

# Subsea Cables Conference

Tuesday 27<sup>th</sup> March 2018

Aberdeen Exhibition and Conference Centre

Exhibition Avenue

Bridge of Don

Aberdeen

AB23 8BL



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09:30 Registration

10:00 Welcome



**Neil Gordon**  
CEO  
Subsea UK

*Neil initially studied business in Aberdeen then trained as a commercial diver spending eight years carrying out numerous diving assignments in the UK and Norwegian waters involving new construction projects, pipeline surveys, welding and inspection. He has over 25 years' management experience in director and business development roles, combined with over 15 years in the subsea industry.*

*Prior to joining Subsea UK, he spent four years managing the National Hyperbaric Centre which included project-managing saturation diving operations and hyperbaric weld trials. He more recently developed the subsea safety training and consultancy aspect of the business, where he regularly lectured to subsea engineers and delivered a range of training courses both in the UK and overseas.*

*He has experience working in India, Middle-east, Africa and Brazil and has worked with the Oil and Gas Producers diving operations sub-committee on client representative training and competency for subsea projects. He was also an active member of the IMCA diving safety, medical, technical and training committee.*

10:10 Market Overview



**Chris Anderson**  
CEO  
4C Offshore

*In his diverse career, Chris led a team providing computer integration services to manufacturing businesses, led as Sales and Marketing Director to the IT sector servicing international corporations, before moving into the Oil, Gas and Renewables Sectors.*

*His roles have included Operations Director, VP Management Information Systems, HR Director and QHSE Director. Chris has overseen the development of 4C Offshore from a provider of specialised marine advisers and owner engineers to Submarine electricity cable project owners, to one where it has also become the market leading intelligence service to the global offshore wind, electricity Interconnector, port and shipping markets.*

## 10:35 Advanced Analysis for Offshore Wind Inter-Array Cables



**Keith Anderson**  
Subsea and Export Systems Manager - Engineering Wood.

Traditional approaches for finite element modelling of inter-array cables spanning from the seabed to cable entry on turbine foundations is generally a simplistic approach neglecting individual component responses by using equivalent mechanical properties for the cable and ancillary protection. Additionally, onerous service conditions are often introduced to mitigate against cable vortex induced vibration (VIV) resulting in narrow service windows in mobile seabed and scour zones which can be relaxed by advanced modelling techniques.

Advanced finite element analysis modelling with explicit modelling of cable, cable entry and protection system components provides a more realistic and accurate representation of the cable spans, allowing relative axial movement and gap modelling between components. This approach is shown to significantly reduce conservatism in comparison with traditional modelling approaches. This is presented via a case study demonstrating how through advanced finite element modelling a system can be demonstrated to be acceptable which would be unable to meet manufacturers requirements through traditional techniques.

Advanced modelling is also shown to provide an ability to relax freespan criteria with respect to VIV. Rather than adopting onerous criteria to negate VIV onset, accepting cable vibration and managing the fatigue accumulation within defined limits can increase the acceptable span length, hence mitigating intervention requirements. This is achieved through advanced finite element analysis of the span geometry, cable cross-section and lifecycle metocean discretisation. Modelling the cable response to the environment and the subsequent cable component loadings allows a cumulative fatigue assessment from wave and vibration loadings to be performed and iterated to find acceptable span lengths.

In summary, the advanced modelling of inter-array cable systems provides more realistic loading regimes, reducing conservatism in cable loadings through cable entry systems and relaxation of allowable span lengths to reduce intervention requirements.

*Keith Anderson is an accomplished business manager responsible for Subsea and Export Systems at Wood. A Chartered Engineer and Fellow of the IMarEST he has over 22 years postgraduate experience, including 19 years within the subsea industry. During his career he has been involved with offshore developments across the North Sea, West Africa and Australasia. His current role encompasses the management and delivery of the engineering function for oil and gas; power transmission; and marine renewable projects in the offshore environment.*

*In addition to his primary business role, Keith provides valuable industry experience to Robert Gordon University as an external examiner and he is a guest lecturer for renewable and subsea engineering courses at the University of Aberdeen.*

## 11:00 – 11:30 Break

### 11:30 Accelerating Renewables Development Through Knowledge Transfer



**Daniel Bate**  
Sales Manager  
– Renewables  
Trelleborg  
Offshore

With much of the world looking for fossil-free energy sources, wind power is becoming increasingly popular and proving financially viable. Forward-looking companies are adapting their existing product portfolio for use in the renewables sector.

As the wind energy industry moves further offshore, oil and gas companies can shorten the development time for new concepts by transferring oil and gas industry knowledge and expertise.

*Mr. Daniel Bate specializes in buoyancy and cable management products for the renewables energy sector. He has over 10 years of experience working in the offshore subsea industry with Trelleborg and started his career working within the innovation team, developing new buoyancy and cable protection materials.*

*For the past three years, Daniel worked for a coatings company, with great focus on supporting the growing number of composite wind blade factories across Europe.*

*After seeing the offshore wind sector go from strength to strength, Daniel returned to Trelleborg due to their focus on the renewable sector and applying their cable protection knowledge to new products for the growing sector.*

### 11:55 Cable Burial in Subsea Cables



**John Davies**  
Director Seabed  
Intervention  
Helix Canyon  
Offshore

Learning from experience – Canyon Offshore, to date, has been involved with burial of both inter array and export cables on over 20 offshore wind farms within most European waters. Canyon has also been involved with the burial of inter country

interconnectors associated with the sharing of electrical power between different countries and is planned to work on another 2 interconnector projects over the next 3 years.

Cables are not just associated with renewables and power sharing and Canyon has buried a number of power from shore cable projects for O&G sector both in Europe and in the Middle East.

This presentation will give some of the lessons learnt having worked with our clients and their clients to make each a successful project as well as present some of the innovation and investment made by Canyon for future cost reduction as well as meeting burial depth obligations.

*John has been an Engineer within the Subsea, ROV industry for over 25 years. Initially working with the UK and overseas navies on remote control mine countermeasure ROVs and then for the past 17 years on the ROVs, Ploughs and trenchers used to support offshore oil and gas, submarine telecom and power cable installation. John has had a diverse career from working offshore, through to operations management, business development and now as director of seabed intervention for Canyon Offshore Ltd.*

*As Director Seabed Intervention, John is responsible for working with the senior management team to support the business's strategy in taking its assets and services; supporting all things energy. John is responsible for building relationships with current*

clients and strategic partners primarily in the North Sea and EMEA region - although his remit, just like the company's equipment and services - extends worldwide. John's expertise in the renewables sector and the trenching market merges with the core strength of Canyon Offshore, which is providing services (ROV, Trenching, construction support and vessels) in shallow to deep water marine contracting operations, and allows him to advise global energy, renewables and telecom players on the most cost-effective solution for their project needs.

**12:20 – 12:50 Panel Session chaired by Neil Gordon**

**Steve Gray (ROVOP)**



**Steve Gray**  
Managing Director  
ROVOP

Prior to co-founding ROVOP in 2011, Steven Gray began his career as a corporate lawyer before spending 15 years in banking and private equity to the oil, gas, energy and offshore industries in Europe and North America. Based in New York for five years, Steven was responsible for more than \$1bn of financing across 40 transactions in the energy services sectors in the North American market for Bank of Scotland. He established the Aberdeen office for LDC, the UK's leading private equity investor in 2008, before co-founding ROVOP in 2011. In 2014, Steven was named Ernst & Young Entrepreneur of the Year for international business growth.

ROVOP is an independent company dedicated to providing the best possible Remotely Operated Vehicle (ROV) services to the subsea oil and gas and offshore wind industries. Its unique approach combines the most advanced technology with highly skilled personnel and a first class customer culture which reduces risk and improves efficiency for clients.

More than 80% of projects are international and work includes drill support, subsea inspection repair and maintenance (IRM), construction and decommissioning for a high-profile portfolio of clients.

The company employs over 180 people and has recently increased its fleet by 50% to meet ongoing customer demand following a funding boost of £56m.

**Peter Cherneski (VBMS)**

Commercial/Operations Manager & Business Development Manager SURF for Boskalis Subsea Solutions. Offshore career spanning over 23 years. Previous role worked for VBMS/VSMC since 2010. Beginning as Offshore Construction Manager (OCM) of multiple cable/flex vessels, completing multiple European windfarms. His role expanded to encompass Project management, engineering tendering & commercials for VBMS.

Peter Cherneski began his career in 1995 as Rov/ commercial diving in the Gulf of Mexico USA GOM. Spending 15 years on projects in Oil & Gas Subsea Umbilical's Risers Flowlines (SURF) worldwide from shallow to ultra-deep water in full field developments in remote, deep, complex projects focusing on SURF. Peter joined the renewables industry bringing his expertise of oil & gas & SURF experience to VSMC. Based in Holland at the main office for 7 years, now regularly spreading his time between the new Westhills Aberdeen office and Holland main. Taking a practical,

*functional, and cost-effective view/approach on operations and projects, creating value added solutions for clients & stakeholders. With a professional track record of success in operations, QHSE and projects exceeding 250 million Euros.*

*Now focusing on Subsea solutions, SURF (BSS), and renewables based on EPIC, Lump sum, and field development - including small and marginal fields in Europe/UK.*

*VBMS, a subsidiary of Royal Boskalis Westminster N.V., specializes in subsea power cable installation, Balance of Plant maintenance for the renewable market, Advanced near shore intervention, industry leading cable and flexible repairs, Select SURF installation for the oil & gas market and installation of interconnectors. The company delivers added value with its robust end-to-end project management and multi-disciplinary grid-to-grid solutions. In addition, VBMS complies with strict European and international industry standards, reflected in a high QHSE ranking. VBMS provides quality services balanced with cost effectiveness, with a portfolio including major offshore developments in Europe and beyond.*

*Royal Boskalis Westminster N.V. is a leading global services provider operating in the dredging, maritime infrastructure and maritime services sectors. The company provides creative and innovative all-round solutions to infrastructural challenges in the maritime, coastal and delta regions of the world with services including the construction and maintenance of ports and waterways, land reclamation, coastal defense and riverbank protection. In addition, Boskalis offers a wide variety of marine services and contracting for the oil and gas sector and offshore wind industry as well as salvage solutions. With a versatile fleet of more than 900 vessels and floating equipment and 10,700 employees, including associated companies, Boskalis operates in 90 countries across six continents.*

#### **Chris Anderson (4C Offshore)**



**Chris Anderson**  
CEO  
4C Offshore

*In his diverse career, Chris led a team providing computer integration services to manufacturing businesses, led as Sales and Marketing Director to the IT sector servicing international corporations, before moving into the Oil, Gas and Renewables Sectors.*

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**12:50 – 13:30 Lunch**

## 13:30 Reducing Costs Through Informed Engineering



**Robbie Blakeman**  
 Director  
 Osbit Ltd

In order to realise the strike price of the farms most recently awarded, we need to realise cost savings in the order of 50%... but how?

Oil & Gas have recently realised significant supply chain savings through efficiency drives, however they started with a bloated supply chain, full of inefficiency and 'gold-plating'.

Offshore wind cannot realise similar savings by simply pushing the existing supply chain structure; wind is already a tight market so further tightening margins and removing waste in the existing supply chain, without changing fundamental approaches, will not yield required savings and may put quality and safety at risk.

The answer is in Informed Engineering, targeting the whole process. The wider the system boundaries can be made, the greater the potential to yield results. The main objective is minimising the overall install time which reduces costs of vessels, personnel etc and reduces the non-productive timeline, whilst actually improving safety and repeatability. When engineering in this way, the drivers for improving safety and optimising operations are well aligned.

A process flow model must be employed, with collaboration from all stake-holders for overall benefit. It may include investment in equipment in exchange for reduced operational costs.

Osbit has a case study of a Quadrant Handling System delivered to DeepOcean and used successfully on Race Bank.

*Robbie principally leads the engineering projects at Osbit, overseeing the development and delivery of innovative new systems and equipment.*

*Robbie's role focuses on utilising appropriate engineering and thoroughly understanding client requirements to develop effective technical solutions.*

*Along with his colleagues, Robbie has overseen more than 260 successful projects at Osbit, including projects across the entire subsea cable development life cycle.*

With a distinguished background in engineering, including direct work on many of the active trenching systems in the market and engineering input to most of Osbit's projects, Robbie has a unique breadth of knowledge and depth of expertise which is rare.

**13:55 New Subsea Cable Insulation Monitor for Detection up to 10GΩ.**

Matching the needs of the Subsea Industry, Bender has brought a new 10GΩ subsea cable insulation monitor isoHR685 to the market.

State-of-the-art in terms of reliability, measuring technique, operability and design, the new generation Line Insulation Monitor (LIM) delivers a higher level of integrity monitoring.

The isoHR685W-D-B improves measurement accuracy by synchronisation of up to 50 isoHR685 to limit cross cable disturbance between long parallel cables.

*Mumtaz Farooqi works as a Technical Manager at Bender UK Ltd. He currently leads a team of engineers to provide application and product support across Industrial and Medical sectors.*

*His focus is on delivering new concepts to the market to improve electrical safety, protection and availability through advanced condition monitoring. Subsea applications include umbilical's, subsea pumps and ROVs etc.*



**Mumtaz Farooqi**  
*Technical  
 Manager  
 Bender UK Ltd*

**14:20 – 14:35 Break**

**14:35 Reducing Operating Costs Through Automated Fault Response and Realtime Condition Monitoring in Power Cables**

Disproportionately high insurance claims and operational costs come from failures of cables used in all offshore wind arrays. As the industry moves to larger turbines and 66kv cables, the risk and cost of failures only increases, yet operators are still working without realtime visibility of electrical performance – the key parameters for failure prevention, avoidance and ultimately the best way to improve productivity. This lack of visibility and control is due to the prohibitive size, cost and complexity of traditional instrumentation systems required to protect, monitor or control key HV assets like cables, turbines and their terminations.

Synaptec have just launched a new technology to address this, using a patented distributed photonic sensing technique to make sensors small enough to fit in the palm of your hand, completely passive, GPS and datacomms-free and using the cables themselves to provide the communications network required. Our first-generation products save O&M costs by detecting faults at least 10X faster and automating the response to save days outage, human O&M response and asset damage. The second generation of products will also offer condition monitoring services for dynamic line rating, impedance to fault and power quality functions to safely optimise usage of export cables and termination without exceeding design parameters.

*Saul brings 25 years of sales and marketing experience, having led growth for start-up and established brands in the IT, mobile, unified communications and most recently semiconductor industries in every major global market.*



**Saul Matthews**  
*Business  
 Development  
 Synaptec Ltd*

15:00 **Sediment Controls on Lifetime HV Cable Performance**



**Justin Dix**  
*Head of Geology &  
Geophysics  
Research Group  
University of  
Southampton*

The power transfer performance of HV cables (both ORE inter-array and export cables and interconnectors) is limited by the ability of a cable to dissipate heat, which in turn is controlled by the medium in which the cable is buried. Therefore an understanding of the thermal properties of the burial environment plays a primary role in: cable rating, the lifetime performance of the cable; and the lifetime monitoring of the cable for burial and exposure through the analysis of DTS data. Ultimately the ability to properly understand and potentially control the mode of heat dissipation in space and time could reduce both the CAPEX and running costs of a major interconnector. Recent work by the research team at Southampton (Hughes et al 2015 a and b; Emeana et al 2016; Dix et al., 2017) has used both numerical and physical modelling approaches to demonstrate that, in typical seabed sediments, heat dissipation from HV cables is controlled by both convection and conduction and that the degree of conduction vs convection is controlled primarily by the permeability of the sediment. Further, we have been able to provide initial models of the impact of: over-burial; exposure; trenching and heterogeneous sediment stratigraphy on the mode of heat dissipation. We are now undertaking analysis of DTS data combined with geological ground models to test these results in deployed cable systems.

*Justin Dix is the Head of the Geology and Geophysics Research Group, within Ocean and Earth Science, at the University of Southampton. His research focuses on high-resolution geophysical and geological techniques to answer a series of applied research topics including structure seabed interactions. His particular expertise is in the acquisition, processing and analysis of high resolution acoustic data (swath bathymetry and sub-bottom data), including the development and application of the 3D Chirp system for decimetric sub-surface imaging of the top 20 m's of the seabed, and the integration of these with core and geotechnical data to generate 4D ground models. A current research focus is substrate controls on the modes and rate of heat dissipation from underwater HV cables.*

15:25 **The European Subsea Cables Association (ESCA) and the Important Role that ESCA Plays in Support of Subsea Cables**



An introduction to ESCA and its history.

ESCA liaison activities with Government and non-government agencies.

An overview of the Sub-groups within ESCA.

An overview of the operational guidelines that ESCA have composed for the benefit of the subsea cables sector.

Protection of cables comes in many forms: ESCA fishing liaison and KISORCA.

*Antony Zymelka is a very well known cable focused professional who has amassed around 40 years of experience in the Subsea Cable industry. He has been involved in approaching 200 Subsea Cable projects worldwide.*

*Antony was qualified by Pirelli (now Prysmian) in the Design of Super Tension Power Cable Accessories and the Installation, Testing, Commissioning, Fault Location and analysis of SCFF, MIND and Elastomeric (XLPE, EPR etc) Super Tension AC and DC Power Cables.*

*Having spent many years Offshore on various Cable Ships, and Onshore in Design, Engineering and Project / Senior Management, his Subsea Cable Installation Operations, Installation Engineering and Offshore and Onshore Management experience is extensive. This experience encompasses Power, Telecommunication, Umbilical, Military and Scientific Cables.*

*Antony is considered by many as being a leading authority on Subsea Cables and sits on the executive committee of the European Subsea Cables Association (ESCA). He also chairs the ESCA Renewables and Power Cable Sub-Group composing various industry guidelines including: Proximity, Subsea Power Cable Installation and Repair. Antony is also an active member of CIGRE and participates on various CIGRE Technical Working Groups.*

*Recently, Antony has had the pleasure to accept a Directorship at BPP Cables where his expertise is being applied across many projects. BPP Cables being unique in their cables focussed technical capabilities including design, is considered to be at the forefront of providing **INDEPENDENT** cabling solutions.*

**Antony Zymelka**  
*Chair of the Renewable and Power Cables Sub-group of the European Subsea Cables Association (ESCA)*  
**European Subsea Cables Association**

15:50 **Close**