✓ Robust
- ✓ Powerful
- ✓ Accurate



**EXPRESS SERIES - EXA**  
Pneumatic / Hydraulic Torque Wrench Pumps

- ✓ Robust
- ✓ Powerful
- ✓ Quiet



**APPLICATIONS**



Wind Mill, Power Plant



Oil, Gas and Petrochemical



Mining and Construction Heavy Equipment

**UK Customer Centre:**  
Tel: 01442 838999 Email: cp.marketing@cp.com

**Local Contact:**  
Tel: 07971 650722 Email: nicholas.murphy@cp.com

[www.cp.co.uk](http://www.cp.co.uk)



### Introducing VISION

A service for turbine operators who demand the highest performance at the lowest cost.

Renewable Parts, the UK's leading, independent supply chain specialist for wind turbines, brings you VISION, a consumables service that provides certainty against changing lead-times and rising prices.

Covering the widest portfolio of wind turbine types, VISION responds to your changing needs, driving down turbine costs and boosting operational performance. Using only OEM approved consumables and maintenance plans, with VISION you pay a fixed monthly fee and we take care of the rest. VISION, a service innovation for turbine operators who need to see ahead.

Join us at [www.renewable-parts.com/VISION](http://www.renewable-parts.com/VISION)

### Vision

We know your turbines

Email: [sales@renewable-parts.com](mailto:sales@renewable-parts.com)  
Call 0141 886 1220



Innovative  
Dependable  
Responsive

[www.renewable-parts.com](http://www.renewable-parts.com)





# A DIFFERENT APPROACH TO PROTECTIVE WORKWEAR

We met up with Sean McNabb, Sales Manager – UK South East for Mascot Workwear who are one of the leading manufacturers supplying garments through a network of distributors into the offshore wind sector.

## THE ROLE

Sean's role is to look after and develop new end users and distribution channels within his specific sales area by building relationships to ensure long term business. The sales team work closely with their distributor network and end user clients to ensure customer satisfaction with both relevant fit-for-purpose products as well as efficient supply.

## DIFFERENT APPROACH

The company however have developed systems which make them quite different – in particular a free of charge minimum 4 week wearer trial and personal feedback that allows end users to use selected items and effectively test them on site prior to any orders being taken.

Following this trial the end user will sit down with the Mascot representative and discuss the benefits of the garments they have trialled over their current assortment. Mascot strive to be market leaders when it comes to launching new ranges and these wearer trials are also conducted for months before any new range goes into production. This is where their philosophy of 'Tested to Work' originates.

The interested company will then work with a current supplier or a strategic selected distributor which will ensure the accurate/future supply of the necessary workwear.

## FOCUSED SPECIFICS

- **2 Year guarantee** – the company offer a 2 year guarantee on zips and triple stitched seams. This gives you the comfort of knowing that you are buying a quality product that will last
- **Mascot SmartStore** – a wardrobe management system that allows the wearer to manage his own uniform allowance through an online platform. This saves the client a considerable amount of money when it comes to administration and also allows the order process to be refined and efficient
- **Put us to the test** – Mascot will offer an end user company of over 50 wearers a completely FOC no obligation wearer trial. This is done in order to showcase the features, benefits and how the products functionality, durability and life cycle compare to our competitors

## BACKGROUND

Sean's relevant background started with a degree in Marketing at Birmingham University which led him to his first position in 2005 working as a Marketing Manager for a small manufacturer of Workwear and PPE. He was then offered the opportunity to go out on the road and become a Business Development Manager. This was an opportunity that he was apprehensive about as it was not a role he had considered before but has not looked back since.

His present role materialised through an approach to join Mascot Workwear in 2011 where Sean jumped at the chance to work for one of the largest workwear and footwear manufacturers in Europe.

## PERSONAL

On a personal note Sean lives in Leigh on Sea in Essex where he is a season ticket holder at Southend United. He says the only draw backs of the sales are he looks after is having to spend the majority of his day on the M25. He is looking forward to getting married later in the year.

## AVERAGE DAY

The position of Sales Manager is often described as a day full of cold calls, hurried appointments and loads of administration. It was refreshing to find that Sean's UK & Ireland Sales Director, Michael Tottman takes a very different view with a particular slant on quality and careful client/customer/distributor attention, ensuring not only new but repeat and long term business.

Sean's day consists of working extremely closely with end users in order to get the products specified that are 'fit for purpose' with the daily work the wearer undertakes. Once this has been established Sean will then work with the incumbent supplier or offer one of Mascot's already established distributors in order to take the account on and service it to the highest of standards.

Mascot's head office is based in Denmark so Sean works from home and is in regular contact with Mike who impresses on his sales team to treat each area as if it was their own business. Mike also insists on the virtue of quality over quantity so that client/customer/end user and distributor calls are not rushed.

*"Since joining Mascot in 2011 I have been impressed by a company who focusses so much on being the leaders of innovation within the sector. The products and services offered are unrivalled by any other manufacturer I have come across."*

## Mascot Workwear HSE



“THE PRODUCTS AND SERVICES OFFERED ARE UNRIVALLED BY ANY OTHER MANUFACTURER I HAVE COME ACROSS”



# ALL AT SEA? – YOU CANNOT AFFORD TO BE

Whether working on land, an offshore structure or on board a vessel, the provision and use of work equipment is regulated under both European and UK law. Whilst different legislation and guidelines are in place for the use of equipment on ships as opposed to on land or fixed structures, the principles are the same and a breach of the relevant legislation can result in criminal prosecution, as well as having the potential to invalidate any insurance policy that may be in place.

## PROVISION AND USE OF WORK EQUIPMENT REGULATIONS

The Provision and Use of Work Equipment Regulations, commonly known as PUWER, apply whether on land or at sea. They refer to work equipment and machinery used every day in the workplace and can include small appliances and work tools through to larger appliances, such as lathes, machine tools and cleaning equipment – in fact any machinery, appliance, apparatus, tool or installation for use at work.

On land, the regulations are known as the Provision and Use of Work Equipment Regulations 1998 and came into force on 5 December 1998. At sea they are known as the Merchant Shipping and Vessels (Provision and Use of Work Equipment (Regulations 2006)) and came into force on 24 November 2006. Grants for the terrestrial environment can be obtained from the Health & Safety Executive website and in the marine environment, reference should be made to Marine Guidance Note 331(M + F).

## EMPLOYER RESPONSIBILITY

In accordance with the EC Directive, the regulations do not prescribe exact measures to be taken by employers but place the onus on the employer to ensure that all work equipment is appropriate for its intended purpose and is safe to use. At the same time, the employer must also have regard to the general provisions of the Health & Safety at Work Act 1974 or in the marine environment, the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, which set out the general requirements for health and safety at work.

## ADDITIONAL REGULATIONS

In addition, there are further regulations, namely, the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER), with specific legislation in respect of LOLER on land and again at sea. Appropriate guidance can be obtained from the HSE website or in the marine environment, under Marine Guidance Note 332.

## PUWER PRINCIPLES

The basic principles of PUWER include...

- appropriate inspection of work equipment at regular intervals
- frequent maintenance
- appropriate training for its use
- suitable marking as to safe working loads or particular work uses
- the appropriate planning and risk assessment of operation or considerations

“SAFE, EFFICIENT OFFSHORE ACCESS IS CRUCIAL IN THE OFFSHORE WIND INDUSTRY”

All of the above should, of course, be properly recorded so that evidence of compliance can be demonstrated.

## PREPAREDNESS

Increased penalties and sentences as a result of new sentencing guidelines will mean that breaches of health and safety legislation including PUWER and LOLER are likely to result in increased penalties, such as personal liability for directors and in the most serious cases, imprisonment of such individuals.

It is therefore vital that those who supply work equipment are not only fully aware of their responsibilities but carry those responsibilities through.

**Andrew Oliver**  
Partner  
**Andrew Jackson Solicitors**



## INVESTMENT PARTNERSHIP

**Buck & Hickman, a UK leading distributor of tools, maintenance and health & safety products recently announced a major contract win with Siemens' new wind power turbine facility.**

As part of a UK-wide contract, Buck & Hickman now supplies personal protective equipment (PPE), tools, cutting tools and consumables to all Siemens business units nationwide, including the new £160m wind turbine production and installation facility at Hull's Alexandra Dock.

## MAJOR INVESTMENT

The contract win coincides with a £400k investment from Buck & Hickman and parent company Brammer in the Hull region, as part of a drive to support customers in this emerging region. The investment includes a move to a new 4,200 sq ft branch from which the two companies will be able to meet the MRO and industrial consumable needs of customers spanning a variety of sectors.

## PARTNERSHIP HISTORY

The partnership between Siemens and Buck & Hickman began six years ago with a contract to supply the 23 acre turbine manufacturing facility in Lincoln through a full-time Insite - a dedicated Buck & Hickman branch on site.

Over the years the contract has grown in line with Siemens' Europe-wide One County One Supplier policy and has gone from strength to strength, achieving more than £230k in signed off cost savings since 2014. These include more than £50k saved through tooling upgrades and around 50% cost savings on critical safety products including eyewear and gloves. In the last customer satisfaction survey, Buck & Hickman scored highly for its approach to innovation, cost savings and continuous improvement, with a 90% satisfaction rate.



## MAXIMISING EFFICIENCY AND CUSTOMER ENGAGEMENT

Bob Meadows, Commercial Director – Strategic Contracts at Buck & Hickman commented: *“Our valued partnership with Siemens has resulted in many cost saving projects, and we’ve also developed many bespoke processes to maximise efficiency and improve customer engagement.”*

*“With our commitment to supporting Siemens flexibly and meeting the individual needs of all its locations, we’re delighted to invest in Hull at such an exciting time. We have many long-standing customer relationships in the city and our new accessible location and increased stockholding capability will help enhance the service we provide to all.”*

## SUPPORTING GROWING OPERATIONS

Paul Savvides, Head of Wind Power Procurement, Siemens Plc, said: *“The expansion of Brammer and Buck & Hickman’s services in the city will support Siemens’ growing operations in Hull as well as their other customers in the region.”*

*“Building on Siemens’ significant investment, Brammer and Buck & Hickman’s new facility is further recognition of the importance of Hull and the Humber as a growing centre for the renewables sector in the UK.”*

**Buck & Hickman**

**Siemens**

## HOTA: The Centre of Excellence for Nationally Approved Training

- Offshore
- Maritime
- Renewable
- ERRV
- RYA
- First Aid
- Electrical
- Health & Safety
- Firefighting
- Emergency Response

“Providing Quality Training For Over 25 Years”

For further information contact us on:

T 01482 820 567

W www.hota.org





## PPE PROVIDER TURNS INNOVATOR

Workplace Worksafe has grown from one of the UK's leading providers of PPE, corporate and branded workwear to a business providing specialist safety protection for workers and critical components in the wind energy sector.

The business has responded to demand by launching two new divisions, Windfarm Worksafe and Worksafe Component Protectors which address specific needs of customers working in wind energy development and installation.

### SPECIFIC DIVISION DESIGN

Windfarm Worksafe offers a range of PPE specifically designed to meet the challenging environments of onshore and offshore wind energy projects, as well as standard personal fall protection equipment and immersion suits.

Worksafe Component Protectors has designed and developed bespoke products new to the market, including high-specification protection transportation systems for critical electrical components that significantly reduce the risk of accidental damage and make lifting and manual handling easier and safer for the technicians using and installing the component.

Protectors also include bespoke-designed products that can be quickly deployed on site to protect cabling and eliminate gaps on

the work platform, through which tools can be dropped, causing significant hazard to anyone on the ground below.

### EXPERIENCE

Workplace Worksafe was established in 2005 and now sells around 60,000 different products to a range of construction and engineering clients across the UK and Europe, as well as individuals and public sector organisations. It is the UK's biggest independent distributor of Mascot workwear.

Embroidered branding is available across a range of PPE and the company has recently invested in more printing and embroidery machinery.

### EXPANSION AND DIVERSIFICATION

Rhian Parry, Managing Director of Workplace Worksafe, said the continued success of the wind energy sector was helping to drive the expansion and diversification of the business.

## “SPECIALIST SAFETY PROTECTION FOR WORKERS AND CRITICAL COMPONENTS”

She said: “Our larger blue-chip clients include key players in the renewables sector and it's here, together with demand for off-the-shelf and bespoke products, that we're seeing growth. “Launching Windfarm Worksafe and Worksafe Critical Component Protectors is about responding to customer demand as well as innovating with individually designed, tested and made-to-order protectors. These are already providing significant time and cost-saving benefits to our customers.”

**Workplace Worksafe**



# A SUBSEA SOLUTION

In February this year, Hughes SSE (HSSE) celebrated the Company's 10th Birthday and had an opportunity to reflect on the business' growth, expansion of capabilities and the firm's future. On the 10th August 2016, the acquisition process with James Fisher and Sons PLC was completed with an announcement to the stock market, clients and staff on the morning of the 11th August 2016.

### NEW OPPORTUNITIES

The acquisition opens up new opportunities to both internal and external customers, further strengthening the capabilities of HSSE in the completion of subsea and marine projects.

The combined capabilities of HSSE and James Fisher means that customers will benefit from increased service offering, further optimising the supply chain and reducing contractual interface risk. The resulting pool of assets, resources and experience combined with the capability to support mobilisations of personnel and equipment at key strategic locations around the UK coast will offer a greater level of service, value and efficiency to its customers.

### SPECIALIST SERVICES PROVIDERS

James Fisher and Sons is a provider of specialist services to the marine, oil & gas and other high assurance industries worldwide.

Nick Henry, Chief Executive Officer of James Fisher, said: “The operations of Hughes Sub Surface are complementary to those of James Fisher and, combined, they will broaden our range of services to the market, particularly to the renewable energy industry offshore.”

### AWARD WINNING INDUSTRY LEADER

HSSE are the award winning industry leader, known for providing innovative, highly skilled emergency response and rescue teams across the UK and Europe. The company specialises in the provision, of multi-disciplined teams, both offshore and onshore, who are trained to provide advanced medical care and rescue response wherever needed.

By providing emergency response teams to cover projects, not only do clients get peace of mind that the workforce has an unrivalled level of rescue medics on site, but that those teams are also carrying out the maintenance tasks, which are vital for the project's upkeep and day-to-day running.

### ERT QUALIFICATIONS AND EXPERIENCE

HSSE's ERT members come from varied, relevant backgrounds including Fire Service, Ambulance Service, Army Medics, RAF Search & Rescue and Mountain Rescue teams. This experience brings a wealth of knowledge and skills to your project with a proven solution to any casualty extrication scenario.

Minimum qualifications for each team member are...

- IRATA Level 3 – Team leaders
- IRATA Level 1 and 2 – Team members
- City & Guilds Working in High Risk Confined Spaces
- City & Guilds Confined Space Rescue Course
- IRATA Level 3 – Team leaders
- IRATA Level 1 and 2 – Team members
- City & Guilds Working in High Risk Confined Spaces
- City & Guilds Confined Space Rescue Course

### AWARD WINNING INDUSTRY RECOGNITION

HSSE were recognised in 2014 for investing in the continuous 'skills development' of their employees, making their emergency response teams the most highly skilled in the UK. The award from the British Renewable Energy Awards cemented HSSE's position as industry leaders for emergency response.

Primary aims include...

- Identifying life threatening injuries
- Providing advanced first aid over extended periods
- Advanced life support
- Automated external defibrillators
- Dealing with mass catastrophic bleeding
- Carrying out an extensive casualty assessment
- Oxygen and entonox administration
- Carrying out advanced medical interventions



- Immobilisation stretcher and extrication techniques
- Achieving casualty extraction
- Timely transfer to the appropriate medical facilities

Clinical governance is provided to ensure HSSE are accountable for continuously setting high standards of casualty care and improving the quality of the service.

### INSPECTION SERVICES

Hughes Operational Support Services (HOSS) have been providing experienced inspection technicians for both onshore and offshore windfarms for several years. The company's highly skilled personnel regularly undertake a full range of inspection services including...

- Non-destructive Testing
- Blade Inspection
- Corrosion and Coating Inspection
- Lifting and Access Equipment Inspections under LOLER
- Function and Safety Checks
- Bolt Tightening and Stability Checks
- General Visual Inspections including: Guano checks, lightning protection measurement and inspections

### TURNKEY SOLUTIONS

Paired with HOSS operations department, they can provide a turnkey approach for both topside and subsea inspection programmes and have extensive experience producing quality inspection reports for all previous projects.

### James Fisher & Sons PLC





“GENUINE ROPE SKILLS LEAVE NOTHING TO CHANCE”

# ROPE ACCESS... WITH SAFETY BUILT IN

Some people still see rope access skills as some sort of scary Black Art, according to accredited trainer John MacDonald. All too quickly, they opt for the expensive and operationally tricky option of bringing in a cherry picker or crane, when a little knowledge could get the job done in half the time, and with infinitely less hassle and cost.

## KNOWING THE ROPES

John explains: "Rope access is regularly overlooked as a credible strategy for inspection of turbines; for blade repair and painting; even for tasks such as internal cable pulling and torque tensioning. Yet it's one of the safest techniques on any windfarm development if you literally, know the ropes."

"It's essential to always think of the law of two. There should always be two points of contact; two ropes, with one taking a safe, working load and another as full backup. These should have two separate places of attachment, both at the tethering point and on the safety harness worn by the technician."

"It's a no-brainer really as anyone working on ropes has twice the security as by any other means, but with the advantage of a lot more mobility to reach less accessible areas."

John has been working safely within the rope access industry for 16 years. He is an accredited trainer and regrets that so few developers invest in giving their technicians this vital, traditional skill, augmented by the development of strong and comfortable safety harnesses and lightweight ropes developed to carry loads way beyond that of a technician, (no matter how many pies they may have eaten).

## TEAM WORK

John adds: "We work in teams where all team members are IRATA (Industrial Rope Access Trade Association) certified. Each team will have a L3 team leader and the rest will be certified in relevant trades to carry out the task in hand i.e. riggers, pipefitter, painters, NDT inspectors and blade repair technicians."

"Even before we start, all work is assessed by the L3 and planned so that Technicians can work safely in areas that are normally inaccessible. All

ropes are rigged in what is known in the industry as "Rig to Rescue"; a system where the L3 can conduct a rescue (if ever needed) in the simplest and quickest way, without putting himself or anyone else in harm's way."

## LEAVING NOTHING TO CHANCE

John concluded: "Frankly, it's extremely difficult to get into trouble using a well-designed rope system but if something unforeseen were to happen, we can move quickly to get the casualty out and lowered to safety. Genuine rope skills leave nothing to chance."

**John MacDonald**  
Rope access specialist and trainer  
Prontoport



# PRONTOPORT

our people, your solution

Specialists in electrical and mechanical engineering services, working hard since 2006 to expand our services to meet the growing demands of the wind sector.



Offering comprehensive support for asset management and maintenance to existing wind farms across the UK.

Working in partnership with our clients to provide fully tailored services and long term business advantage.

Providing pre-assembly and installation support to new, on and offshore wind farms:

Servicing, blade inspection and NDT inspections of existing wind farms.

Key clients include GE, MHI Vestas, Siemens Energy, Scottish Power Renewables (SPR), E.on, Nordex, Servion, IEC and RWE

[www.prontoport.co.uk](http://www.prontoport.co.uk)

+44 (0) 1294 274 558  
enquiries@prontoport.co.uk



# WindEnergy NETWORK

COMMUNICATION HUB FOR THE WIND ENERGY INDUSTRY

## MARKETING OFFERS

# GET YOUR COMPANY SEEN & SHOWCASE YOUR SERVICES



To over 6500 senior decision makers in the wind industry

# Windtex

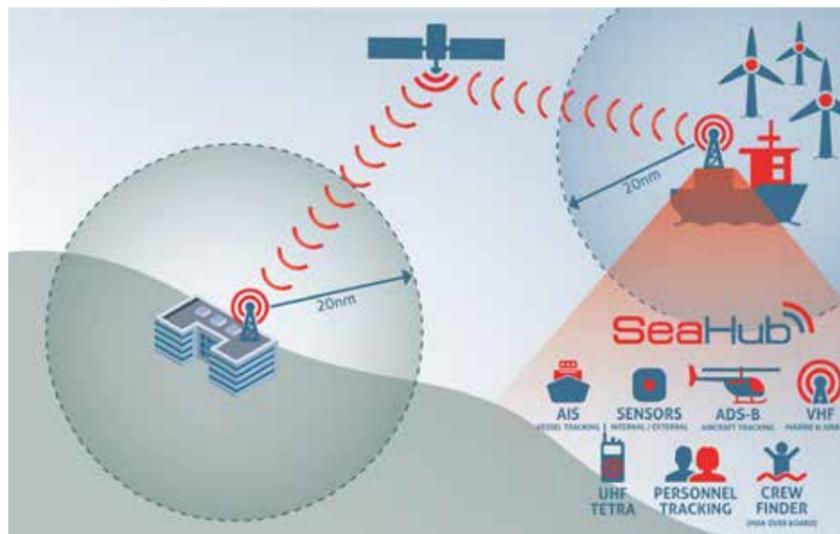
Our experienced technicians tackle the most demanding of requirements with precision and efficiency

- Scheduled Turbine Maintenance
- Met Mast Maintenance and Inspection
- Rope Access Solutions
- Blade Inspection and Repair
- Statutory Inspections

T 01925 245 238 E info@windtex.co.uk  
[www.windtex.co.uk](http://www.windtex.co.uk)

# INDUSTRY-FIRST COMMUNICATION AND LOGISTIC DATA SOLUTIONS

As the industry evolves and offshore windfarms move further from land, risks increase and the challenges for maintaining effective communication and managing health and safety become heightened. SeaRoc Group has launched SeaHub – a unique communications and logistic data solution and an industry-first for the offshore renewables sector.



The benefits of developing windfarm projects far offshore are clear, but doing so emphasises the importance of having the most robust and reliable communication systems. To maintain the highest levels of safety and efficiency you need dependable voice and data communications that reach every corner of offshore operations.

## THE CHALLENGE

Remote, far shore locations pose bigger risks and challenge the strength of communication links. Not only this, but new offshore wind developments further from shore are also unlikely to have access to existing structures on which to base a communications platform or have the infrastructure to link to shore.

Typically a radio based communications system will cover a radius of 20 miles from its transmitter/receiver. If this is located onshore, it drastically limits effective communication capabilities, essential for project efficiency and personnel safety.

## INNOVATION

The SeaHub system, deployed by SeaRoc Group, utilises the latest enhancements of its SeaPlanner software, which sets out to centralise, standardise, automate and make equipment easily deployable, subsequently reducing costs and ensuring safety for the people working offshore from day one.

## SELF-SUPPORTING

SeaHub consists of unmanned, mobile containers that house all required equipment for reliable communications and logistical data sharing for far offshore projects.

SeaPlanner integrates important project information for complete real-time visibility of site activity including personnel tracking, certification, asset transfers, vessel and helicopter tracking, man overboard and system alarms.

SeaHub contains several autonomous safety systems including fire suppression, gas detection and temperature control, all of which are monitored using the software.

## REDUCING COSTS

SeaHub has the ability to drive down costs with the introduction of standardisation and centralisation as well as the continuous monitoring and implementation of reliable data collection and analysis platforms.

SeaPlanner presents the ability to manage multiple projects, either a geographically located cluster, or a dispersed portfolio of projects,

through a centralised system – this enables clients to easily standardise project design and operation, as well as share the costs across projects. This can reduce the need for multiple systems being used on a project, as well as encourage greater collaboration amongst project stakeholders.

## GLOBAL MOBILITY

What is so unique and beneficial about SeaHub is that the complete system is entirely mobile, meaning communications and logistical data can coverage a radius of 20 miles from wherever the container is installed, be that onboard a guard vessel, on an offshore platform or at remote land-based locations.

It provides a highly reliable and robust communications system for mission critical activities, maintaining the highest levels of safety and efficiency for operations far from shore. The solution is based on standard 8' shipping container modules and can therefore be easily shipped and installed anywhere in the world.



## SEAHUB TECHNICAL SPECIFICATION

- **Antenna array platform** – allows secure mounting of all antennas and separate Satellite communications dome required to support radio communications to and from the container
- **VHF (M) Radio** – keep in touch with vessels at sea, maintain a watch on channel 16 and stay in communication with all contractor vessels via pre-approved 'private channels'
- **VHF (A) Radio** – ability to communicate directly with aircraft/helicopters as required
- **Tetra Base station** – allows communication to Tetra radios and intercommunication between radios within range of the container base station
- **AIS receiver (vessel tracking)** – picks up AIS signals from vessels within the vicinity of the container (approx. 20nm radius)
- **ADS-B receiver (Aircraft tracking)** – allows container to receive data directly from all aircraft movements within the vicinity
- **Crewfinder** – Man Overboard unit to pick up transmissions from any EPIRB based PLB device
- **Satellite link** – allows all data to be transmitted back to a ground station for onward submission to shore based systems
- **Internal network** – The LAN network within the container to allow all IP devices to communicate with each other and the outside world
- **Monitoring equipment** – Temperature, humidity, vibration, smoke, gas (low O2 levels) fire, and flood
- **UPS (Uninterruptable Power Supply)** – Allows SeaHub to continue to run for a period of time if external power is lost
- **Air conditioning** – controls the heat and humidity levels within the container to a pre-set level to protect the equipment
- **Remote Tetra & Dispatcher equipment** – Radio console that allows remote access and use of all of the radio equipment listed above from any on shore location regardless of geographic location
- **Monitoring and Control** – SeaPlanner integrates important project information and enables round-the-clock monitoring and control of all systems

## LONGEVITY

An additional benefit to the SeaHub communication system is that it may be reused, either deployed at a fixed location, such as on the offshore substation once it is grid connected, to provide the permanent communications solution for the site, or on the next construction project.

## LIMITED DOWNTIME

This solution, with the use of SeaPlanner provides the ability for round-the-clock monitoring. Data is gathered and transferred back to onshore co-ordination centres for immediate action as required.

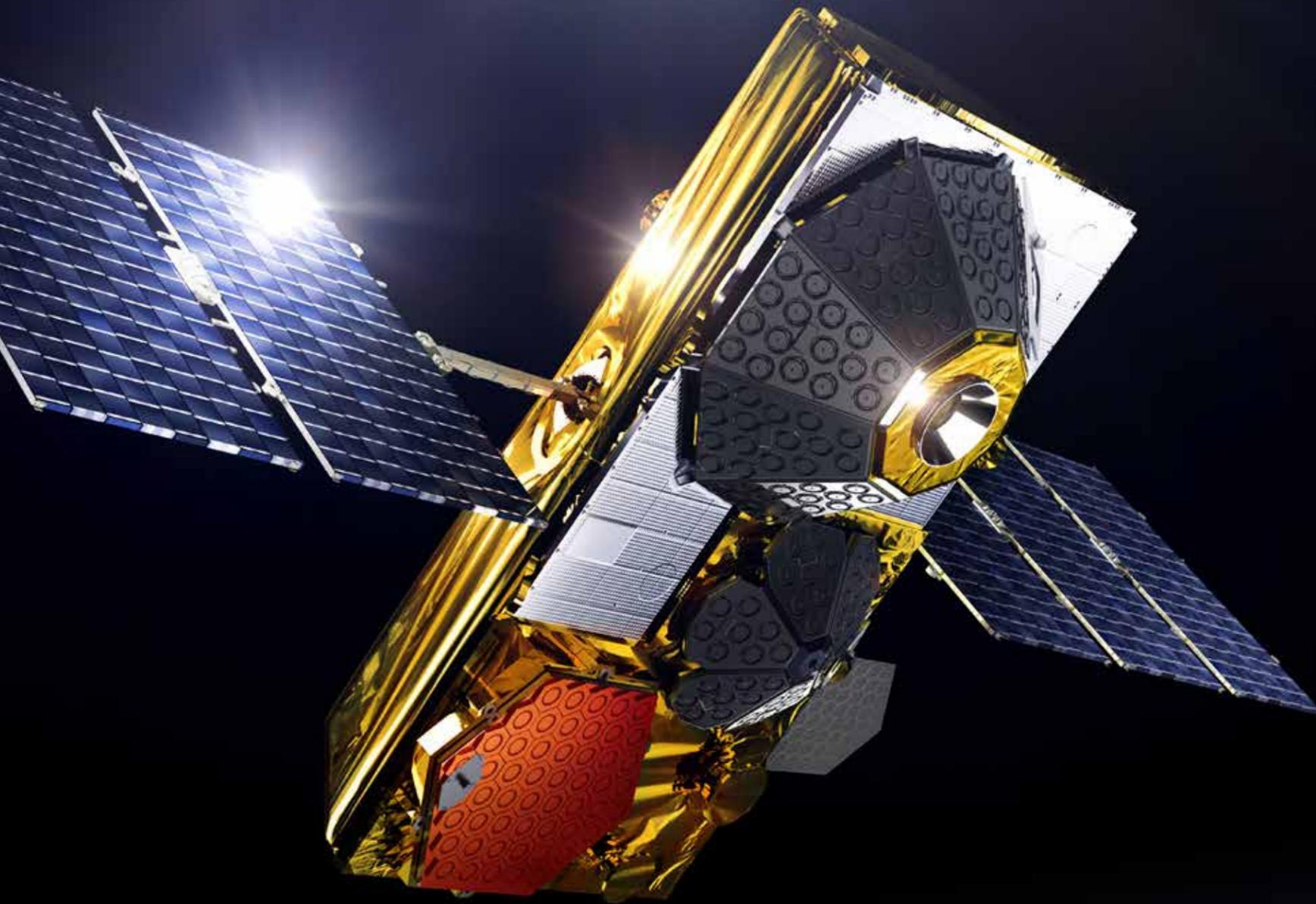
## INDUSTRY FIRST

Whilst applicable to any offshore construction, SeaHub is unique to the offshore renewable industry. Deployed onto its first offshore windfarm in the UK earlier this year, this unique concept for effective communications addresses key issues for constructing and operating windfarms further from shore.

## SeaRoc Group



“TO MAINTAIN THE HIGHEST LEVELS OF SAFETY AND EFFICIENCY YOU NEED DEPENDABLE VOICE AND DATA COMMUNICATIONS”



# A HELPING HAND FROM SPACE

Satellites keep crew safe on the ground and offshore

## MOBILE COMMUNICATION COVERAGE

The received wisdom is that Western Europe has ubiquitous mobile coverage. But many of us know from personal experience that you don't need to go far beyond a city centre to discover that your mobile signal has become unstable, or has completely disappeared. And we know coastal regions fare worse with mobile signals dropping off only a few kilometres offshore. To stay connected, relying on the reach of GSM and/or radio simply isn't good enough.

## RELIABLE SATELLITE TECHNOLOGY

Fortunately affordable, reliable satellite technology meets this need. More and more wind energy sector players recognise Globalstar's SPOT GPS messenger as the ideal tracking and safety device for remote workers. Wind energy provider SSE Renewables, for example, chose SPOT in 2014 to help protect staff carrying out important activities at wind power installations, onshore and offshore, in the UK and Ireland and uptake continues apace.

## INSTANT TRANSMISSION

System users do not just benefit from a reliable satellite-based device to keep in touch with colleagues but they can instantly contact help in times of crisis. With a single press of SPOT's SOS button, the user's location is instantly transmitted to the worldwide GEOS emergency response centre, or directly to first responders, regardless of alternative network coverage.

If a wind energy worker needs to make or receive a phone call, or business-critical data transmission, to customers or colleagues, the GSP-1700 satellite phone delivers the best voice quality in the satcom space, as well as the fastest data throughput rates of any device in its class.

Its great news that today, leading-edge, yet affordable technology is available to help safeguard those carrying out important roles in the fast-growing wind energy sector.

**Gavan Murphy**  
 Director of Marketing  
 Globalstar



The past decade has seen remarkable advances in the renewable energy sector. According to the UK's Department for Business, Energy & Industrial Strategy, the UK is number one in the world for offshore wind power generation in terms of installed capacity, and has the biggest pipeline up to 2020. But a significant part of this growth comes from new installations located in high risk, remote, even environmentally hostile locations, as well as offshore.

## RISKS

The risks in the wind energy sector are well known and health and safety regulations are encouraging providers to do more to safeguard personnel.

Any kind of major construction project inevitably comes with hazards. Risk is enhanced by the fact that installations in remote regions tend to be difficult to access and prone to extreme weather conditions. Furthermore, fire is a serious danger in the wind energy environment. Crews need to know they can summon emergency help any time and from any location.

## RETAINING SKILLED AND EXPERT STAFF

All this is taking place against a backdrop of an increasing appreciation of the importance of retaining skilled and expert staff, both to promote operational efficiency and safety, as well as to gain competitive advantage.

With the welfare of offshore staff now a higher priority than ever, providing employees with reliable communications tools to help them stay in touch with headquarters and emergency services is now widely recognised as good practice. However making the right decision about communications technology is critical.

# THE TIME OF DEATH – THE NEED FOR AN HOLISTIC APPROACH TO LONE WORKING

At 2.16pm, Harry suffered a cardiac arrest whilst working alone at a windfarm in a remote part of Western Scotland. The tilt and motion sensors on his lone worker device detected that he was unconscious and automatically alerted an Alarm Receiving Centre (ARC) in Northern England. They set about escalating a response. At 4.45pm, after a series of unsuccessful attempts to contact nearby co-workers for help, one of Harry's colleagues finally came to his assistance. The time of death was recorded as 3.47pm.

Harry's story is both hypothetical and extreme. But as the UK's lone worker population climbs towards seven million, the scenario is much more than a work of fiction.

## LIMITATIONS

ARCs are undoubtedly effective when a lone employee is under the threat of abuse or attack from another person – operators can listen in to determine the emergency response and take appropriate action following clear and accredited processes. However, in the event of a serious accident or injury, the approach can have major limitations.

When lone workers are unable to respond, ARC operators are hamstrung. Without sufficient detail, they cannot alert emergency services and must instead follow a pre-defined process of telephoning nominated individuals in a list-wise fashion.



## EFFECTIVE RAPID RESPONSE SOLUTION

When designing an effective rapid response solution it is important to understand the organisation's work processes and take into account what technology they are currently using and what they might find beneficial or even necessary in the future. Implementation of a critical alarm system is not a 'tick in the box' exercise.

It is about leveraging technologies that reflect the specific challenges of their lone workers' environments and having a holistic and inclusive approach to developing a system that aligns with their employees' specific day-to-day needs.

## BEST PRACTICE

Furthermore, best practice commonly relies on the involvement of a trusted telecoms partner that can help companies identify options, define processes and implement solutions.

**Klaus Allion**  
Managing Director  
ANT Telecom