

# DeepWind O&M Subgroup

## Operation and Maintenance Centre of Excellence (OMCE)

16<sup>th</sup> of December



image source – ScottishPower

# Welcome to the webinar

O&M Subgroup Co-chair

Paul Cairns



# Programme

- 10.00 – Welcome and housekeeping – **Jeya Calder, HIE**
- 10.05 – Introduction from Subgroup Co-chair - **Paul Cairns, MISTRAS**
- 10.10 – Introduction to OMCE – **Katharine York, OMCE**

## Case Studies

- 10.25 – EchoBolt – **Pete Andrews**
- 10.35 – Stowen Group (short video) – **Kieron Ford**
- 10.38 - Wescott Group – **Matthew Doyle**
- 10.50 – Q&A session
- 11.00 - End of Webinar

# O&M Subgroup



**Katharine York**

**CATAPULT** OPERATIONS &  
Offshore Renewable Energy MAINTENANCE CENTRE  
OF EXCELLENCE





OPERATIONS & MAINTENANCE  
CENTRE OF EXCELLENCE

Delivered by

**CATAPULT**  
Offshore Renewable Energy

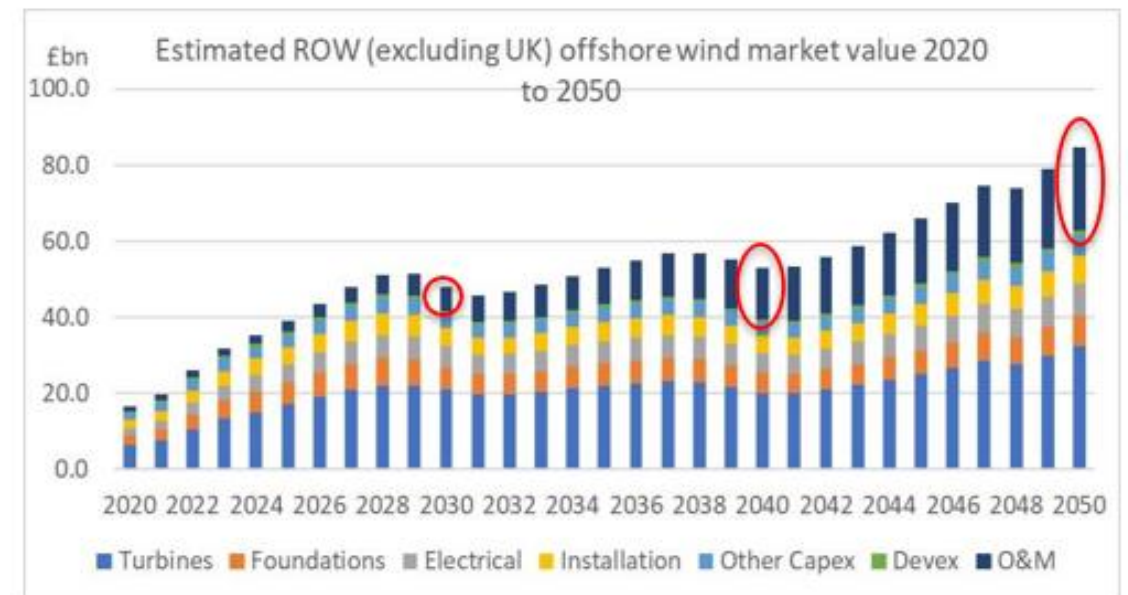
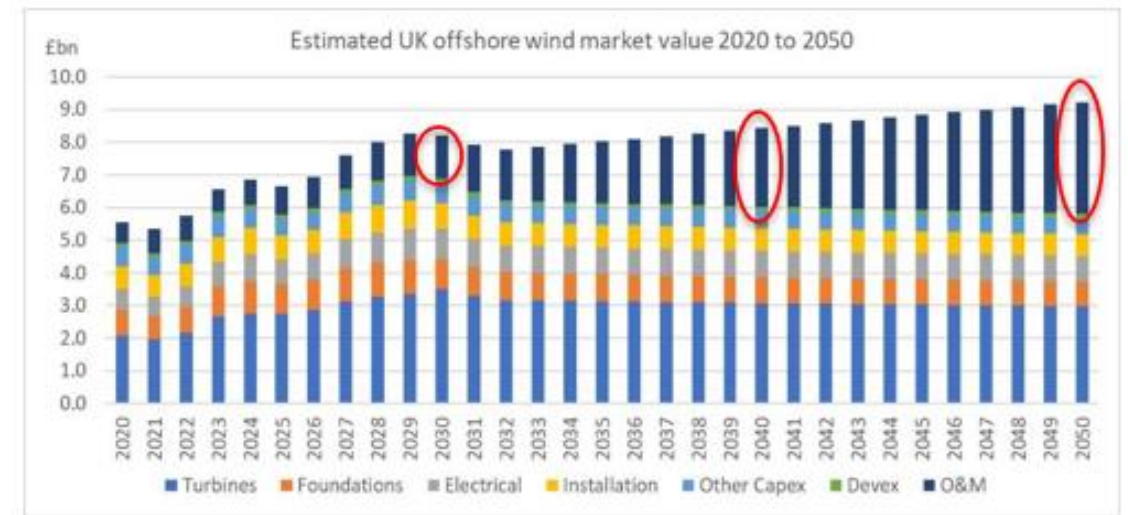
# DeepWind

Katharine York

16.12.2021

# Operations & Maintenance – Scale of Opportunity

- Global annual O&M expenditure
  - Today: £1.6bn
  - 2030: £7bn
  - 2040: £16bn
  - 2050: £25bn
- O&M is “home grown” in the UK
- Enormous local & export market
- UK is current global leader, **but O&M is changing** - it’s ours to lose
- “If we don’t now act there will be market failure” - InnovateUK



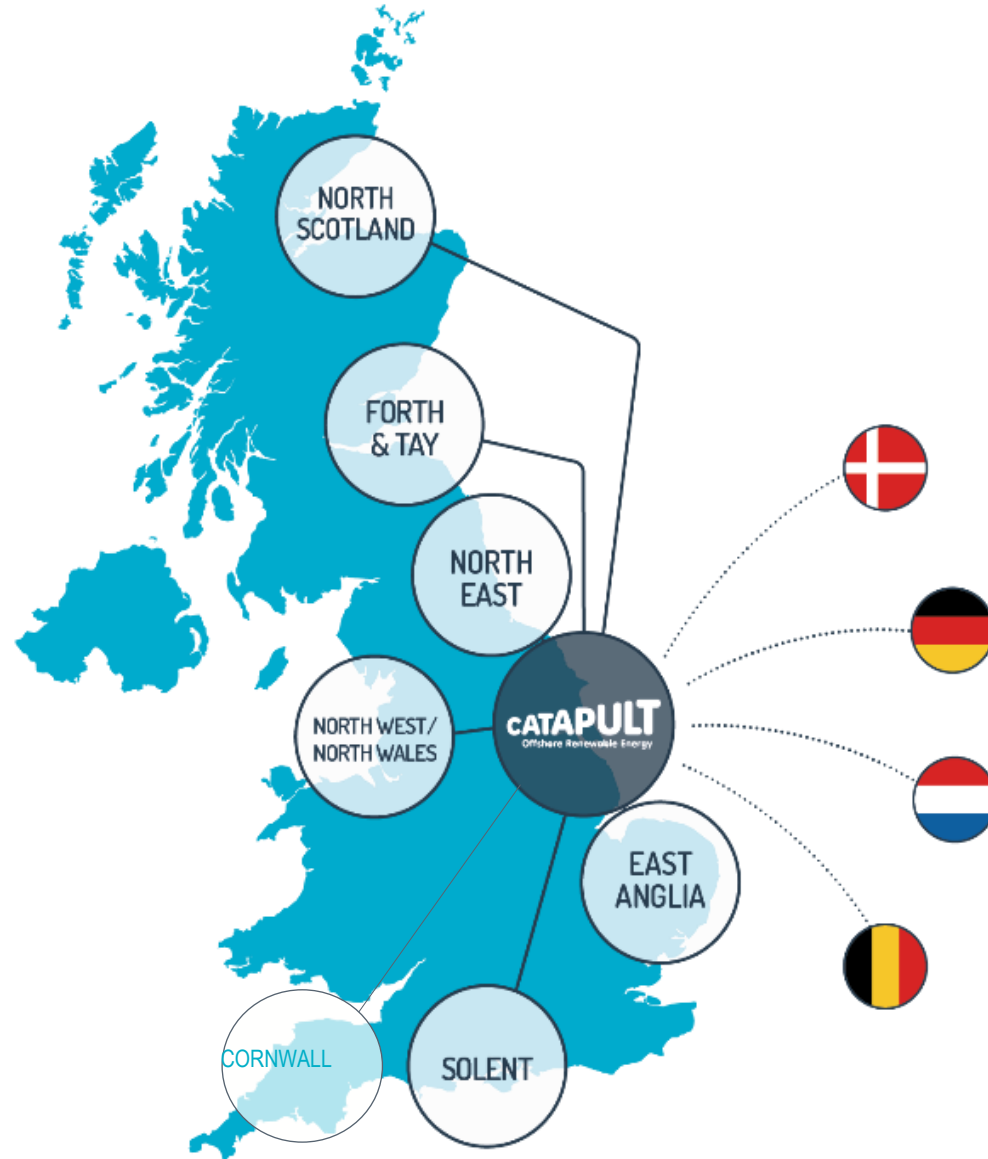
# Vision - UK as the global leader in Smart O&M

National centre of excellence, based in Grimsby:

- Give thematic and physical focus to O&M
- Build UK PLC content - domestic and export
- Cross sector businesses into the industry

## 3 interconnected themes:

- Next Gen Ops and Control
- Inspection, Maintenance and Repair (IMR)
- O&M Decarbonisation



# Engagement – Sample O&M Collaborators





# THE HUMBER OFFSHORE WIND CLUSTER



# Humber offshore wind farms

Name	MW	No of WTG	Homes powered
Lynn & Inner Dowsing, GLID	194	54	130,000
Lincs, Ørsted	270	75	240,000
Westermost Rough, Ørsted	210	35	150,000
Humber Gateway, RWE	219	73	170,000
Race Bank, Ørsted	573	91	400,000
Hornsea 1, Ørsted	1218	174	1 million
Hornsea 2, Ørsted	1386	165	1.3 million
Triton Knoll, RWE	857	90	800,000
Hornsea 3, Ørsted	2400	Up to 342	2 million
Hornsea 4, Ørsted	~2600	TBD	TBD
Race Bank Extension, Ørsted	~573	TBD	TBD



### New seabed leasing areas – Round four

**Bidding Area 1**  
Dogger Bank  
Comprising the Dogger Bank region

**Bidding Area 2**  
Eastern Regions  
Comprising the Southern North Sea region, the eastern part of The Wash region, and the East Anglia region

**Bidding Area 3**  
South East  
Comprising the South East region

**Bidding Area 4**  
Northern Wales & Irish Sea  
Comprising the North Wales region, The Irish Sea region, and the northern part of the Anglesey region

# Overview – OMCE assets and functions



>>> ADVANCED COMMS/5G



>>> DATA & DIGITAL SERVICES



>>> HUMBER OSW CLUSTER

Hull

AMEP

GRIMSBY

>>> CLEAN MARITIME



>>> NET ZERO PORT



Link to wider transport network



Partner Operational windfarm



>>> ROBOTICS & AUTONOMOUS SYSTEMS





# CONTACT US

Email us: [info@ore.catapult.org.uk](mailto:info@ore.catapult.org.uk)



GLASGOW

BLYTH

LEVENMOUTH

GRIMSBY

ABERDEEN

CHINA

LOWESTOFT

PEMBROKESHIRE

CORNWALL

## OMCE Case Studies

**Pete Andrews**





## CASE STUDY

ORE CATAPULT COLLABORATION  
& SME GROWTH

Pete Andrews



Delivering specialist O&M services for the offshore wind industry

Wind Turbine Fastener Inspection

- Eliminate retightening
- Reduce costs
- Increase production







- Founded 2019
- Technology Development
- Certification & IP Protection
- Commercial Deployment

Powered by

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Offshore Renewable Energy





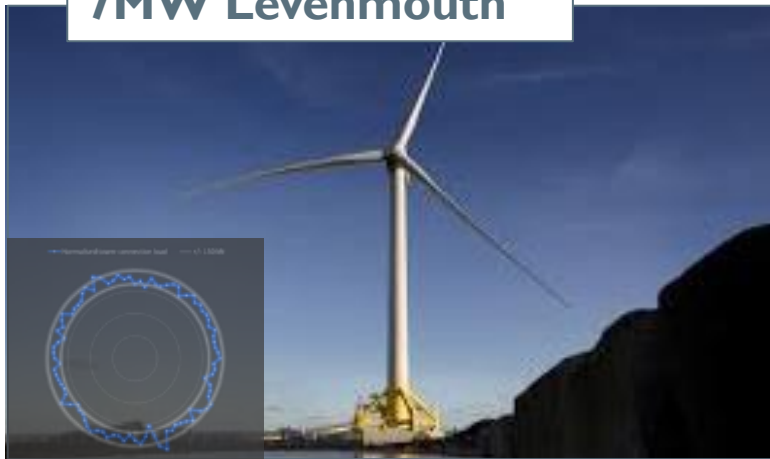
COLLABORATION  
AND  
INNOVATION



# TECHNOLOGY DEVELOPMENT



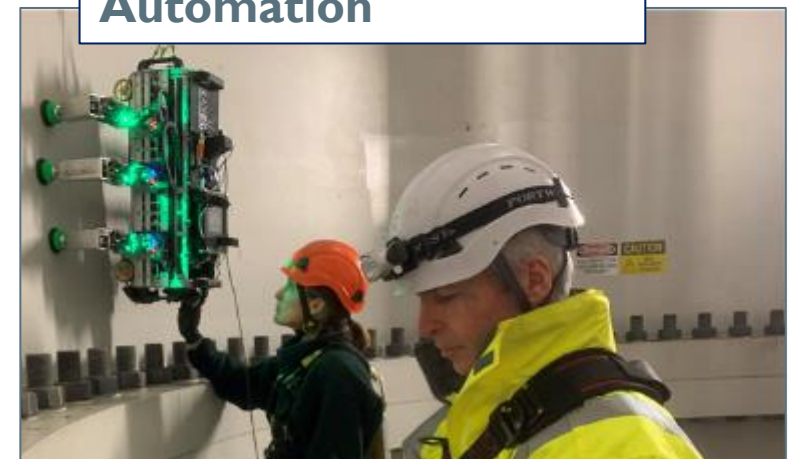
7MW Levenmouth



Haliade-X



Automation



# TECHNOLOGY CERTIFICATION



**Conformity Statement**  
**EchoBolt Ultrasonic Method Evaluation**

Statement-No.: 159-268261402-2021, Rev.00  
Applicant: **EchoBolt**  
Energy Integrity Services Ltd.,  
27 Kings Caughton Lane, Alcester, B49 5QE,  
United Kingdom (UK)  
Application: **Preload Estimation of the Bolts for Wind Turbine Components**

The conformity evaluation has been carried out according to:  
**DNVGL-ST-0361:2015**  
"Machinery for wind turbines", Edition September 2016".

This Conformity Statement attests compliance with:  
**DNVGL-GE-0441:2016**  
"Type and component certification of wind turbines".

It is based on the following evaluation report:

Element	Reference Document	Dated	Issued by
Evaluation Report	268261402/3.0, Rev.00	2021-05-17	TÜV Rheinland

Any changes to the EchoBolt Ultrasonic method are to be approved by TÜV Rheinland, Certification Body for Wind Turbines. Without approval the Conformity Statement loses its validity.

Cologne, 2021-05-17  
  
Jai Prakash Narayan

TÜV Rheinland Industrie Service GmbH,  
Certification Body for Wind Turbines,  
Am Crüsem Stein,  
51105 Cologne,  
Germany.

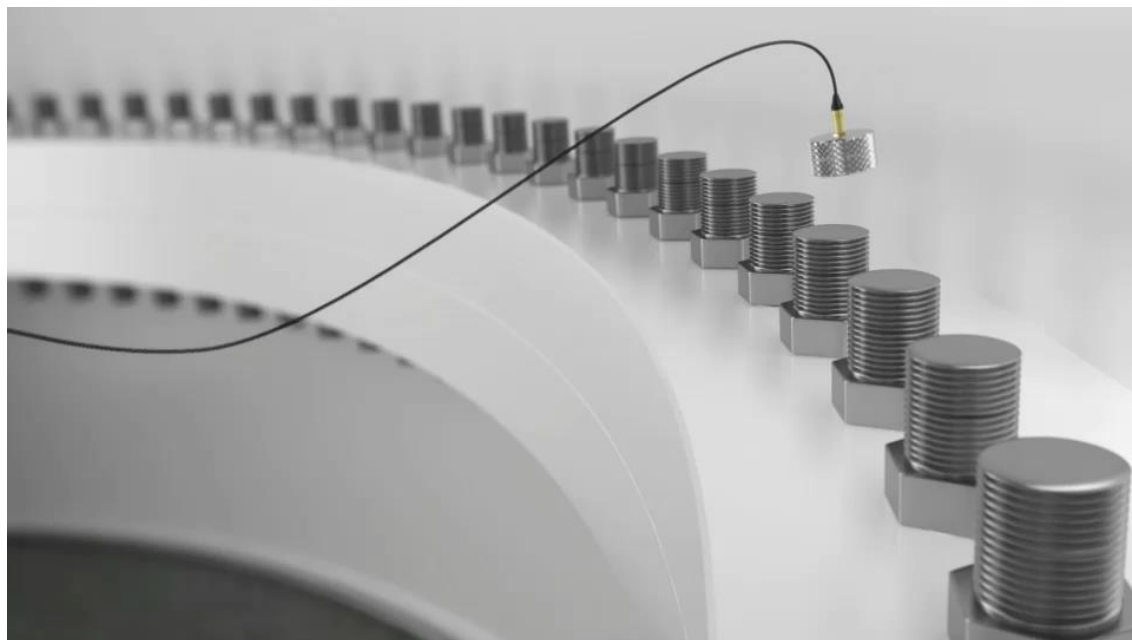


OREC has supported technology maturation and certification through Technology Assessment Process (TAP).

The EchoBolt bolt preload measurement method has been certified for wind turbine components by TÜV Rheinland.

Providing confidence for wind turbine operators that in-service fasteners can be accurately monitored, ensuring compliance with DNVGL-ST-0361 Machinery for Wind Turbines, for inspection of bolted connections.

## PRESS COVERAGE AND MARKETING REACH



Vincent Schellings, General Manager for Engineering and Product Management, GE Offshore Wind:

*“We are excited to support an idea that has such potential to help us in our development of next generation technology for the wind industry. We look forward to seeing how EchoBolt performs in real-world conditions: digitalising operations is a focus of our own research for equipping the renewables industry of the future.”*



Chris Hill, Operational Performance Director at ORE Catapult, comments:

*“EchoBolt is set to reduce the need for manual work in a crucial operational area, bringing huge safety and cost benefits. This is also a story about a sole entrepreneur who has won heavyweight industry backing through sheer ingenuity. The UK supply chain needs many more stories like this one, and we will be providing EchoBolt with expertise from our engineering team, access to our world-leading test facilities and business development support right up to the point of commercialisation.”*



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

## OMCE Case Studies

Kieron Ford



## OMCE Case Studies

Matthew Doyle



**WESCOTT**  
**GROUP**





# WESCOTT GROUP

*Safety • Performance • Innovation*

Presentation to:

Operations & Maintenance Centre of  
Excellence (OMCE)

16 December 2021



# About Us

We are a specialist Asset Life Integrity & Integrated Services provider.

Wescott Group continue to maintain and deliver the highest standard of professionalism, quality and value added service to our customers to ensure we meet and exceed expectations. Offering a Best in Class service, with an outstanding proven safety record and with our commitment to deliver on time and on budget, Wescott is your partner of choice.

We specialise in all types of asset integrity services including surface preparation & industrial coatings, access scaffolding, IRATA rope access, passive fire protection, insulation, remediation of structures, alternative access systems and offer end to end solutions for maintaining your assets' integrity.

Working across 6 market sectors with our collaborative partners, Wescott deliver:

One Vision | One Goal | One Integrated Service



Renewables



Oil & Gas



Infrastructure



Construction



Petrochemical & Refineries



Marine

**1**

Acquisition Completed

**1200+**

Projects Completed

**£6.5m Largest**

Project to Date

**£150m Group**

Turnover to Date

**£5m+ Cost**

Savings for Clients to Date

**1.4m hours**

LTI free

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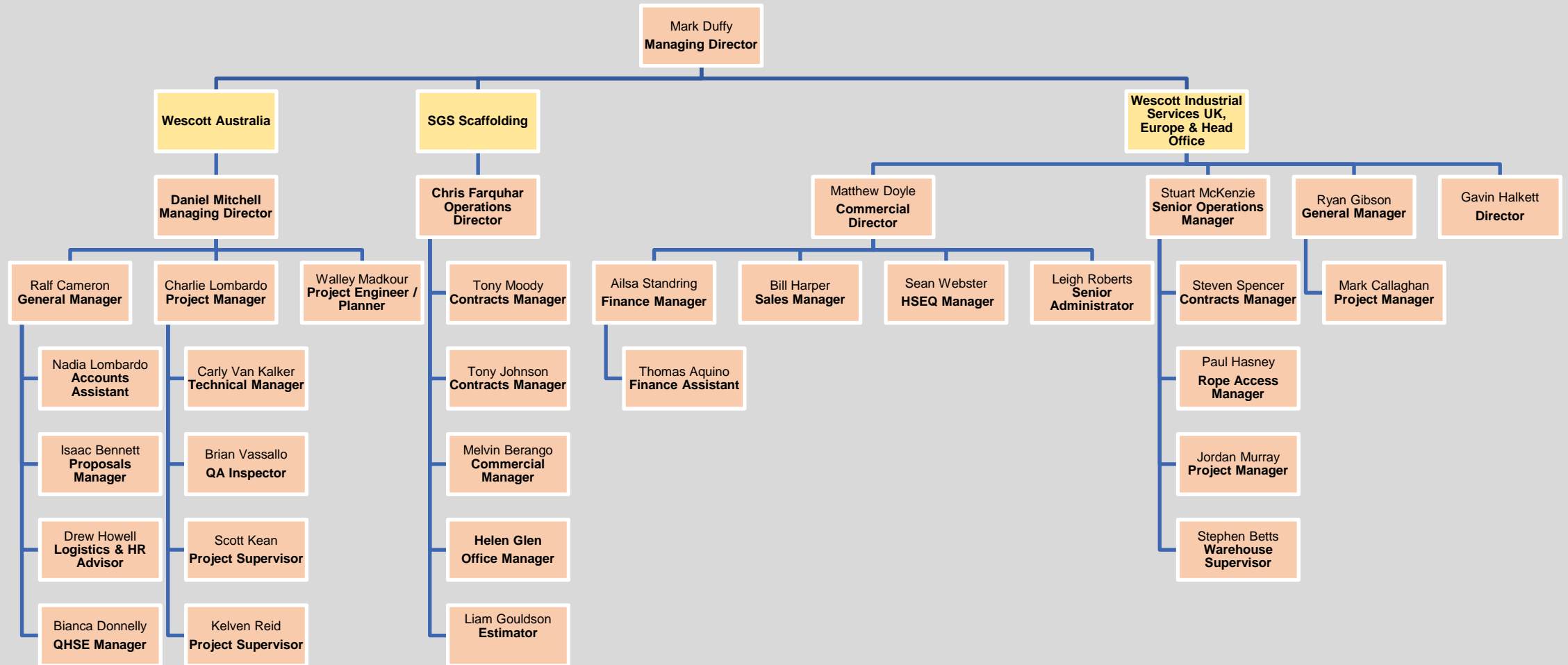
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# WESCOTT GROUP



# Wescott Group



# Surface Preparation

Wescott Group provide a range of specialist surface preparation technologies and multi-disciplined personnel to carry out surface preparation in the safest, most efficient manner.

## Capability

- Traditional Media Blasting
- Eco-Vapour Blasting
- Trac-Blast
- UHP (Ultra High Pressure) 30k
- HP (high Pressure) 15k
- Dry Ice Blasting
- Heat Induction
- Mechanical (ST standards)



# Coating Applications

Wescott Group provide multi-discipline teams to carry out a range of specialist tasks to reduce costs and improve efficiency.

**All types of coating APPLICATION techniques including but not limited to:**

- Airless & conventional
- HVLP (high volume low pressure )
- Electrostatic
- Thermal Spray (TSA)
- Plural Component (Wescott are approved applicators for most PFP products)
- Single Leg



# Coating Systems

Wescott Group provide multi-discipline teams to carry out a range of specialist tasks to reduce costs and improve efficiency.

**All types of coating SYSTEMS including but not limited to:**

- Solvent Free (hot & cold)
- Passive Fire Protection ( Thin and Thick film)
- Single coat systems
- Surface tolerant
- Solvent free Wet and Rust tolerant Systems
- Zinc silicate
- Glass flake/Glass fibre/Chopped Glass mat



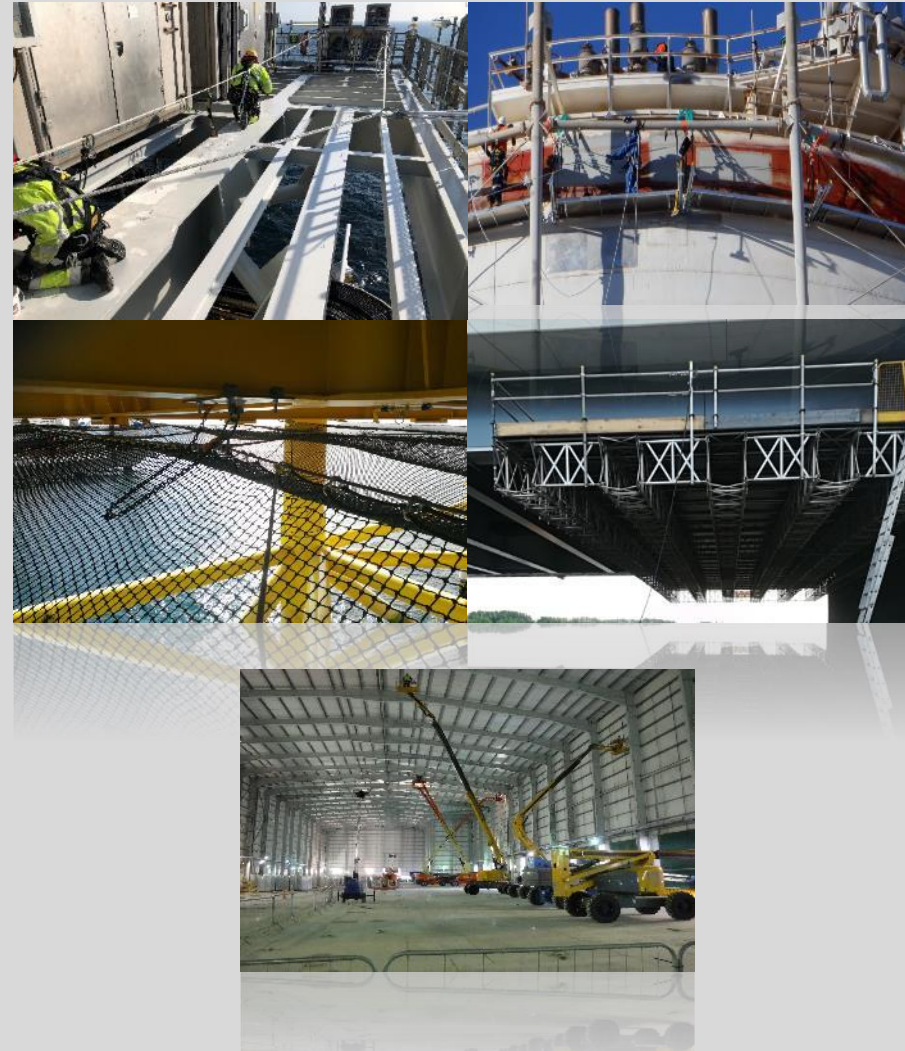
# Access Solutions

Wescott Group provide multi-discipline teams to carry out a range of specialist tasks to reduce costs and improve efficiency, including but not limited to the following:

## All types of ACCESS SOLUTION including:

- Tube and Fitting Scaffolding
- System Scaffolding
- IRATA Rope Access
- V-DECK
- Tension Netting
- Cradles
- MEWPS
- Full Containments/Encapsulations

**WESCOTT GROUP recently acquired specialist access solutions and services provider SGS, a company based in Hull, UK.**



# Renewables Sector Experience



We have substantial experience in successfully and safely operating in the offshore renewable sector for over 10 years. Our hugely experienced management team have a wealth of knowledge and experience that has provided significant cost savings, efficiencies and safety benefits on 35 renewable projects delivered to date.

Wescott continually strive to maintain and deliver the highest standard of professionalism, quality and value to our customers, to not only meet but exceed their expectations. Wescott offer a Best in Class service, with an outstanding safety and performance record that is second to none. We are totally transparent in our commitment to always deliver safely, on time and within budget.

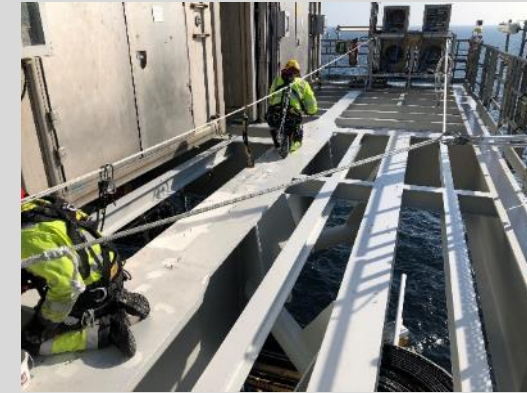
Wescott are always looking at improving our service delivery through the introduction of environmental friendly alternatives, innovation and commercial models that alleviate some of the clients risks. This has been acknowledged and appreciated by all of clients to date .

We specialise in all types of offshore maintenance and asset integrity services, including:

- Surface Preparation & Industrial Coatings
- Access Scaffolding & Containment
- IRATA Rope Access
- Passive Fire Protection
- Insulation
- Alternative Access Systems
- Coatings, MPI & NDT Inspections
- Blade Repair
- Appointed Persons, Rigging, Welding and Mechanical Services

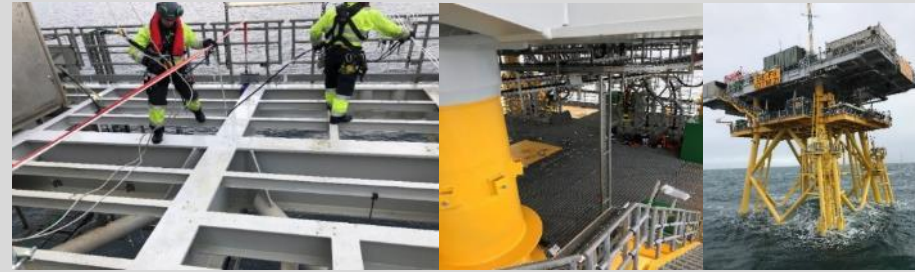
We specialise in all aspects of the windfarms operational life and can provide services at all stages from:

- Fabrication & Construction
- Hook Up & Commissioning
- Warranty Repairs
- Annual & General Maintenance
- Statutory Inspections & Surveys
- Repair Campaigns



## Renewable Sector – Key Highlights

<b>35</b>	<b>12</b>	<b>£5.4m</b>	<b>£3.9m</b>	<b>7</b>	<b>£21m+</b>
Projects Completed	Years working in sector	Largest Project to Date	Cost Savings achieved for Customers	Innovative Products identified and used	revenue achieved
					<b>15</b> Customers



## Beatrice Offshore Windfarm – OTM 1 & OTM 2

Located in the Moray Firth, the Beatrice Offshore Windfarm project is Scotland's largest offshore wind farm, comprising of 84 Siemens turbines and providing 588MW capacity since being fully operational in 2019, enough to power some 450,000 homes.

Wescott Industrial Services were contracted by Siemens to complete the two Offshore Transformer Modules (OTM) hook up works, which had been previously left incomplete following a campaign the previous year by an alternative industrial service provider. We took on the scope of work on a target cost, reimbursable contract model with KPI conditions attached based on delivery and completion of the service. We completed the works to a very high standard and worked extremely closely with the Siemens management team to execute the works.

We had 55 POB working on the two assets at any given time over the period, which meant that our project management and logistics team had to ensure we were as efficient as possible at all times, including in period of inclement weather to ensure our client was receiving value for money. Our crew performed many alternative tasks and moved scopes around daily to ensure we were always working, this allowed us to complete the scope in a timely manner.

One of the main influences in Wescott being awarded this contract was our innovative approach in dealing with SWARF / Fly Rust, which is caused from hook up, commissioning, grinding and cutting activities offshore. Fine metal particles which are carried by the wind are transported to all structures on the platform, which causes many problems as they are generally hot when created and embed themselves into the coatings and rapidly amplifies and speeds up the corrosion process. The normal approach is to remove the coatings and reapply the protection system wherever it is affected, generally meaning a new coat is applied to the majority of the asset. Wescott, however, came up with a solution that allowed us to apply a product, leave it for 24 hours, scrub and high pressure wash the area to remove SWARF. This saved over 4000 of productive hours for our client, one month offshore and approximately £1,500,000.

All work carried out is supported by a three-year warranty.

### Scope of Work:

- Offshore painting works to topside and jacket.
- Rope access.
- Scaffold and contain designated areas for blasting and coating.
- Inspection and supervision.
- Mechanical and electrical change out.
- Logistics and project management

Category	Excellent	Good	Average	Poor
Overall Performance	X			
Technical Competence		X		
Health, Safety & Environment		X		
Delivery Performance	X			
Attitude	X			

### Client

Siemens Transmission & Distribution Limited

### Duration

March 2019 – August 2019

### Location

Offshore, North Sea, UK

### Value

£3,806,998

### Man Hours

81,381

### Services Provided

Surface Preparation & Coatings  
 Rope Access  
 Scaffolding  
 Rigging  
 Appointed Person  
 Mechanical  
 Welding  
 NDT  
 Electrical  
 Inspection & Supervision  
 Project Management

### Client Quote

"Wescott provided fully competent teams of men that were experienced in their respective fields of supervision, inspection, rope access, blasting and spraying. All work undertaken was completed to a high standard, meeting all project quality requirements. The level of professionalism and the manner in the way all personnel conducted themselves whilst working on this project is a credit to their management. The flexibility and willingness of management and site personnel to work with other parties on site was a real benefit in helping push this project to a completion through challenging times."

John Davidson, Project Manager



## OSY Belgium

Wescott Industrial Services were approached by Elia Engineering, in March 2019, due to our reputation within the renewables market and our expertise in completing the offshore hook up work scopes and warranty work scopes. We performed an inspection and compiled a recommendation report for the works.

Wescott performed part of these works on a lump sum basis and the other part on a reimbursable basis at the client's request.

We were awarded the works in mid-July 2019 just after the previous paint contracted was demobilised. Wescott started the works one week later after completing a very quick mobilisation.

Wescott performed the full delivery of these works in 45 days, using an average of 15 POB which comprised of a team of rope access painters, deck painters, inspectors and supervisor. We stayed on a jack up barge offshore to allow us to access the workface quickly and efficiently each day instead of utilizing CTV's or helicopters, which are prone to delays and downtime.

We again used our new innovative method of removing fly rust and swarf quickly and efficiently in order to reduce the time offshore due to simultaneous operations restrictions. We had to ensure our works were complete by 5<sup>th</sup> September 2019, to allow our client to perform cable pulling works in the field which we achieved comfortably. We were also able to complete a lot more work than originally scoped for due to our willingness to work during periods of bad weather in doors, and applying our innovative product to steel areas when raining which saved our client a lot of time and money. Our non-productive / downtime % on this project was under 5% for the whole time spent offshore.

### Scope of Work:

- Repair of mechanical damage, incomplete coatings, SWARF removal and poorly adhering coatings.
- Rope Access over side works.
- Jacket repairs.
- Containment and rigging.
- Specialised cleaning.
- Inspection and supervision.
- Project management.

### Client

Elia Engineering Limited

### Duration

July 2019 – September 2019

### Location

Offshore, North Sea, Belgium

### Value

€1,350,090

### Man Hours

7,992

### Services Provided

Coatings  
Rope Access  
Rigging  
Inspection  
Supervision  
Logistics  
Project Management

### Client Quote

"In general, very good performance from Wescott on the Elia OSY Project.

The works were executed in line with the technical specification within time, below estimated budget and with good HSE awareness."

Pierre-Yves Guillermin, OIM/Offshore Platform Engineer

### Customer

Category	Excellent	Good	Average	Poor
Overall Performance		X		
Technical Competence		X		
Health, Safety & Environment		X		
Delivery Performance		X		
Attitude		X		



## DoWin Alpha

DoWin Alpha is a high voltage direct current platform which is designed to transmit offshore wind power to the mainland grid in Germany it has 800MW of power output. The topside measures 64m x 42m x 38m and weighs approximately 12,000 tonnes.

Wescott were contracted by ABB to perform the warranty repair work scope as identified by an independent, third party paint integrity inspection. The repairs were required around the entire platform topside, underside and jacket. We utilised an alternative access solution for the underside of the platform in the form of Web Netting. Wescott installed web netting to the underside that provided a safe working platform to perform the repairs which allowed our client to also access and view the area along with reducing the requirement for a costly safety boat which saved our client in the region of €500,000 over the course of the campaign. We also utilised a mix of scaffolding and rope access to techniques to access walkways, jacket, boat landings, cranes and helideck.

One of the biggest challenges we have faced with this project is the scope growth due to the quality of the survey and when this was performed. To tackle this, we utilized a SOLV classification system which allowed us to submit to the client multiple fixed lump sum prices per item. We would then perform a pre work assessment with the client and agree which category of SOLV (1 – 5) it should fall into, the works would then progress immediately and the client already had the price. This worked well as some areas did not require the level of works described in the report and others required more. This allowed us to not waste time offshore and instead allowed us to ensure we were continually working.

Wescott also utilized eco vapor blasting machines due to environmental restrictions. This method of surface preparation was welcomed by the client as the mix of water and garnet reduced airborne dust arising by more than 97% and also reduces the actual amount of blast media used thus reducing waste volumes. We also used closed loop blasting machines (eductomatic machines) on small areas where spot repairs are required. This machine recycles the blast media and removes all dust and arising using a closed loop vacuum ensuring nothing escapes into the environment.

### Scope of Work:

- Surface preparation and coatings to various areas of platform including the jacket and splash zone area.
- Rope access techniques to access over side, underside and install web netting.
- Installation and rigging of web netting system to provide safe platform system for personnel and client to access.

### Customer

Category	Excellent	Good	Average	Poor
Overall Performance	X			
Technical Competence	X			
Health, Safety & Environment		X		
Delivery Performance	X			
Attitude	X			

### Client

ABB / TenneT

### Duration

May 2017 – November 2019

### Location

German Sector North Sea, Germany

### Value

£6,498,563

### Man Hours

114,356

### Services Provided

Surface Preparation  
Protective Coatings  
Rope Access Painters  
Scaffold  
Rigging  
Logistics  
Supervision  
Inspection and QA

### Client Quote

"Wescott have provided a very good service to ABB and TenneT. They have worked closely with the onshore and platform management to ensure all works are coordinated carefully and in such a way to limit delays / disruption to the platform engineers. They are willing to perform alternative tasks when required and in period of weather delays. Their innovative approach to areas has been very welcome and provided great benefit to the project"

Michael Fors, Warranty Manager

# The Programme (Sharing in Growth)

# Our Journey



During the back end of 2020, We were made aware of a new, ambitious programme which had been developed by the Offshore Wind Growth partnership, ORE Catapult and Sharing in Growth to increase the competitiveness of the UK supply chain to access a larger share of the global renewables market.

The programme is a long term business transformation programme developed as part of the UK offshore wind sector deal. It is aimed at ambitious UK companies with a committed senior management team to improve productivity, efficiency and growth.

We were one of only two companies selected to take part of this pilot programme which was very exciting. We started the programme in February 2021. The first 3 months were very intense with a lot of scoping, digging and group sessions with senior management to identify our:

- Initial diagnostic activity
- Current culture
- Values
- What we do well
- What we don't do well
- Leadership styles
- Employee engagement
- Business strategy workshop (identify future focus areas / sectors / services etc.)

After we gathered all of the initial data and got everyone's opinions, we started on the next phase:

- Clarifying the strategy
- Creating a clear mission statement and setting our values
- Creating clear lines of communication, roles and responsibilities
- Creating strategic actions / visual road map
- Business development information centre 1
- Wind Energy Support Toolkit (WEST)



# What have we got out of it?



- Clear lines of communication which we implemented to our management team
- Improved efficiency in pre project planning, scoping and overall delivery of works
- Clear management and reporting structure allowing the directors to have more time to develop the business, implement strategic plans and identify improvement areas
- Identify areas where we needed to improve, bring in new people with certain skills and develop a culture in which our people can thrive, have an entrepreneurial approach to there work and have more accountability in delivering there job.
- Identified key targets, clients and projects and worked out where we fit in to the overall delivery schedule (WEST)
- Generated key metrics to identify areas of positivity and concern which allowed us to make changes
- X Matrix / visual map on actions and progress
- Developed our ambition plan and targets
- Developed strategic plans to win work
- Created clear mission statement and values



# Support from ORE Catapult



During our journey we have received huge support from Sharing in Growth who are delivery provider. They have been excellent in their approach and we have found this programme extremely useful. It has helped us highlight numerous things which we couldn't see before hand and allowed us to develop an ambitious growth strategy to go from a circa £9m UK turnover business to a circa £30m UK turnover business within the next 5 years.

We have regular 100 day reviews with ORE Catapult (Lynne McIntosh-Grieve) where we run through everything we have done in the previous 100 days and provide an action plan for the next 100 days. During these sessions we cover in detail what we have gained from the programme and Lynne and her team help us with the development and roll out of these actions. They also assist with introducing us to other companies, training opportunities and guidance workshops which have greatly assisted us in developing our capabilities and growth in the offshore wind sector.

Thank You

O&M Subgroup



# Q&A Session

