Building the UK's offshore wind supply chain

Our support programmes and company case studies

Offshore Wind Growth Partnership

Unlock Develop Accelerate

Contents

> “Working with OWGP has been a great experience both logistically, and from an industry engagement perspective. We have had access to industry support throughout the duration of our project, helping to make sure that we develop products that are fit for the market.”

SAM MAYALL, CEO, Zelim

Building the UK's offshore wind supply chain

Who are we?

The Offshore Wind Growth Partnership (OWGP) is a long-term business transformation programme, established as part of the UK Offshore Wind Sector Deal. Working to promote closer collaboration across the supply chain, implementing structured productivity improvement programmes and facilitating shared growth opportunities between developers and the supply chain.

Over the next 10 years delivery will focus on direct support to supply chain companies through a combination of expert business support services and grant funding. ORE Catapult will manage the delivery of OWGP with support from specialist delivery partners.

OWGP is a £100 million programme to accelerate growth in the UK's offshore wind supply chain.

Our aims

Increase UK content in UK offshore windfarms

Increase exports

Increase economic value (jobs and GVA)

Increase UK IP embedded in the supply chain

Providing support through two major initiatives

Grant Funding Competitions

We award funding grants of up to £1 million to UK companies to develop new products and services, build new capacity and increase capability in the Offshore Wind sector.

Business Transformation Programmes

We offer a suite of business support programmes which support companies at different stages of their journey within the Offshore Wind sector to realise increased impact, productivity and growth.

Our progress so far...

Over £14 Million

awarded to UK companies through **grant funding** and **business transformation** programmes.

213

projects supported

Supported the creation of

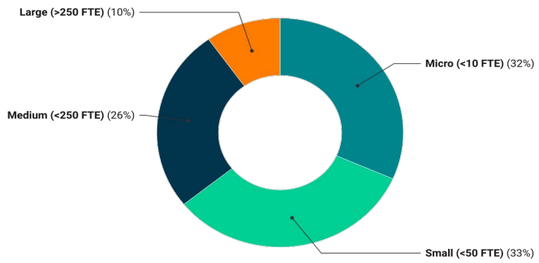
over 240

jobs in **offshore wind**

Who do we support?

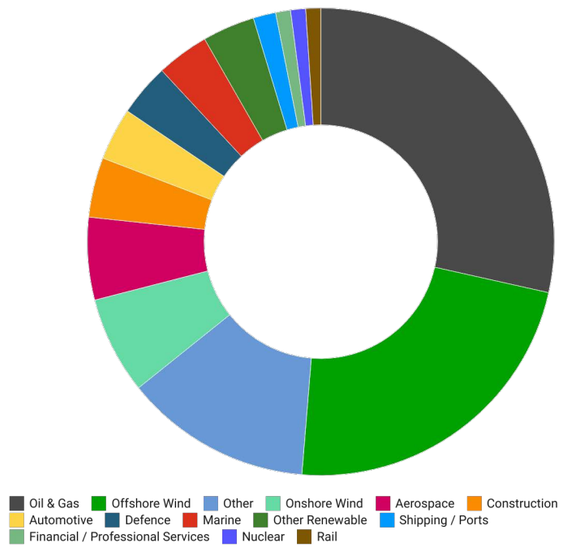
Supported Company Size

Supported companies can be of any size or stage within their Offshore Wind journey.



Primary Sector of supported company

OWGP programmes are for companies already operating in Offshore Wind, as well as those seeking to transition into the sector.



> "We came out the other end of WEST knowing exactly what we had to do to position ourselves. There was so much more opportunity for us in Offshore Wind that we hadn't realised from doing our own research."

WAYNE HENDERSON
Managing Director, MAREX

OWGP Support

Grant Funding

OWGP run a pipeline of funding competitions to identify high-growth UK companies and award funding on a competitive basis. Our funds are designed to support transformative projects that will enhance competitiveness, drive innovation, and stimulate growth in the UK's Offshore Wind supply chain.

We encourage applications from existing supply chain companies and those looking to diversity from adjacent sectors.

Development Grants £100K up to £1M

Large scale grants for transformative projects delivering a step-change in company growth.

Innovation Grants £25K to £100K

Smaller scale grants for game-changing projects that deliver new innovative technologies, products and services to the sector.

> "It's hugely helpful to have a dedicated source of funding to bring innovative ideas to life for the Offshore Wind industry. Without OWGP's support, it would have taken much longer to develop our product."

TY BURRIDGE-OAKLAND
Founder and Managing Director
Cognitive

Talk to our Grant Funding team

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FIND OUT MORE Visit owgp.org.uk/about/grant-funding

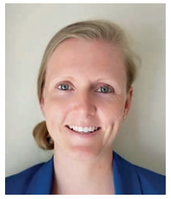
OWGP Support

Business Transformation

OWGP offers a suite of Business Transformation Programmes which will support companies at different stages of their journey within the Offshore Wind sector to realise increased impact, productivity and growth.

Working with strategic partners and industry experts, our programmes provide access to a range of support services for companies of different levels of maturity. Programmes are for companies already operating in Offshore Wind, as well as those seeking to transition into the sector.

Talk to our Business Transformation team



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Matt Brown
OWGP
Junior Project Manager
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OWGP Business Transformation Programmes

Wind Expert Support Toolkit (WEST)

Our short term Business Transformation Programme designed to give you strategic clarity through the provision of specialist advice, market intelligence and insight into the Offshore Wind sector.

- **Bespoke to your company**
- **Short term commitment**
- **Specialist advice and market intelligence**

WEST

Fit 4 Offshore Renewables

A medium intensity support programme designed specifically to help the UK supply chain prepare to bid for work in the offshore renewables sector.

- **Medium intensity**
- **Specialist advice**
- **A focus on preparation for bidding**

F4OR Fit For Offshore Renewables

Sharing in Growth Offshore Wind Programme

Our most intense programme suited to ambitious UK companies looking to accelerate growth in the Offshore Wind sector.

- **High intensity**
- **Long-term commitment**
- **A focus on accelerating growth**

SHARING IN GROWTH

FIND OUT MORE Visit owgp.org.uk/about/business-transformation-programmes

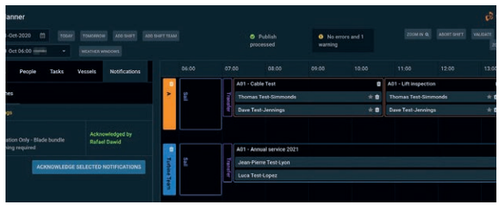
A centralised cloud-based system to manage offshore wind operations.

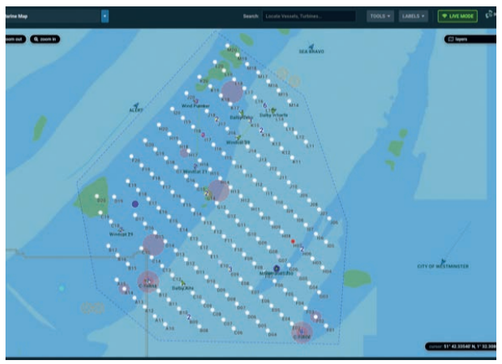
Business profile

- Software developer.
- Operating in other renewable sectors.
- < 10 employees.

Support received

GRANT FUNDING





Sennen successfully won grant funding to develop its core technology, expanding its capabilities as a management tool for single site windfarm operations to cover multi-site operations. This is a key development to enable the business to scale.

Impact of the support

- **Propelled the business to win contracts with large portfolio operators.**
- **Helped to double the company's turnover in a year.**
- **Increased company size by a third.**

A closer look at Sennen

Sennen provides software for renewable energy market leaders putting data at the heart of its asset management strategy.

Sennen delivers a software system that is fully scalable across wind farm operations of all sizes and is a market leading solution in improving the operational efficiency and safety of wind farms.

Market leading software for multi site offshore wind operations.

Improves operational efficiency and safety of offshore wind operations.

Selected by EDF Renewables for its global offshore wind portfolio.

How did OWGP's support propel Sennen's business into the Offshore Wind sector?

Before

In early 2020, Sennen knew there was an urgent need for its technology in the Offshore Wind sector. Wind farm operators with multi-site operations were using multiple management tools to monitor their sites and struggling to obtain a detailed overview of their operations. Swamped with incomparable data, it was complicated and time consuming for operators to understand where they should focus resources to mitigate losses and improve operating efficiency.

The marketplace was flooded with technologies that solved problems in isolation, but no single provider was able to give operators sight of the big picture. Sennen knew how to do this but sought a cash injection for the business to develop its technology to offer multi-site capability.

During

OWGP provided Sennen with two separate funding grants over a 12-month period.

The first grant in 2020 of £37,000 enabled Sennen to initiate – in partnership with a large offshore wind farm – development of a ground-breaking system to measure and minimise lost production from turbine downtime. This project gave Sennen the opportunity to showcase its technology and win a critical contract with a major utility.

A second grant in 2021 allowed Sennen to develop its offshore management system to perform across multi-site wind farm operations and provide a competitive management solution for wind farm operations of the largest scale.

After

The funding support Sennen received from OWGP has been a catalyst for significant business growth.

In the same year as awarding Sennen the second grant fund, the company secured a contract with European energy giant EDF Renewables.

> "OWGP's grant funding has been critical in moving our business forward. It enabled us to commit to the project and get prototypes into the hands of the big utilities. We have been able to test our hypothesis while cushioning the risk. We're now winning contracts with large scale operators as a result."

GABY AMIEL
Co-Founder and CEO, Sennen

www.sennen.tech

Offshore Wind Growth Partnership

Driving safety and efficiency in operations and maintenance through applied AI technologies.

Business profile

- **Engineering, machine learning, software, and industrial internet of things (IIOT) company.**
- **Applied-AI specialists.**
- **Scale-up > 10 Employees**

Support received

GRANT FUNDING

BUSINESS TRANSFORMATION PROGRAMME – WEST

Cognitive successfully won grant funding from OWGP to develop its core technology and sought to undertake the WEST business transformation programme, which helped to build a long-term future for the business within the Offshore Wind market.

Impact of the support

- **Enabled Cognitive to develop its core technology product, WAVES.**
- **Secured contracts, now supporting 6% of the UK's Offshore Wind capacity.**
- **Developed a product roadmap to expand the business.**

A closer look at Cognitive

Cognitive provides machine learning technology targeting improvements in forecasting, safety, reliability, production, and performance of assets across the energy industry.

Cognitive's leading product for the Offshore Wind sector, WAVES, serves to make the maintenance of Offshore Wind assets safer and more efficient through the use of AI.
A particular area where WAVES provides assistance is in the planning of crew transfers. The machine learning assists with ensuring transfers happen at the optimum time to ensure maintenance crew's safety.

Supporting 6% of the UK's Offshore Wind sector.

WAVES saves wind farms over £1M per GW annually.

Technology improves operations and maintenance and health and safety.

How did OWGP's support propel Cognitive's business into the Offshore Wind sector?

Before

Cognitive was founded in 2018 by three ex E.ON and Uniper employees with the goal of advancing machine learning capabilities, to drive efficiency and safety in the energy sector.

The team at Cognitive had the passion, the expertise and the skillset needed to make their vision a success, but they lacked funding to build products like WAVES. The team found OWGP through the Offshore Renewable Energy (ORE) Catapult network and successfully applied for two rounds of grant funding support.

During

In 2019, OWGP awarded Cognitive £70,000 to develop the WAVES technology and upon successful completion of its beta product, the business was awarded a second grant in 2020 of £57,000 for further innovation to access wider markets.

The Cognitive founders recognised that they would benefit from sector specific business development support and successfully applied to join the three-month OWGP business transformation programme, WEST.

During the programme Cognitive worked on a one-to-one basis with OWGP's consultant partners to analyse each of the Offshore Wind markets it was planning to enter, and explored other opportunities in Offshore Wind to inform and develop a long-term product roadmap and business strategy.

After

The early-stage funding and business development support provided by OWGP enabled Cognitive to get its WAVES product from concept stage to minimum viable product (MVP), with a clear go-to-market strategy.

Cognitive went on to secure a contract with RWE to develop its WAVES technology further and, at time of writing, WAVES is supporting 6% of the UK's Offshore Wind capacity.

> "It's hugely helpful to have a dedicated source of funding to bring innovative ideas to life for the Offshore Wind industry. Without OWGP's support, it would have taken much longer to develop the WAVES product."

TY BURRIDGE-OAKLAND
Founder and Managing Director, Cognitive

www.cognitive.business

Offshore Wind Growth Partnership

Case Study: CASC

Site mobilisation services, component design and manufacture for the renewables and engineering sectors.

Business profile

- **Small start-up maintaining business throughout the global pandemic.**
- **Already operating in the Offshore Wind sector, predominantly in site mobilisation.**
- **Seeking new equipment to increase breadth of offering to clients.**

Support received

GRANT FUNDING

BUSINESS TRANSFORMATION PROGRAMME – WEST

CASC used the funding from OWGP for a capital expenditure purchase of two pieces of manufacturing equipment critical to expanding the company's engineering capabilities. The tube laser allows CASC to work with 3D metal profiles to manufacture structures such as staircases and platforms, while the secondary flatbed laser further improves CASC's capacity to manufacture components for site operations.

Impact of the support

- **Enhanced the company's offering by expanding its engineering capablities.**
- **Unlocked potential of export market.**
- **Created 120 jobs.**

A closer look at CASC

The new equipment will facilitate CASC's growth plans within Offshore Wind by allowing the company to offer clients a more diverse range of products and services, such as frames, platforms and walkways. It will also boost CASC's exports by increasing the company's capacity to quickly resolve issues on site through the provision of its own manufactured components.

Tube lasers save up to 83% manufacturing time in comparison to traditional manufacturing methods.

Improved precision, versatility and efficiency of laser cutting saves costs for clients.

In-house capabilities to design, manufacture and install both flat and 3D profiles of various materials up to 200mm thickness.

How did OWGP's support propel CASC's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, CASC had a strong reputation in Offshore Wind having already worked on multiple projects in the sector. Encouraged by consultations with original equipment manufacturers (OEMs) and in line with the company's growth plans, CASC was seeking to upscale the scope of its offering beyond site mobilisation to include the design and manufacture of components for the sector.

During

Having approached OWGP for the competitive Development Grant in November 2020, CASC secured the funding in March 2021 and purchased a tube laser and flatbed laser to complement the company's existing suite of cutting tools. The new equipment arrived and was installed in January 2022.

After

With a more diverse portfolio of products and services, CASC is now well positioned to secure projects of enhanced scope. The company has already manufactured and delivered components made by the new equipment to Offshore Wind customers across the globe, and is experiencing growing demand. CASC now has an unrivalled suite of technology, featuring a range of cutting, friction drilling and tapping benefits ideal to meeting the needs of the global Offshore Wind sector.

> "We are an ambitious and driven company with extensive growth plans in Offshore Wind energy. The funding from OWGP has helped us take the next vital step in our development – ensuring we stay relevant and viable in a fiercely competitive, rapidly changing sector."

KARL CROCKARD
Managing Director, CASC Limited

www.casconline.co.uk

Offshore Wind Growth Partnership

Case Study: Zelim

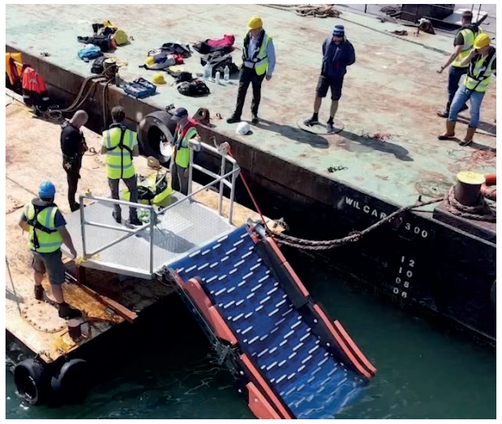
The world's first unmanned and semi-autonomous rescue vessels.

Business profile

- **Developing solutions for the safety of mariners.**
- **Start-up in technology development phase.**
- **< 15 employees.**

Support received

GRANT FUNDING



Zelim won grant funding from OWGP to undertake commercialisation tests of its patented overboard recovery solution, enabling the business to secure customer demonstrators with both a crew transfer vessel (CTV) operator and an offshore wind farm owner operator, and deepen its relationship with wind farm original equipment manufacturers (OEMs).

Impact of the support

- **Completed proof of concept for next generation person overboard detection system.**
- **Established a safety case for the technology in an operational Offshore Wind farm.**
- **Raised the company's profile within the Offshore Wind industry and potential investors.**

A closer look at Zelim

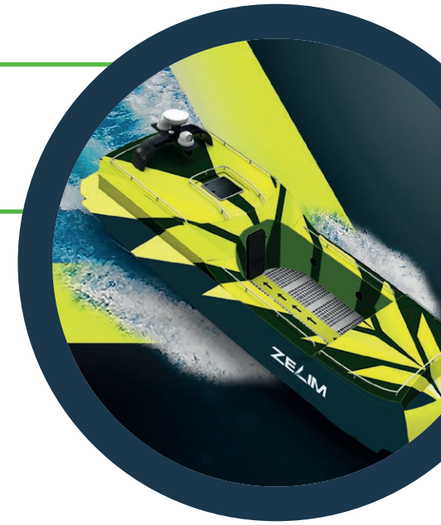
Zelim's patented overboard recovery system sets a new benchmark in safety, providing the ability to recover people from the water in seconds with a single operator. Where other solutions are slower at getting people out of the water and challenging to operate alone, Zelim provides unrivaled speed and single handed or autonomous solutions.

Immediately deployable unmanned rescue crafts reduce risk to rescue crews.

Deliver blanket health and safety coverage across a wind farm.

Frees up resources for operations and maintenance activity.

How did OWGP's support propel Zelim's business into the Offshore Wind sector?



Before

Prior to working with OWGP, Zelim had engaged with other enabling organisations and programmes to support growth in Offshore Wind such as ORE Catapult's Launch Academy and had successfully secured innovation funding to support earlier stages of the technology's development.

During

With OWGP's support, Zelim completed commercialisation testing of its patented overboard recovery solution which enabled the business to create evidence of the technology's capabilities and impact. This evidence was instrumental in Zelim's communications and business development work to secure customer demonstrators with both a CTV operator and an Offshore Wind farm owner operator and deepening Zelim's relationship with wind farm OEMs.

After

Upon completion of the project, Zelim reached technology readiness level 8 (TRL8) with its technology, a critical step in the pathway to commercialisation. Zelim found that its association to OWGP provided significant credibility in the Offshore Wind market, raising its profile within the industry and with potential investors.

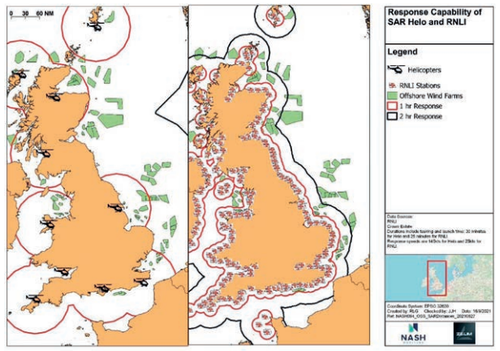


Figure 7: Response Capability of SAR Helo and RNLI.

> "Working with OWGP has been a great experience, both logistically and from an industry engagement perspective, where we have had access to industry support throughout the duration of our project; helping to make sure that we develop products that are fit for the market.
>
> Overall, we are looking to continue and deepen our relationship with OWGP and would encourage any other companies looking to get into Offshore Wind to apply."

SAM MAYALL
CEO, Zelim

www.zelim.co

Offshore Wind Growth Partnership

Case Study: Apollo

Engineering company delivering design and consultancy services to help accelerate the transition towards a low carbon economy.

Business profile

- **10+ years of company history with a strong track record in Offshore Wind.**
- **Significant experience in fixed-bottom structures.**
- **Looking to transition into services for Floating Offshore Wind.**

Support received

GRANT FUNDING

BUSINESS TRANSFORMATION PROGRAMME – WEST

OWGP funding supported an engineering design project to adapt Apollo's Pull and Lock Marine quick connection system (PALM) QCS – a quick-connect device used to attach moorings and electrical systems in wave energy structures – for Floating Offshore Wind structures.

Impact of the support

- **PALM QCS product attained technology readiness level 4 (TRL4).**
- **Developed a clear strategy to progress to TRL6 and beyond.**
- **Insight into the cost benefit of the PALM QCS and identification of target markets.**

A closer look at Apollo

The connection and disconnection of the moorings and cables that anchor floating platforms to the seabed are a high-cost area in the Floating Offshore Wind market. Required at mobilisation, demobilisation and during repairs, the cost – including the resulting interruption in power generation – is substantial.

The quick connection mechanisms of PALM QCS offer an efficient way for platform operators to reduce costs and improve reliability, without the need for specialised boats and handling equipment, hydraulics or motion correction. The PALM QCS provides a scalable, robust device which reduces the levelised cost of energy (LCOE).

Improved reliability and speed of connection and disconnection of offshore energy devices.

Reduced time and cost for installation, disconnection and maintenance.

Reduced LCOE.

How did OWGP's support propel Apollo's business into the Offshore Wind sector?

Before

With a 10-year history in delivering engineering solutions for fixed bottom Offshore Wind structures, Apollo was developing its service and product offering to cater for the growing Floating Offshore Wind market. Apollo's own research suggested that quick-connect and release devices would be required for Floating Offshore Wind installations as a strategy for reducing the LCOE. Prior to OWGP's support, Apollo had been developing an innovative new device, the PALM QCS, to enable quick connection of mooring and electrical systems for floating wave energy developers.

During

Apollo secured funding via OWGP's Cross-Sector Call 2020 to undertake a research and design project to adapt its PALM QCS product to work with an existing product on the market, Floating Power Plant's (FPP) hybrid wind to wave converter. This was with a view to improving the costs and reliability of connection and disconnection in the Floating Offshore Wind sector. The concept design was supported by engineering calculations and the project concluded with the delivery of a commercialisation report.

After

As a result of the project, Apollo gained a deeper understanding of existing connector technology which led the company to develop the market positioning strategy for PALM QCS as an LCOE reduction tool for Floating Offshore Wind farms. Apollo also has a clearer vision of the product's scalability and cost benefit offering to its target market. The resulting concept from the design project attained TRL4, with a clear strategy for progressing to TRL6 and beyond.

> "We knew that we had a concept with strong potential for floating renewables. The OWGP project allowed us to demonstrate how it can reduce installation and operating costs in floating offshore wind, while identifying the technology drivers, market opportunity and route to technical readiness. With this sound basis we are excited to be developing the PALM QCS for Scotwind, INTOG and other forthcoming deployments in the UK."

NIGEL ROBINSON
Offshore Renewables Director, Apollo Offshore Engineering

www.apollo.engineer

Offshore Wind Growth Partnership

MAREX

Enterprise risk management for the energy and marine sectors.

Business profile

- **Concentrated on a single market and region – UK oil and gas.**
- **Unsure of a positioning strategy to enter the Offshore Wind sector.**
- **< 10 employees.**

Support received

BUSINESS TRANSFORMATION PROGRAMME – WEST

Marex undertook the WEST business transformation programme and received tailored support from a market specialist delivery partner. Through one-to-one consultancy over three months, Marex developed a re-positioning strategy to help the business enter the Offshore Wind market.

Impact of the support

- **Developed a tactical plan to re-position the business for new markets.**
- **Successfully diversified and currently winning contracts in the Offshore Wind sector.**
- **Confidence in the long-term business trajectory, currently exploring international opportunities for growth.**

A closer look at Marex

Marex is a leading safety, environmental and marine consultancy which has built a strong reputation within the oil and gas sector and is now providing services within the renewable energy market.

Considered as the market leader for the compilation of safety case, HSE case and risk assessment services, Marex has been delivering risk management consultancy for over 20 years. The team have expanded their services and offer complete marine and risk consultancy across Offshore Wind, wave and tidal energy and the broader marine energy sector.

- A leading safety, environmental and marine consultancy.
- Winning work in the Offshore Wind sector within six months of OWGP's support.
- Recently awarded marine services contract for East Anglia ONE windfarm.

How did OWGP's support propel Marex's business into the Offshore Wind sector?

Before

Prior to OWGP's support, Marex was solely operating within the UK's oil and gas market but was eager to diversify and enter the UK's burgeoning Offshore Wind sector.

Marex's team could see that the market needs within Offshore Wind were a great match for their services but felt unsure as to how to transition the business into this market and how to best align its services with the sector's needs to win new customers.

During

In its search for support, Marex was connected to OWGP through Scottish Enterprise and undertook OWGP's three-month business transformation programme, WEST.

The WEST programme involves one-to-one business consultancy from an OWGP partner and is designed to support the growth of any UK supply chain company wishing to enter or grow in the UK's Offshore Wind sector through the provision of specialist advice, market intelligence and insight.

For three months, Marex met its consultant every few weeks and explored sector opportunities together, and mapped out a transition strategy for the business.

After

Marex completed the WEST programme with a tactical plan to execute, and within six months, had successfully secured new business within the Offshore Wind market.

The business has recently been awarded the marine services contract for the East Anglia ONE windfarm off the Suffolk coast and has opened a new office in Lowestoft to support regional growth – a milestone achievement in its progress to diversify into green energy.

Marex are building confidence, capabilities and a bright future pipeline within the Offshore Wind sector.

> "We came out the other end of WEST knowing exactly what we had to do to position ourselves. There was so much more opportunity for us in that sector that we hadn't realised from doing our own research."

WAYNE HENDERSON
Managing Director, Marex

www.mmass.co.uk

Offshore Wind Growth Partnership

verlume

A leader in intelligent management and energy storage technologies for the energy industry.

Business profile

- **The company's core technology had recently become commercialised.**
- **Active in the marine renewables and oil and gas sector, looking to expand into Offshore Wind.**
- **Saw an opportunity to improve energy storage in marine renewables.**

Support received

GRANT FUNDING

Verlume successfully secured grant funding from OWGP's 2020 Cross Sector Support Call and were paired with delivery partner Xodus, a leading offshore energy consultancy providing technical, engineering and commercial support. Verlume and Xodus worked together for nine months to investigate how Verlume's technology could be applied to the Offshore Wind market.

Impact of the support

- **In a position to approach industry with a clear solution.**
- **Now engaged with a number of operators to assess opportunities for their technology in Offshore Wind farms.**
- **Built credibility and relationships with key contacts in the sector.**

A closer look at Verlume

Verlume's Halo technology is a scalable, modular battery energy storage system with integrated intelligent energy management, specifically developed for clean power delivery in the demanding underwater environment.

The funding enabled Verlume to develop the technical specification for an Intelligent Wind Energy Storage (IWES) platform. This will be a battery energy storage solution, packaged for the harsh offshore environment, subsea or within the tower or substation, a much needed solution to transition offshore wind farms away from diesel generators.

Intelligent energy management and energy storage technologies for the energy industry.

Underwater, offshore and onshore solutions.

Decarbonising energy operations.

How did OWGP's support propel Verlume's business into the Offshore Wind sector?

Before

Prior to OWGP's support Verlume, formerly EC-OG, was exploring the wider offshore renewables sector, specifically looking at ways in which its technology could bring efficiencies and mass decarbonisation in the sector.

Verlume was confident that there was a significant opportunity for its business in the Offshore Wind space for its already commercialised energy storage systems but sought deeper market insight and funding to further identify a use case.

During

Over nine months, Verlume and Xodus worked together to bet-ter understand how Verlume's Halo technology – a scalable, modular battery energy storage system with integrated intelligent energy management, specifically developed for clean power delivery in the demanding underwater environment – could be used in the Offshore Wind market.

With Xodus's market and engineering expertise, the company focussed on how Verlume's technology could be applied, what the business case was and the fundamentals required to enable Verlume to confidently approach potential customers in the Offshore Wind sector.

The project culminated in a report which found that the Verlume energy storage system could be utilised as an alternative for diesel backup generators for Offshore Wind sites. Systems would be able to charge up when there is an excess of wind and then discharge when there is no wind. The report highlighted that the work being carried out was needed for the sector, and commercially highlighted areas of the system that needed to be optimised.

After

Following the technology investigation work conducted with Xodus through the OWGP funding call, Verlume was in a strong position to approach new customers in offshore wind.

The success of the technology investigation work was exemplified when Verlume won RWE's first international Innovation Competition in June 2022. As a winner within the System Integration category, Verlume's technology was identified as being innovative as a means of matching supply and demand, optimising the system integration of offshore wind into the energy grid.

> "With Offshore Wind being an important target growth market for our business, the Offshore Wind Growth Partnership's programme has been fundamental for building our credibility in this area and has helped to facilitate relationships with key contacts at wind operators."

RICHARD KNOX
Managing Director, Verlume

www.verlume.world

Offshore Wind Growth Partnership

Case Study: EchoBolt

EchoBolt

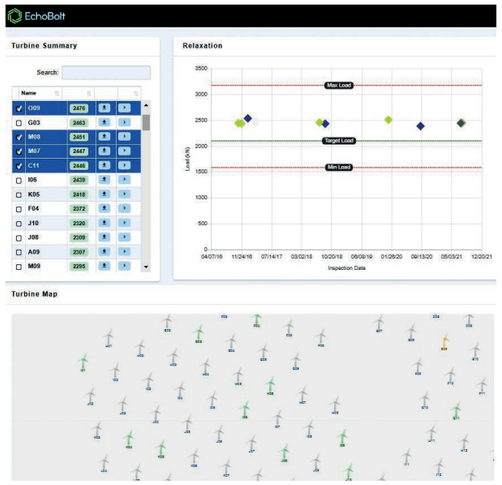
Engineering firm and leading provider of fastener inspection services to the wind sector.

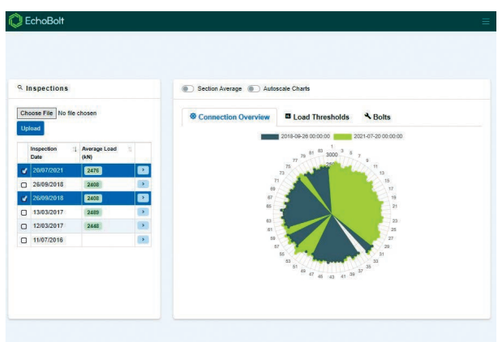
Business profile

- **Start-up already operating in Offshore Wind sector.**
- **Undertaking research and design of BoltWatch software technology.**
- **Actively seeking a different delivery model to bring BoltWatch to a larger market.**

Support received

GRANT FUNDING





The funding enabled EchoBolt to develop a customer version of its bolt integrity analysis software, BoltWatch, giving customers immediate visibility of asset health. Working with energy giant RWE's operations engineers, EchoBolt was able to design a tailored product specific to the needs of the Offshore Wind market and provide a platform to perform EchoBolt inspections at customers' sites.

Impact of the support

- **Commercial licensing of EchoBolt's ultrasonic bolt inspection software, BoltWatch.**
- **Expansion of contracts to cover more than 20% of the UK's Offshore Wind capacity in 2022.**
- **Estimated 30% increase in turnover for the next 12 months.**

A closer look at EchoBolt

Bolt tightening is the single biggest scheduled maintenance task in Offshore Wind operations. EchoBolt's innovative software, BoltWatch, removes this time-consuming and expensive process by allowing customers to view the status of their assets in real-time and retrospectively, using a digital analytics platform accessed via a cloud portal. Working with major players across the Offshore Wind sector, EchoBolt has drastically improved maintenance practices by removing costly re-torquing maintenance tasks, validating asset integrity and confirming the effectiveness of installation practices.

- Reduces maintenance costs of wind turbines by over 80%.
- Results in decreased downtime and higher revenue for operators.
- Improves operators' health and safety performance by reducing the duration of annual asset maintenance and eliminating risks with hydraulic tooling.

How did OWGP's support propel EchoBolt's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, EchoBolt was a start-up SME operating in the Offshore Wind sector. The company conducted routine on-site inspections for clients, followed by periodic reporting of asset integrity.

EchoBolt sought access to a larger share of the market with its ultrasonic inspection technology, BoltWatch – an internal data analysis software tool without a customer interface.

During

After securing funding through OWGP's grant funding programme, EchoBolt embarked on a project with ORE Catapult to conduct a market assessment and cost reduction analysis of its inspection technology, clearly identifying the requirements to facilitate a self-perform feature for customers as a value driver for its growth. Working with major players across the renewables sector including RWE and SSE Renewables, user requirements were mapped and software development targeted to overcome customer pain points, resulting in a software product truly optimised for the sector.

After

OWGP's support has been instrumental in enabling EchoBolt to expand in the offshore wind sector and license its services. The company has since won significant new business, now covering over 5GW of wind capacity and working directly for most of the leading offshore wind operators.

The EchoBolt team has continued to go from strength to strength, with a diverse workforce of fifteen employees covering site services, engineering, software development and business management.

> "Support from OWGP has been invaluable in supporting EchoBolt's growth. Through the development of the BoltWatch asset health platform, we can now support customers delivering EchoBolt technology directly, and have been able to embed our technology within strategic partner service offerings."

PETE ANDREWS
Managing Director, Echobolt

www.echobolt.co.uk

Offshore Wind Growth Partnership

Case Study: London Marine Consultants (LMC)

An engineering design company specialising in the design and provision of floating structures and mooring systems for the offshore industry.

Business profile

- **30+ years experienced and established in offshore oil and gas sector working for Tier 1 clients in EPC and consultancy.**
- **Successful transition into offshore renewables sector.**
- **Consulting for Tier 2 and 3 offshore wind developers, and principal designer for a number of FOW platforms.**

Support received

BUSINESS TRANSFORMATION PROGRAMME – WEST

LMC was matched to an OWGP delivery partner with the market intelligence to assist LMC in developing a new technology offering specific to the Offshore Wind industry, expanding its understanding of the differences between oil and gas and Offshore Wind customers. The partner also reviewed grants and funding applications to enable them to grow.

Impact of the support

- **Enhanced marketing materials to strengthen customer outreach.**
- **Secured highly competitive funding of £265,000.**
- **Improved LMC's market knowledge and commercial confidence.**

A closer look at London Marine Consultants

LMC is one of the few consultancies offering combined Engineering, Procurement and Construction (EPC) services, working all the way through offshore projects from initial design to manufacture and installation. By spanning the full lifecycle of a project, LMC provides unique insight into the risks and operational challenges which occur in a marine environment.

LMC is currently in the process of developing a 'plug and play' mooring system for Floating Offshore Wind which would enable de-coupling of an offshore mooring installation from the platform, thereby reducing risk, offering schedule advantage and contributing to reduced levelised cost of energy (LCOE).

Intelligent energy management and storage technologies for the energy industry.

Underwater, offshore and onshore solutions.

Decarbonising energy operations.

How did OWGP's support propel London Marine Consultants' business into the Offshore Wind sector?

Before

Before reaching out to OWGP, LMC had over 31 years of experience in the offshore market, primarily through its oil and gas heritage, and with such valuable and transferrable knowledge from a complimentary sector, had successfully transitioned the business to operate in the Offshore Wind market.

LMC was seeking OWGP's support to help the business take a step change in growth within the Offshore Wind sector by deepening its understanding of the market, developing its product offering specifically for the needs of the sector and looking at routes to market for those products.

During

OWGP paired LMC with its delivery partner, Lumen Energy & Environment, who developed a scope of activity based on LMC's needs.

The Lumen Energy & Environment team underwent a capability review with LMC and focussed on potential opportunities for the business based on its product and service offering with its unique dis-connectable buoy system. They worked together to devise a market entry roadmap and marketing and sales strategy to grow this area of LMC's business.

In addition to this, the Lumen Energy & Environment team also advised LMC on the funding landscape and public bodies which may be of benefit to the business.

After

A key outcome of OWGP's support was the deep awareness LMC gained of its current market position and the strategic direction and communication support to grow the business, particularly around its unique dis-connectable buoy system.

The market insight LMC gained from the programme spills into a high-level understanding of the pipeline of Offshore Wind projects, the tier system of engagement in the market and enabling it to spot wider opportunities for the business and have the confidence to engage with developers.

LMC has since been successful in winning funding through the highly competitive BEIS Floating Offshore Wind Demonstration Programme.

> "The WEST programme allowed us to optimise and refine our technical offering and understand our true position as developer engineers for the floating Offshore Wind market.
>
> During the business support programme we confirmed the market need for our product, devised a funding strategy for the necessary development stages and created a market entry plan. Since completing the programme, we have been successful in a bid application for funding as both a lead applicant and collaborator, which has helped us to establish our technology and reputation in the industry."

NICK PALMER
Director, LMC

www.londonmarine.co.uk

LEASK MARINE

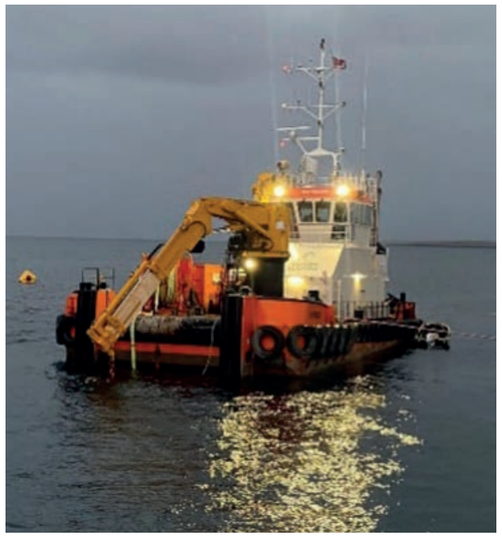
Construction and supply chain services for the marine renewables sector.

Business profile

- **Growing SME established in 1985, incorporated in 2005.**
- **Well established in the wave and tidal sector.**
- **Growing presence in the Offshore Wind sector.**

Support received

GRANT FUNDING



The funding from OWGP enabled Leask Marine to successfully demonstrate the operation of its submersible drilling rig and anchoring solution, and obtain third party verification validating the loads obtained. The results highlighted the opportunites for low-cost rock anchoring solutions in Offshore Wind, and confirmed the company's potential in the sector.

Impact of the support

- **Established the low-cost submersible drilling rig and anchoring solutions as a viable offering for the Offshore Wind sector.**
- **Verified the holding capacities of piled anchor solutions.**
- **Advanced discussions with several Offshore Wind clients for drilling operations in the next 18 months.**

A closer look at Leask Marine

Leask Marine idenitified a gap in the market for a low-cost submersible drilling rig used to install medium-sized anchors for floating Offshore Wind turbines. Operable from smaller vessels and platforms and suited to harsh marine environments, the technology significantly reduces installation costs compared with conventional drilling techniques. Fitted with its own control cabin and workshop for ease of operations, the submersible drilling rig can be shipped anywhere in the world.

Subsea regions that have previously been ignored due to unsuitable ground conditions may be opened up for development through use of Leask Marine's submersible technology.

Significant reductions in the levelised cost of energy (LCOE) at sites with hard seabed conditions.

The submersible drilling rig can be shipped anywhere in the world.

Operable in water depths of up to 90m.

How did OWGP's support propel Leask Marine's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, Leask Marine had built a submersible drilling rig and designed a rock anchoring solution but had not yet tested them. Both had originally been designed for the floating wave and tidal sectors, but the company was now looking to establish the technology's feasibility in the Offshore Wind sector.

During

After securing funding through OWGP's grant funding programme, Leask Marine took part in a project to test and verify the capabilities of its submersible drilling and anchoring technology for Floating Offshore Wind and understand its potential in the sector. The sector is still an emerging market, and the holding capacities of these devices were not well understood prior to the project. Discussions during the programme assisted in developing potential solutions in the short and medium term.

After

The successful outcome of the trials verified the technology as fit for use in Offshore Wind and improved Leask Marine's understanding of customer expectations in the sector, leading to engagement with potential clients.

> "Thanks to the support from OWGP we were able to achieve third party verification of the submersible drilling rig as well as install the first trial anchors. We achieved results faster, and improved our understanding of the challenges faced by the Offshore Wind sector, which has allowed us to engage with potential clients and discuss how we can optimise their subsea drilling operations."

JOHN MACLEOD
Commercial & HSEQ Director, Leask Marine Limited

www.leaskmarine.com

Offshore Wind Growth Partnership

Case Study: VRAI

Virtual reality (VR) for data-driven simulation training, improving performance in high hazard environments.

Business profile

- **Well established start-up with strong reputation in defence sector.**
- **Company was growing, attracting business and investment.**
- **No prior experience in Offshore Wind sector.**

Support received

GRANT FUNDING

OWGP's funding enabled VRAI, in partnership with Durham University, to understand market segments and customer needs in the Offshore Wind sector. VRAI developed a VR training simulation prototype for the Offshore Wind market with industry expertise from Vestas and Port of Blyth Training Services.

Impact of the support

- **Developed a VR fire awareness training simulation prototype.**
- **Attracted further investment.**
- **Expanded staff in the North East of England by 60%.**

A closer look at VRAI

172,000 more people will need to be trained to Global Wind Organisation (GWO) standards to meet the market demand over the next five years. VRAI's VR training creates immersive training environments which accurately replicate the reality of working offshore. Technicians can learn and test safety and technical skills in a controlled but realistic environment before experiencing it in reality.

VRAI's training can be undertaken almost anywhere using a portable headset and removing constraints of access to equipment or instructors, making it ideal for deploying standardised training on a global scale.

VR training tailored specifically to the Offshore Wind industry.

Data capture and insights allow trainers to assess progress and improve outcomes.

A pay-as-you-go model, removing the cost barrier of developing bespoke VR training.

How did OWGP's support propel VRAI's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, VRAI was a well-established start-up with clients in a range of sectors including defence and aviation. Motivated to support the global transition to renewable energy, VRAI identified the Offshore Wind market as an exciting new business opportunity, recognising VR training would be ideal in this environment and was not yet widely in use.

Forming a partnership with Simon Hogg, Ørsted Professor in Renewable Energy at Durham University, and Evelyn Tehrani, Durham Energy Institute, VRAI applied to the OWGP Cross Sector Call in 2020 for grant funding. VRAI's goals were to use the funding to conduct a training needs analysis, develop relationships with subject matter experts, and create a VR training module prototype aligned to one of the GWO training standards.

During

Following a successful bid for funding, VRAI conducted an extensive analysis of the industry's training needs through discussions with training bodies, original equipment manufacturers (OEMs), developers, technicians and academic groups. With subject matter expertise provided by Vestas and Port of Blyth Training Services, the company identified fire awareness training as an appropriate module to develop.

A VR training prototype was developed through an iterative process involving frequent testing and validation with potential users to gain feedback. The authenticity of the VR environment was a high priority, so VRAI worked with TEXO, which conducted a 3D scan of the Port of Blyth training nacelle to ensure it was as accurate as possible.

After

The OWGP grant enabled VRAI to develop invaluable connections within the industry and to develop a functional VR fire awareness training prototype with which to attract investment and partnerships on additional training content.

Offshore Wind is now a major component of VRAI's business, enabling the company to expand its staff cohort in the UK fivefold since receiving OWGP support.

> "Working with OWGP has been hugely successful, opening up a whole new sector for our business. The results have enabled us to secure further investment and new industry relationships to develop additional training content and applications for data capture and analytics. We're very excited about the opportunities ahead."

FRAN MCNULTY
Sustainability Lead, VRAI

www.vraisimulation.com

Offshore Wind Growth Partnership

Case Study: JBS Fabrication, part of JBS Group

JBS GROUP

Global provider of subsea excavation, fabrication and engineering, blast containment and screw conveyor services.

Business profile

- **Established in the defence and oil and gas sectors.**
- **50-year company history and global track record.**
- **Well-known for its seabed excavation product, the patented Sea Axe ™.**

Support received

BUSINESS TRANSFORMATION PROGRAMME – WEST

JBS Fabrication was matched with OWGP's delivery partner, Everoze, which helped the business to identify its products with applications in offshore renewables. Everoze also provided a comprehensive breakdown of the market, advice on how best to position the business, and the key players to approach nationally and internationally.

Impact of the support

- **Increased market knowledge and commercial confidence.**
- **Developed a strategy to target the offshore renewables market.**
- **Enhanced exposure to the sector and informed marketing advice.**

A closer look at JBS Fabrication

JBS Fabrication's patented Sea Axe ™ product for controlled-flow subsea excavation incorporates a state-of-the-art vortex chamber which applies a large controlled water column to the seabed. Through a process that uses natural erosion rather than the traditional method of high pressure jetting, the tool can be used for burying or de-burying assets, seabed levelling, rock dump removal and free-span corrections. The advantages over traditional high pressure jetting methods are numerous and include reduced environmental impact, vessel time and required deck space, and increased flexibility, efficiency and precision.

- Patented product, Sea Axe ™, has direct applications in Offshore Wind.
- Sea Axe ™ is the most environmentally friendly subsea excavation tool available; even the oil used by the hydraulic system is eco-friendly.
- Fabrication business unit is well-positioned to exploit opportunities in the Floating Offshore Wind market.

How did OWGP's support propel JBS Fabrication's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, the offshore renewables sector was a new market for JBS Fabrication, accounting for only 2% of revenue in 2020. The company had secured two offshore wind contracts but had not proactively targeted the sector, and had minimal understanding of the market and where its services and products would fit. Following its collaboration with OWGP, the company is now growing in the offshore renewables sector with various project opportunities and bids in the pipeline.

During

Following its successful application, JBS Fabrication joined the WEST Programme in November 2021 and was paired with OWGP's delivery partner, Everoze, which provided a comprehensive and detailed breakdown of the sector, holding discovery sessions to allow a better understanding of JBS Fabrication's capabilities. Everoze identified the company's Sea Axe ™ as a 'hero product', highlighting it as being able to meet market demand and offering significant commercial potential.

After

A major outcome of OWGP's support was the provision of strategic direction and identifying the right customer sets. As one employee describes it, "Without the WEST programme we could have spent two years targeting the wrong people."

The programme also bolstered the company's understanding of the offshore renewables market more broadly, allowing it to identify where its products and services were relevant, particularly in relation to the Sea Axe ™, and the appropriate tiers in the supply chain it should be targeting.

JBS Fabrication also gained increased exposure and visibility in the offshore renewables sector and has since developed new marketing materials with which to approach the supply chain, highlighting both Sea Axe ™ and a range of other relevant applications within its fabrication business unit.

> "With Offshore Wind being an important target growth market for our business, OWGP's WEST programme provided us with invaluable knowledge and advice, and helped us facilitate relationships with key contacts in the industry. Without question, it accelerated our inroads to the market whilst empowering us to identify the best opportunities within our portfolio to add real value to this new arena."

JO MCINTOSH
Sales and Marketing Manager. JBS Fabrication

www.jbsgroupglobal.com

Offshore Wind Growth Partnership

Installation products for the Offshore Wind sector.

Business profile

- 10+ years of experience in the Offshore Wind sector.
- Annual turnover of £2M.
- 10+ employees.

Support received

GRANT FUNDING

BUSINESS TRANSFORMATION PROGRAMME – WEST

W3G Marine received an innovation grant to trial an automated, scalable production process to improve the commercial competitiveness of a key product within its portfolio of Offshore Wind installation tools.

Impact of the support

- **CAPEX assistance to undertake a production process trial.**
- **Product certified to industrial standards.**
- **Potential for 10-fold growth.**

A closer look at W3G Marine

W3G Marine is well established in the Offshore Wind sector with 10 years of experience providing engineering services and installation tools to the industry.

The company's inflatable packer is an innovative foundation stabilisation tool that has successfully been trialled at East Anglia One Offshore Wind Farm with a follow on contract successfully secured. W3G Marine needed to invest significant CAPEX to develop a manufacturing process if it was to sell this solution at scale and lead the market.

Trialling use of robotic welding machines.

Funding is developing a manufacturing process to increase product quality and help the company to scale.

Opportunity for 10-fold growth.

How did OWGP's support propel W3G Marine's business into the Offshore Wind sector?

Before

W3G Marine saw huge potential in a product within its range of Offshore Wind installation tools but was confronted with a large CAPEX investment to develop an automated manufacturing process.

As it stood, its Foundation Stabilisation Tool (FST) was proving popular with customers in the Offshore Wind sector, but the highly manual nature of the production process was stifling the company's ability to produce the product at scale.

W3G Marine needed to find investment if it was going to unlock huge growth for the company's future.

During

After coming across OWGP at an event at Strathclyde University in 2019, W3G Marine applied for an innovation grant and was awarded £54,000 in early 2020.

The funding is enabling W3G Marine to undertake a manufacturing trial to explore the use of robotic welding machines to drive down manufacturing costs, increase product quality and enable production at a significantly faster rate, all key improvements the organisation requires to scale.

After

The trials went well allowing W3G Marine to further develop and certify it's Foundation Stabilisation Tool to Industry Standard DNV-ST-0126 Edition 7-2018. In addition the FST has been demonstrated on the East Anglia Windfarm.

> "We couldn't have jumped on this opportunity to grow the business without the grant funding from OWGP. This cash injection has allowed us to innovate and explore the use of robotic welding to reduce our cost base, improve our quality and take on board more of the scope directly."

JOHN GILES
Technical Director, W3G Marine

www.w3gmarine.com

Offshore Wind Growth Partnership

Case Study: InterBolt

Intelligent bolt monitoring solutions to eliminate the need for periodic bolt inspections.

Business profile

- **Disruptive engineering start-up operating in multiple sectors.**
- **Growing SME, targeting Offshore Wind as a new sector.**
- **Actively seeking ways to develop InterBolt technology.**

Support received

GRANT FUNDING

OWGP's grant funding enabled InterBolt to develop its technology and conduct operational field trials to validate and optimise the product for use in the Offshore Wind sector, with support from the Offshore Renewable Energy Catapult (OREC) and Wood. The resulting case study from these field trials has helped the company to secure further operational field trials with other original equipment manufacturers (OEMs) and operators.

Impact of the support

- **Opportunity to successfully demonstrate the technology on an operational asset.**
- **Development of InterBolt technology to cater for larger bolts, common in the Offshore Wind market.**
- **Detailed case study enabled further field trials with other OEMs and operators.**

A closer look at InterBolt

Bolt inspection accounts for around 30% of the annual maintenance cost of Offshore Wind turbines. These inspetions carry significant health and safety risks for technicians operating at height and with cumbersome equipment. InterBolt is a novel sensor solution that integrates bolt load monitoring directly into bolts or threaded studs, providing accurate, real-time measurements remotely via an industrial internet of things (IIoT) network.

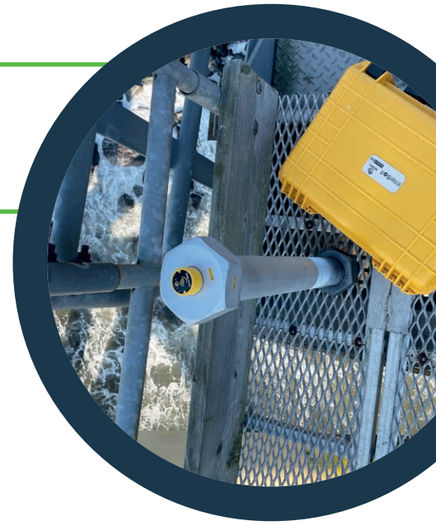
With remote bolt load monitoring, the mechanical integrity of bolted connections is measured autonomously, 24/7, 365 days a year. If a bolt begins to loosen, an alert is generated through the InterBolt Cloud system. This is sent to Operations teams who can then conduct any subsequent maintenance.
Ultimately the technology enables Operators to eliminate the need for periodic bolt inspection which leads to significant reductions in maintenance cost, asset downtime and H&S risks for technicians.

Reduces annual maintenance costs by up to 30% and levelised cost of energy (LCOE) by up to 7.5%.

Reduces health and safety risks and asset downtime.

Greater accuracy than competing technologies (97%).

How did OWGP's support propel InterBolt's business into the Offshore Wind sector?



Before

Before engaging with OWGP, InterBolt was a start-up organisation not yet operating in the Offshore Wind market. The company provided bolt integrity data to operators in the renewables, mining, oil and gas and construction sectors, allowing them to optimise their bolt maintenance and inspection activities. The company was seeking ways to enter the Offshore Wind market through the development of its InterBolt technology.

During

After securing funding through OWGP's grant funding scheme, InterBolt undertook a nine-month project to conduct the first operational field trials of its InterBolt technology in the Offshore Wind sector. The product design was then refined according to detailed feedback from wind turbine technicians, resulting in a complete bolt load monitoring system that is fully optimised for the sector.

After

OWGP's support enabled InterBolt to quickly progress through the government's recognised Technology Readiness Levels (TRLs).
InterBolt is now at TRL9, having undergone DNV-GL type approval. The technology is now being rolled out across the Offshore Wind industry.

> "The funding from OWGP allowed us to accelerate the development of our InterBolt technology to address the unique challenges of the Offshore Wind sector – a process we estimated to take two years instead took nine months. This has allowed us to maintain our competitive advantage over other solutions from Europe and the USA, as well as enabling us to achieve product sales in this rapidly growing industry."

DR JACK BRYAN HUGHLEIGH
Chief Technology Officer, Sedwell Limited

www.interbolt.co.uk

Offshore Wind Growth Partnership

Case Study: Napkin Innovation

Developing a suite of purpose-driven IP to support the green energy transition.

Business profile

- **Actively seeking ways to commercialise its existing intellectual property (IP).**
- **Winner of ScottishPower Renewables innovation competition seeing alternatives to grout for jacket installation**
- **Working with Kent plc and Strathclyde University the business is actively looking for additional joint industry project partners to scale the technology for offshore demonstration.**

Support received

GRANT FUNDING

The funding enabled Napkin (previously Cedeco) to work with the National Composite Centre and undertake a feasibility study exploring the use of composite materials in the design of its Non-Grouted Connector (NGC).

Over a three-month period, experts from the National Composite Centre assessed the use of different materials, design configurations, manufacturing methods and costs and concluding with a lite Life Cycle Analysis.

Impact of the support

- **Composite materials were found to be suitable for consideration as part of the design.**
- **Deeper understanding of optimal materials and manufacturing methods.**
- **LCA indicated the non-grouted connector could offer significant reductions in CO2 emissions.**

A closer look at Napkin

The majority of offshore wind turbines to date have been installed with monopile foundations, suitable for shallow waters. As shallow water sites become saturated, jacket foundations – those better suited to medium-depth water – are required.

The installation of jackets is time-consuming, expensive and achieving a quality joint in-field is difficult to do. Napkin's mechanical connector is entirely grout free. It offers a repeatable, reliable process to connect jacket to pile, reducing risk, time, cost, CO2 emissions and environmental impact. Developed and supported by industry sector experts, the design is often described as a' door wedge with extras' where the extras are the clever bits of engineering that ensure the loads are transferred properly and that the wedge stays in place.

The NGC will significantly cut the time, cost and carbon emissions linked to installing jacket foundations.

How did OWGP's support propel Napkin's business into the Offshore Wind sector?

Before

Prior to engaging with OWGP, Napkin was in the early stages of concept design of its Non-Grouted Connector (NGC). The company won the Scottish Power Renewables Innovation Competition in 2018 and was confident that using composites as part of the NGC's design would produce a lighter component which was easier to fabricate and handle. A lighter product that was cheaper to transport could also increase potential export opportunities. The technology was still at a very early stage of development and as composite materials hadn't necessarily been used in these conditions before, Napkin sought funding to undertake a feasibility study.

During

After securing funding through OWGP's grant funding programme, Napkin engaged the National Composite Centre (NCC) to undertake a feasibility study exploring the use of composites in the design of its NGC. The project began with a review of all previous modelling, with the NCC concurring with previous conclusions that a design using composite materials was feasible. Napkin and the NCC met on a weekly basis to discuss findings and develop the study, which resulted in the delivery of two reports – the first considering design and material selection, and the second a Life Cycle Analysis highlighting the carbon emission savings.

After

OWGP's support and the results from the work by the National Composite Centre, was instrumental in securing follow-on funding from the likes of DESNZ, the Net Zero Technology Centre's TechX and the EU. The business is currently part of the Offshore Renewable Energy Catapult's Launch Academy Programme.

Working with Kent plc and teams at Strathclyde University's AMRL, small-scale component testing will be completed over the summer of 2023. The potential to reduce the number of installation days and support carbon neutral goals is generating a great deal of interest in conversations with potential customers. The business is actively looking partners to support a joint industry project to scale the technology for offshore demonstration.

> "Working with OWGP, we got more than we bargained for – in a good way! The funding allowed us to access expertise at the National Composite Centre and the findings from that initial feasibility study have allowed us to go on and secure additional funding and partners to help develop and bring the solution to market."

JACQUELINE MORRISON
Director, Napkin Innovation Ltd.

www.napkininnovation.co.uk

Offshore Wind Growth Partnership

Case Study: Magnomatics

Magnomatics®

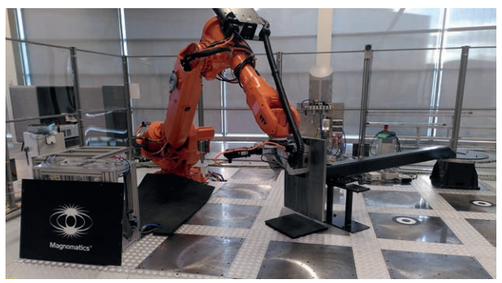
Leaders in magnetic gear box technology, Magnomatics is commercialising the next generation of direct drive generators.

Business profile

- **Historically focussed in oil and gas, now exploring innovative electrification opportunities across many sectors.**
- **Highly active in exploring commercial opportunities in Offshore Wind.**
- **Technology is licensed to a large global engineering business.**

Support received

GRANT FUNDING



OWGP grant funding support was used for Project ROBOMAG in collaboration with the Advanced Manufacturing Research Centre (AMRC). The project sought to optimise the manufacturing process for permanent magnet direct drive generators through the robotic placement of magnets on the rotor hub of wind turbines. This process can unlock significant safety and productivity improvements.

Impact of the support

- **Reduced time taken to pick and place magnets onto the rotor from 55 minutes to 55 seconds.**
- **Strengthened relationship with large industry partner for the next stage of development.**
- **Saving up to £15,000 per generator.**

A closer look at Magnomatics

Magnomatics' unique magnetic gear technology will deliver significant cost reductions in turbine operations and maintenance (O&M), supercharge the productivity of wind turbines and reduce the levelised cost of energy production by up to 3%.

At the heart of this innovative technology is Magnomatics' utilisation of magnetic gears. With no touching partners, the gearbox components do not wear out and fail. Magnomatics' gearboxes provide superior reliability, efficiency and turbine productivity.

Magnomatics is currently working with a large industry partner to develop the next generation of the machine for Offshore Wind application. This has led to significant investment in the technology's development which is in turn accelerating the commercialisation journey.

Increased life span and reliability of gearbox.

3% reduction in cost of energy production.

Reduction in O&M costs.

How did OWGP's support propel Magnomatics' business into the Offshore Wind sector?

Before

Magnomatics had previously secured funding from the EU and BEIS for projects which supported growth and development of UK content in Offshore Wind. These projects included the design, build and test of a Magnomatics Pseudo Direct Drive (PDD)® 500kW generator at ORE Catapult's Blyth facility, which is able to deliver a 3% reduction in the levelized cost of energy (LCOE).

Further support and investment was needed to take the PDD to multi-megawatt scale to meet the demands of the UK's burgeoning Offshore Wind sector. Through engaging with ORE Catapult, Magnomatics discovered the OWGP Pilot Funding Competition in 2019 and successfully secured funding to support the development of advanced manufacturing techniques to improve the productivity, reliability and safety of the manufacturing process.

During

The rare earth magnets used within the generator technology are very powerful and potentially dangerous if not handled properly. It was therefore a very time-consuming process to build the rotor, requiring bespoke tooling which was very expensive. These presented critical barriers to commercialisation.

Project ROBOMAG was established with the AMRC to explore the use of a robotic arm to pick, place and bond magnets to the rotor to increase manufacturing efficiency, improve reliability and maximise health and safety. The project successfully validated the process and exceeded expectations in terms of time saved.

After

The principal benefit to the company as a result of this support was reducing a 55 minute process to 55 seconds – a huge achievement with significant cost reduction potential.

Being able to demonstrate that this manufacturing process works has helped to strengthen the relationship between Magnomatics and its industrial partner and provides further confidence in Magnomatics' efficiency. This project has also enabled Magnomatics to cement its relationship with the AMRC and The Future Electric Machines Manufacturing Hub (Femm Hub) to continue its work in driving the electric revolution.

> "The ROBOMAG project was a major step forward for Magnomatics and our magnetic gear technology. We have already proven our technology in terms of performance. The ROBOMAG project demonstrated that a crucial aspect of manufacture was economically viable."

DAVID LATIMER
Deputy Chair, Magnomatics

www.magnomatics.com

Offshore Wind Growth Partnership

Case Study: Sheffield Forgemasters

SHEFFIELD FORGEMASTERS

Producers of ultra large, complex steel casting and forging solutions.

Business profile

- **Established in 1805, acquired by Ministry of Defence (MoD) in 2021.**
- **Well established in oil and gas, renewables, defence, nuclear, steel processing and petrochemical sectors.**
- **Looking to diversify into Floating Offshore Wind.**

Support received

GRANT FUNDING

BUSINESS TRANSFORMATION PROGRAMME – WEST

Sheffield Forgemasters undertook OWGP's foundation level business support programme, WEST. The business gained specialist market insight into the Floating Offshore Wind sector which highlighted opportunities for the business to enter the market.

Following the WEST programme, Sheffield Forgemasters also secured OWGP grant funding to undertake a feasibility study into manufacturing structural castings for Floating Offshore Wind platforms. The study identified the sector as a viable market and the company restructured its business development strategy accordingly.

Impact of the support

- **Detailed understanding of the Floating Offshore Wind market and how to target the sector.**
- **Series of recommendations made to the company's board, which secured full support.**
- **Restructuring of business resources to focus on the Offshore Wind market.**

A closer look at Sheffield Forgemasters

Sheffield Forgemasters has a long history in pioneering components for Offshore Wind including the production of cast nodes. The company has a dedicated research and development team experienced in designing the optimal cast or forged component for highly stressed areas of structures, improving longevity by increasing their fatigue resistance. These optimised castings help to reduce fabrication time, allowing for the high volume production that the floating structures market requires.

- Manufactured the world's first cast node in 1978.
- Manufacturers of the world's largest cast steel nodes.
- Developed an innovative steel support system for water depths of 20+ metres to support large turbines.

How did OWGP's support propel Sheffield Forgemasters's business into the Offshore Wind sector?

Before

Before engaging with OWGP, Sheffield Forgemasters had identified the Offshore Wind sector, particularly Floating Offshore Wind, as a new market for the business's castings products. The company was seeking clarity on an approach to diversification, with a view to restructuring its business development strategy to enter the Offshore Wind sector.

During

Sheffield Forgemasters first secured consultancy support through OWGP's business support programme, WEST. Through this programme, the business received one-to-one business support with market specialists to help the business deepen its understanding of the Floating Offshore Wind sector and recognise unique opportunities for Sheffield Forgemasters to enter the market.

Sheffield Forgemasters then successfully won grant funding from OWGP and used this to conduct a feasibility study into the manufacture of steel structural castings for Floating Offshore Wind platforms. The study focused on the viability of producing larger quantities of castings, which are smaller than the large, often bespoke, castings required in oil and gas structures.

After

A full assessment of the Floating Offshore Wind market enabled Sheffield Forgemasters to better understand the required cost improvements in serial production. The company restructured its business development strategy, bringing together relevant technical and commercial expertise to specifically target Floating Offshore Wind and now has dedicated resources for these new areas, focused on securing contracts in the field.

> "OWGP's business transformation programmes are a great asset to the UK supply chain and their funding was crucial in supporting Sheffield Forgemasters' ambitious growth plans for the Offshore Wind market."

DOMINIC ASHMORE
Head of Strategy and Business Development – Clean Energy, Sheffield Forgemasters

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Offshore Wind Growth Partnership

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Offshore Wind Growth Partnership

Funded by OffshoreWind IndustryCouncil

Delivered by CATAPULT Offshore Renewable Energy